LIVING Science











PLATFORM LMS LEARNING MANAGEMENT SYSTEM

Teacher's book

1

LIVING SCIENCE 1

Teacher's Guide

UNIT 1 · MY BODY



In this unit you will:

- Distinguish the parts of the body.
- Recognize the five senses and their functions.
- Relates actions to take care of our bodies.

UNIT 1

Unit focus

Students investigate the main parts of the body, the five senses and their functions, and everyday actions that help care for the body. The unit uses observation, movement, classification, discussion, model building, and age-appropriate scientific language.

Suggested pacing: 10 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 7–24 • Workbook pp. 153–157 • Unit Review Quiz p. 201

Contents

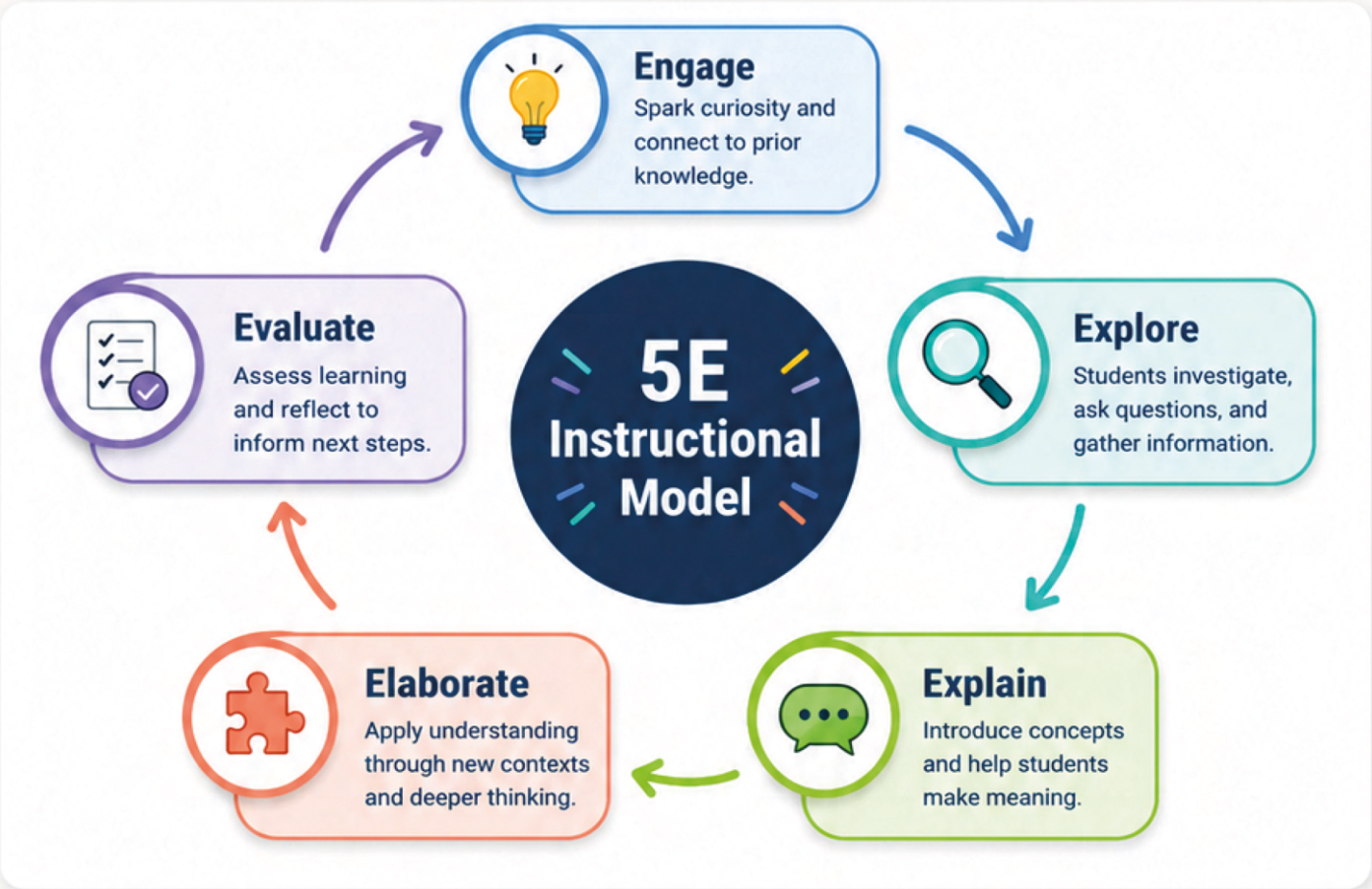
	Teaching framework	5E Instructional Model and Science Inquiry Skills
	Unit overview	Objectives, pacing, vocabulary, and lesson sequence
1.1	**Lesson 1.1**	What are the three main parts of the body?
1.2	**Lesson 1.2**	Functions of Body Parts and the Five Senses
1.3	**Lesson 1.3**	How to Take Care of Our Bodies
1.4	**Lesson 1.4**	Good Eating Habits and an Active Body
	Makerspace	My Body Playdough Activity
	Answer key	Student Book, Workbook, and Unit Review Quiz
	Resource bank	Videos and additional resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through simple questions, familiar materials, drawings, gestures, and oral language. The examples below are written for Unit 1.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What body parts can you see in the picture?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show and tell how you use your hands.
Classifying	Sorting objects or pictures by a shared characteristic.	Which pictures show the head, trunk, or limbs?
Comparing	Recognizing similarities and differences.	How are an arm and a leg alike? How are they different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The child is covering her ears. What might the sound be like?
Predicting	Anticipating what may happen based on evidence.	What might happen if we touch an ice cube for a short time?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use a mirror to observe our face?
Analyzing	Looking closely at information to identify relationships.	Which sense organ matches each sense?
Evaluating	Making a judgment based on criteria or evidence.	Does this routine help care for the body? Explain.
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways we can move our bodies safely?
Formulating a simple hypothesis	Stating an expected result before a test.	I think the mystery object feels rough because...

Unit 1 Overview: My Body

UNIT LEARNING OBJECTIVES

- Identify the three main body regions—head, trunk, and limbs—and name common body and face parts.
- Describe simple functions of selected body parts and explain how they help people complete everyday actions.
- Recognize the five sense organs and match each organ to its sense: sight, hearing, smell, taste, and touch.
- Use the senses safely to observe, compare, and describe familiar objects and experiences.
- Identify actions that help care for the body, including hygiene, drinking water, eating a variety of foods, being physically active, and getting enough rest.
- Create and explain a simple model of the human body using appropriate science vocabulary.

PRIMARY SCIENCE EMPHASIS

Students learn by observing, moving, sorting, discussing, drawing, and building a model. Oral language, pointing, gestures, and picture-based responses are valid evidence of understanding in Grade 1.

OVERVIEW OF LESSONS

LESSON	LEARNING OBJECTIVES	NUMBER OF PERIODS
1.1	**What are the three main parts of the body?** • Identify and label the head, trunk, upper limbs, lower limbs, and common body and face parts. • Describe how selected body parts help people move and perform everyday actions. • Use a drawing or simple model to communicate the location of body parts.	2
1.2	**Functions of Body Parts and the Five Senses** • Name the five sense organs and match each one to its sense. • Use the senses safely to make simple observations. • Compare and describe familiar objects using observable properties.	3
1.3	**How to Take Care of Our Bodies** • Recognize hygiene, exercise, hydration, and rest as habits that help care for the body. • Explain that washing hands helps reduce the spread of germs. • Sequence and demonstrate the main steps for washing hands correctly.	2
1.4	**Good Eating Habits and an Active Body** • Identify a variety of foods that help the body grow and stay active. • Classify familiar foods into the groups presented in the Student Book. • Explain that water, sleep, and physical activity support a healthy body.	3

UNIT VOCABULARY

head, trunk, limbs, arm, hand, leg, foot, face, eye, ear, nose, mouth, tongue, skin, sight, hearing, smell, taste, touch, sense organ, habit, hygiene, germs, wash, soap, rinse, dry, healthy food, food group, fruit, vegetable, grain, protein, dairy, water, sleep, exercise, physical activity, model, function

TEACHER PREPARATION

Print or prepare the Unit 1 flashcards, body-part picture cards, five-senses station materials, healthy-habit sequence cards, food-group pictures, and Makerspace supplies. Review allergies, sensory needs, mobility needs, hygiene procedures, and school policies before hands-on activities.

UNIT OVERVIEW & PACING GUIDE

A VISUAL MAP OF THE UNIT

1.1 2 | 1.2 3

LESSON 1.1

2 PERIODS

LEARNING OBJECTIVES

Identify head, trunk, and limbs; label common body and face parts; connect parts to actions.

INQUIRY SKILLS

Observing, communicating, classifying, comparing

VOCABULARY

head, trunk, limbs, face, arm, hand, leg, foot

RESOURCES

Student Book pp. 7–11; Workbook p. 153

LESSON 1.2

3 PERIODS

LEARNING OBJECTIVES

Match the five sense organs to the five senses; make safe observations; describe familiar objects.

INQUIRY SKILLS

Observing, communicating, comparing, classifying, inferring

VOCABULARY

eyes, ears, nose, tongue, skin, sight, hearing, smell, taste, touch

RESOURCES

Student Book pp. 12–17; Workbook pp. 154–155

UNIT AT A GLANCE

10 **PERIODS**
approximately 40 minutes each

+1 **OPTIONAL MAKERSPACE**

1.3 2	1.4 3	MAKERSPACE OPT.

LESSON 1.3

2 PERIODS

LEARNING OBJECTIVES

Recognize hygiene, hydration, movement, and rest as healthy habits; sequence handwashing steps.

INQUIRY SKILLS
Observing, communicating, analyzing, evaluating

RESOURCES
Student Book pp. 18–19; Workbook p. 156

VOCABULARY
habit, hygiene, germs, wash, soap, rinse, dry, exercise, rest

LESSON 1.4

3 PERIODS

LEARNING OBJECTIVES

Identify varied foods; classify food examples; explain the roles of water, sleep, and physical activity.

INQUIRY SKILLS
Observing, communicating, classifying, comparing, evaluating

RESOURCES
Student Book pp. 20–23; Workbook p. 157; Quiz p. 201

VOCABULARY
food group, nutrients, fruit, vegetable, grain, protein, dairy, water, sleep, exercise

MAKERSPACE

1 OPTIONAL PERIOD

LEARNING OBJECTIVES

Build and explain a model that includes head, trunk, arms, and legs.

INQUIRY SKILLS
Observing, communicating, using equipment, generating possibilities, evaluating

RESOURCES
Student Book p. 24; playdough and safe connectors

VOCABULARY
model, connect, body part, function

1.1 What are the three main parts of the body?

LESSON 1.1 | DURATION: 2 PERIODS

LEARNING OBJECTIVES

- Identify and label the head, trunk, upper limbs, lower limbs, and common body and face parts.
- Describe how selected body parts help people move and perform everyday actions.
- Use a drawing or simple model to communicate the location of body parts.

SCIENCE INQUIRY SKILLS

Observing, communicating, classifying, comparing, analyzing, generating possibilities

VOCABULARY

head, trunk, limbs, upper limbs, lower limbs, face, hair, forehead, eye, ear, nose, mouth, chin, neck, chest, back, shoulder, stomach/abdomen, waist, arm, hand, leg, knee, foot

SCIENCE AND PEDAGOGY NOTE

Use "limbs" as the science term for arms and legs. Teach the trunk as the central body region that includes the chest, abdomen/stomach area, back, shoulders, and waist. Use inclusive language: bodies may move and function in different ways, and students may use tools or mobility supports.

5E	LESSON	RESOURCE(S) AND MATERIAL(S)
ENGAGE (10 MIN)	*(Science inquiry skills: observing, communicating)* **Primary science emphasis:** Begin with movement and observation. Accept oral answers and gestures before expecting written labels. **Background:** Children know many body-part words from daily life, songs, and movement. This lesson organizes that prior knowledge around the three main body regions: head, trunk, and limbs. **Unit opener** • Display Student Book p. 7. Invite students to look at the people in the photograph and answer: "What body parts can you see?", "What body parts can't you see?", and "How do we use our body parts?" Accept pointing, gestures, one-word answers, or complete sentences. • Play "Mirror Me." The teacher slowly touches the head, shoulders, arms, stomach, knees, and feet. Students copy each movement and say the word when they can. **What's in this lesson? What will I learn?** • I can identify the head, trunk, and limbs. • I can name body parts and tell what some of them help me do. **Teaching Tip:** Model the language with gestures before asking students to speak. Keep new vocabulary visible on a picture word wall. **UDL Strategies** • Offer visual, spoken, and movement-based prompts. • Allow students to respond by pointing, acting, drawing, or speaking. • Use a seated version of each movement when needed.	• Student Book p. 7 — Unit opener • Jack Hartmann: Body Parts and Movement — U.S. body-parts segment and invite students to move as they listen • Mirror or picture cards — Teacher-prepared
EXPLORE (25 MIN)	*(Science inquiry skills: observing, classifying, comparing, communicating)* **Activity 1: Life-size body outline** • In pairs, one student lies on a large sheet of paper while the partner and teacher trace a safe outline, or use a preprinted body silhouette. Students place picture-word cards on the head, trunk, arms, hands, legs, and feet. **Activity 2: Sort the parts** • Give each group cards showing body parts. Students sort them under HEAD, TRUNK, UPPER LIMBS, and LOWER LIMBS. Read the labels aloud and check together. **Activity 3: Draw yourself** • Students complete the drawing activity on Student Book p. 7. Ask them to include a head, trunk, arms, and legs.	• Student Book p. 7 — Self-portrait activity • Large paper or body silhouette — One per pair or group • Body-part cards and labels — Head, trunk, upper limbs, lower limbs • Crayons, tape, scissors

5E	LESSON (CONTINUED)	RESOURCE(S) AND MATERIAL(S)
EXPLAIN (20 min)	*(Science inquiry skills: observing, analyzing, communicating)* • Guide students through Student Book pp. 8–9. Explain that the body has many parts, but the three main regions are the head, trunk, and limbs. • Head: the upper part of the body; it includes the face, hair, eyes, ears, nose, and mouth. • Trunk: the middle part of the body; it includes the chest, stomach/abdomen, back, shoulders, and waist. • Limbs: the arms and legs. Arms are upper limbs; legs are lower limbs. Create a class anchor chart with a simple body outline. Add labels as students identify each part. Then read the labels on Student Book p. 11 and compare them with the class chart. **Language frames** • "This is my _____." • "I use my _____ to _____." • "The _____ is part of the head/trunk/limbs." **Teaching Tip:** Use "limbs" as the science word, while also saying "arms and legs" so first graders understand the term. **UDL Strategies** • Read the page aloud while pointing to each illustration. • Repeat vocabulary with gestures and choral response. • Provide a reduced word bank for students who need fewer choices.	• Student Book pp. 8–9 and 11 — Body and face diagrams • Class anchor chart — Body outline and labels
ELABORATE (15 min)	*(Science inquiry skills: communicating, generating possibilities, observing)* **Body-Part Action Stations** • Set up four stations: HEAD, TRUNK, UPPER LIMBS, and LOWER LIMBS. At each station, students choose an action card and demonstrate a safe movement. • Head: look left/right, blink, smile. • Trunk: bend gently, turn the shoulders, sit tall. • Upper limbs: wave, reach, pretend to write or throw. • Lower limbs: march, tiptoe, step side to side. • After rotating, each group selects one action and completes the sentence: "We use our _____ to _____." Students may say, draw, or act out the answer. • Optional extension: Play the body-part quiz video and pause before each answer so students can point to or touch the named part. **UDL Strategies** • Offer standing and seated movement choices. • Use visual action cards and verbal directions together. • Let students demonstrate learning through movement instead of writing when appropriate.	• Action cards - Safe movements for each body region Learn Parts of the Body with Miss V | Fun and Easy Anatomy for Kids! Open classroom space - Check safety and accessibility
EVALUATE (10 min)	*(Science inquiry skills: analyzing, evaluating, communicating)* • Use a combination of observation, oral response, and book activities. • Student Book p. 10: Circle situations that use the lower limbs and draw another activity done with the legs. • Student Book p. 11: Draw and label body parts. • Workbook p. 153: Identify and match body and face parts. • Exit ticket: Point to or name one part of the head, one part of the trunk, and one limb. **Formative checklist** • Identifies the head, trunk, and limbs. • Names at least four common body parts. • Connects one body part to a simple function. **UDL Strategies** • Accept pointing, matching, acting, drawing, or oral responses. • Reduce the number of labels or provide two picture choices when needed. • Allow students to complete the task with a peer or teacher prompt.	• Student Book pp. 10–11 — Evaluation activities • Workbook p. 153 — Body and face parts • Teacher observation checklist — Three criteria

LESSON 1.1 | DURATION: 2 PERIODS

5E	EXTENSIONS AND SUPPORT	RESOURCE(S) AND MATERIAL(S)
ADDITIONAL ACTIVITY *(Science inquiry skills: observing, communicating, analyzing)*	Play "Body-Part Detective." Give a clue such as "This part helps me hear" or "These parts help many people walk." Students point to the part, hold up the correct flashcard, or give another reasonable function.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
ENRICHMENT FOR ADVANCED LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	Ask students to classify the same body part in more than one way—for example, the hand is part of an upper limb and also contains fingers used for grasping. Students create two clues for a partner.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
REINFORCEMENT FOR STRUGGLING LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	Use only three large labels—HEAD, TRUNK, LIMBS—on a body outline. Add arms and legs after students master the three regions. Accept matching and pointing before verbal naming.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.

5E	LESSON (CONTINUED)	RESOURCE(S) AND MATERIAL(S)
EXPLAIN (30 MIN)	*(Science inquiry skills: observing, analyzing, communicating)* • Use Student Book pp. 12–17 to teach the sensory organs and their functions: – Eyes — sight: help us see colors, shapes, people, words, and movement. – Ears — hearing: help us hear voices, music, and sounds that may be loud/quiet or high/low. – Nose — smell: helps us notice odors and also supports our experience of flavor. – Tongue — taste: helps us notice tastes such as sweet, salty, sour, and bitter. – Skin — touch: helps us feel temperature, texture, shape, pressure, and pain. • Build a two-column class chart: SENSORY ORGAN / SENSE. Add one real-life example for each pair. **Science Accuracy Note:** Do not teach a strict 'tongue map." Different areas of the tongue can detect the main tastes; some areas may be more sensitive than others. **Language frames** • "I use my _____ to _____." • "The object looks/sounds/smells/feels _____." • "I used sight and touch to _____." **UDL Strategies** • Use icons, real objects, read-aloud, and repeated gestures. • Preteach describing words with examples. • Provide sentence frames and oral rehearsal before writing.	• Student Book pp. 12–17 — Sensory organs and functions • Your Body's Senses | SciShow Kids Compilation • Miss V Teaching the 5 Senses • Five-senses station materials — Safe, familiar objects only
ELABORATE (25 MIN)	*(Science inquiry skills: comparing, inferring, communicating)* **Mystery Object Challenge** • Give each pair a safe object such as a pinecone, spoon, cotton ball, toy block, or orange. Students examine it and complete a five-senses organizer. They should only use senses that are safe and appropriate. – What can you see? – What can you hear when you tap or shake it? – What can you smell? – What does it feel like? – Should it be tasted? Why or why not? • Then students create a "Five Senses Wheel" with five flaps. Under each flap, they draw one object they can observe with that sense. • Optional sensory walk: Walk quietly around the school and collect one observation for sight, hearing, smell, and touch. Taste is not used during the walk. **UDL Strategies** • Let students choose their object and mode of recording. • Use partner scribing or speech-to-text if available. • Provide a completed model and a partially completed organizer.	• Five Senses Wheel template — Teacher-prepared • Safe mystery objects — Avoid sharp, breakable, or allergenic items
EVALUATE (15 MIN)	*(Science inquiry skills: analyzing, evaluating, communicating)* • Students demonstrate understanding through book tasks and a short performance check. • Student Book pp. 13–16: Complete the picture-based evaluation activities for sight, smell, hearing, and touch. • Student Book p. 17: Label the five senses and answer which senses are used when playing the piano. • Workbook pp. 154–155: Match sensory organs, senses, and examples; answer simple application questions. • Oral check: Show an object or action card. Students raise the correct sense/organ card and explain one reason. **Formative checklist** • Names all five senses. • Matches at least four sensory organs to the correct sense. • Uses one describing word based on an observation. **UDL Strategies** • Use picture choices, matching, oral answers, and demonstration. • Allow extra processing time and repeat directions with icons. • Never require participation in uncomfortable sensory activities.	• Student Book pp. 13–17 — Picture-based evaluation • Workbook pp. 154–155 — Five senses practice • Sense and organ cards — Oral/performance check

5E	EXTENSIONS AND SUPPORT	RESOURCE(S) AND MATERIAL(S)
ADDITIONAL ACTIVITY *(Science inquiry skills: observing, communicating, analyzing)*	**Mystery Bag Challenge:** Students use touch only to describe a safe object, then make a prediction. Reveal the object and discuss which observations supported the prediction.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
ENRICHMENT FOR ADVANCED LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	**Ask students to explain** why people often use more than one sense at the same time. Students choose an activity such as eating, playing music, or crossing a street and identify two or three senses involved.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
REINFORCEMENT FOR STRUGGLING LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	**Teach one organ–sense pair** at a time with a real action: eyes–see, ears–hear, nose–smell, tongue–taste, skin–touch. Use a five-card matching mat and reduce choices to two.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

1.3 How to Take Care of Our Bodies

LESSON 1.3 | DURATION: 2 PERIODS

LEARNING OBJECTIVES

- Recognize hygiene, exercise, hydration, and rest as habits that help care for the body.
- Explain that washing hands helps reduce the spread of germs.
- Sequence and demonstrate the main steps for washing hands correctly.

SCIENCE INQUIRY SKILLS

Observing, communicating, analyzing, evaluating, generating possibilities

VOCABULARY

habit, hygiene, germs, wash, soap, wet, lather, scrub, rinse, dry, clean clothes, brush teeth, bath, exercise, water, rest, sleep

SCIENCE AND PEDAGOGY NOTE

Teach handwashing as wet, lather, scrub for at least 20 seconds, rinse, and dry. The Student Book says to brush and floss three times a day, current American Dental Association guidance generally recommends brushing for two minutes twice a day with fluoride toothpaste and following individualized dental advice.

5E	LESSON	RESOURCE(S) AND MATERIAL(S)
ENGAGE (10 MIN)	*(Science inquiry skills: observing, communicating, inferring)* **Primary science emphasis:** Connect healthy habits to cause and effect: clean hands reduce germ spread, exercise strengthens the body, and rest supports growth. **Background:** First graders are developing daily routines. Connecting health habits to familiar situations helps them understand that caring for the body is a repeated practice, not a one-time action. • Show a puppet or picture character getting ready for school. Include several mixed-up choices: clean clothes, unbrushed teeth, no breakfast, washed hands, very little sleep, and active play. • Ask students to show thumbs up, sideways, or down for each choice. Discuss: "Which habits help the character?", "Which choice should change?", and "What do you do to care for your body?" **What's in this lesson? What will I learn?** • I can identify habits that keep my body clean and healthy. • I can show the steps for washing my hands. **UDL Strategies** • Use pictures and gestures instead of relying only on verbal explanations. • Allow private reflection; do not ask students to disclose personal hygiene difficulties. • Use neutral, supportive language and avoid shaming.	• Student Book p. 18 — Healthy body and hygiene habits • Routine picture cards or puppet — Mix helpful and unhelpful choices • Good/Needs Change cards — Visual response options
EXPLORE (20 MIN)	*(Science inquiry skills: observing, analyzing, communicating)* • **Activity 1: How germs can spread** — Place a small amount of washable glitter gel or lotion on the teacher's hand and safely demonstrate how it transfers to a few classroom objects. Discuss that germs are too small to see, but they can spread when we touch things. • **Activity 2: Handwashing sequence** — Students work in groups to order picture cards: wet, get soap, lather/scrub, rinse, and dry. Practice the motions away from the sink first, then demonstrate at a sink when possible. • **Activity 3: Habit sort** — Sort picture cards under KEEP MY BODY CLEAN, HELP MY BODY GROW, and HELP MY BODY MOVE/REST. Some actions may belong in more than one group. **UDL Strategies** • Use large sequence cards and tactile symbols. • Allow students to direct a partner rather than perform all motions. • Provide a quiet practice location for students who need reduced stimulation.	• Handwashing sequence cards — Wet, soap, scrub, rinse, dry • Wash My Hands | Jack Hartmann • Keeping Fit and Staying Healthy | Next Generation Science • Soap, water, towel, toothbrush model, and hygiene picture cards

5E	LESSON (CONTINUED)	RESOURCE(S) AND MATERIAL(S)
EXPLAIN (20 MIN)	*(Science inquiry skills: analyzing, communicating)* • Read and discuss Student Book p. 18. Explain that habits are actions we do regularly. • Healthy habits include: • Washing hands at important times, especially after using the toilet and before eating. • Bathing or showering and wearing clean clothes. • Brushing teeth regularly according to family and school health guidance. • Eating varied foods, drinking water, sleeping, exercising, and enjoying safe recreation. • Model the handwashing steps and explain that hands should be scrubbed with soap for at least 20 seconds. Use a short classroom timer or a familiar 20-second chant. • Create a Healthy Habits web with four branches: HYGIENE, FOOD/WATER, MOVEMENT, and REST. **Teaching Tip** Focus on what students can do. Avoid labeling children or families as "clean" or "dirty." Health routines can vary because of culture, resources, or individual needs. **UDL Strategies** • Use photo steps, demonstration, oral explanation, and repeated practice. • Provide visual schedules for personal-care routines. • Use first/then language: "First wash, then eat."	• Student Book p. 18 — Hygiene and healthy habits • Homeschool Pop: Personal Hygiene — select a short American-English segment • Teacher-prepared handwashing sequence poster — Display wet, soap, scrub, rinse, and dry near the sink.
ELABORATE (15 MIN)	*(Science inquiry skills: generating possibilities, communicating)* **My Healthy Day** • Students create a four-part routine strip: MORNING, SCHOOL, AFTERNOON, and NIGHT. In each section, they draw or paste one healthy action. Suggested examples: brush teeth, wash hands before eating, drink water, play actively, bathe, and sleep. • In pairs, students role-play one situation: • Getting ready to eat lunch. • Coming inside after playing outdoors. • Getting ready for bed. • Sneezing or coughing safely into the elbow and then cleaning hands. • Students complete the sentence: "I take care of my body when I _____." **UDL Strategies** • Offer drawing, cut-and-paste, acting, or oral recording options. • Provide a bank of routine pictures and sentence starters. • Allow students to choose a routine that is comfortable and relevant to them.	• Routine-strip template — Morning, school, afternoon, night • Habit picture cards — Hygiene, water, movement, rest • Crayons, glue, scissors — Child-safe materials
EVALUATE (15 MIN)	*(Science inquiry skills: evaluating, communicating)* • Students complete the picture evaluation on Student Book p. 19 by coloring the actions that show appropriate care of the body. • Workbook p. 156: Complete the hygiene/healthy-habit activities. • Performance task: Put the five handwashing cards in order and demonstrate the motions. • Exit choice: Draw one healthy habit or complete the sentence "I keep my body healthy by _____." **Formative checklist** • Recognizes at least three healthy-body habits. • Sequences the main handwashing steps. • Explains when one hygiene habit should be used. **UDL Strategies** • Accept sequencing, pointing, acting, drawing, or speaking. • Assess with the picture cards before requiring written output. • Use verbal prompts or a model for students who need support.	• Student Book p. 19 — Picture-based evaluation • Workbook p. 156 — Healthy-habit practice • Handwashing performance checklist — Sequence and explanation

1.3 When should we wash our hands?

LESSON 1.3 | DURATION: 2 PERIODS

5E	EXTENSIONS AND SUPPORT	RESOURCE(S) AND MATERIAL(S)
ADDITIONAL ACTIVITY *(Science inquiry skills: observing, communicating, analyzing)* 	**Germ Transfer Demonstration:** Put a small amount of washable glitter lotion on the teacher's hand, shake hands with two volunteers, and observe how it spreads. Wash thoroughly afterward. Do not use this activity with students who have skin sensitivities.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
ENRICHMENT FOR ADVANCED LEARNERS *(Science inquiry skills: observing, communicating, analyzing)* 	Students design a picture reminder for one key moment to wash hands and explain why that moment matters.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
REINFORCEMENT FOR STRUGGLING LEARNERS *(Science inquiry skills: observing, communicating, analyzing)* 	Provide five handwashing picture cards and a matching strip. Model the sequence several times. Let students act out the steps without water before completing a book task.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.

1.4 Good Eating Habits and an Active Body

LESSON 1.4 | DURATION: 3 PERIODS

LEARNING OBJECTIVES

- Identify a variety of foods that help the body grow and stay active.
- Classify familiar foods into the groups presented in the Student Book.
- Explain that water, sleep, and physical activity support a healthy body.

SCIENCE INQUIRY SKILLS

Observing, communicating, classifying, comparing, analyzing, evaluating, generating possibilities

VOCABULARY

nutrients, food group, fruit, vegetable, grain, bread, rice, pasta, protein, meat, dairy, water, healthy choice, variety, physical activity, exercise, sleep

SCIENCE AND PEDAGOGY NOTE

Use "everyday choices" and "foods to eat less often" rather than labeling people or foods as good or bad.
Workbook p. 157 repeats the label "Bread"; one of those sections should be Protein/Meat.
Use culturally familiar foods, consider allergies and medical diets, and emphasize variety and water.

5E	LESSON	RESOURCE(S) AND MATERIAL(S)
ENGAGE (10 MIN)	*(Science inquiry skills: observing, comparing, communicating)* **Primary science emphasis:** Focus on variety, whole or minimally processed foods, water, movement, and rest. Avoid using food labels to shame children or families. **Background:** Children make food, drink, rest, and movement choices every day. This lesson emphasizes variety, balance, water, sleep, and physical activity rather than labeling foods or people as "good" or "bad." • Display two picture lunchboxes. One contains several food groups and water; the other contains only one type of snack and a sugary drink. • Ask: "What do you notice?", "Which lunch gives the body more variety?", and "What could we add?" • Use a quick movement break: students act out drinking water, stretching, sleeping, running, and eating a fruit. Ask which actions help the body grow, move, and rest. **What's in this lesson? What will I learn?** • I can identify foods that help my body grow and stay healthy. • I can explain why my body needs water, sleep, and movement. **UDL Strategies** • Use culturally varied food pictures and avoid assuming what students eat at home. • Allow students to observe, point, sort, or speak. • Provide seated or standing movement options.	• Student Book p. 20 — Good eating habits • Two lunchbox picture sets — Include water and varied foods • Movement cards — Drink, stretch, sleep, play, eat
EXPLORE (35 MIN)	*(Science inquiry skills: classifying, comparing, communicating)* • **Activity 1: Food picture sort** — Give groups a variety of food pictures. Students first sort them by the categories used in the textbook. Then they build a simple balanced plate that includes several food groups and water. Use culturally familiar foods and accept more than one reasonable meal combination. • **Activity 2: Build a balanced plate** — Students choose picture foods to build a meal with variety. Encourage several colors and more than one food group. Ask students to add a drink and explain why water is a strong everyday choice. • **Activity 3: Healthy routine corners** — Label four corners WATER, FOOD, MOVEMENT, and SLEEP. Read a simple scenario; students point to or move toward the corner that best helps the character. **UDL Strategies** • Use real packages, plastic foods, or large picture cards. • Provide fewer categories or color-coded mats when needed. • Allow students to build a plate digitally or by pointing while a partner places the cards.	• Food picture cards — Use culturally inclusive examples • Paper plates or plate mats — One per student or pair • U.S. Dietary Guidelines: Real Food — Current U.S. teacher background and food visuals

5E	LESSON (CONTINUED)	RESOURCE(S) AND MATERIAL(S)
	UDL Strategies • Use real packages, plastic foods, or large picture cards. • Provide fewer categories or color-coded mats when needed. • Allow students to build a plate digitally or by pointing while a partner places the cards.	
EXPLAIN (30 MIN)	*(Science inquiry skills: analyzing, communicating)* • Guide students through Student Book pp. 20–23. • Healthy eating habits: eat a variety of foods, include fruits and vegetables, drink water, and wash produce before eating. • Food groups help us organize foods with similar nutrients. Different groups help the body in different ways. • Some foods provide more vitamins, minerals, fiber, or protein; foods high in added sugar, salt, or unhealthy fats are choices to eat less often. • The body also needs sleep, water, and physical activity to grow, feel well, and stay strong. Use simple function statements: "Food gives energy," "Water helps the body work," "Sleep helps the body rest and grow," and "Exercise strengthens the body." **Science Accuracy Note:** The textbook presents a five-group plate model. Use it to discuss variety rather than exact portions. Current U.S. guidance emphasizes whole or minimally processed foods, vegetables and fruits, protein foods, dairy, whole grains, and water. Adapt examples to local foods, family culture, allergies, and school policy. **Teaching Tip:** Use "everyday choices" and "foods to eat less often" instead of moral labels. Consider allergies, medical diets, culture, and food availability. **UDL Strategies** • Use photographs, real food packages, read-aloud, and a large plate visual. • Provide sentence frames: "My body needs _____ because _____." • Allow students to explain with pictures, gestures, or oral language.	• Student Book pp. 20–23 – Eating habits, food groups, healthy choices, active body • Food Groups for Kids • I Learn about the five food groups and their benefits • Discover MyPlate: Reach for the Sky! • USDA Team Nutrition • Keeping Fit and Staying Healthy! • Next Generation Science
ELABORATE (30 MIN)	*(Science inquiry skills: generating possibilities, communicating)* **Choice A: Design a Healthy Lunchbox** • Students draw or paste a meal that includes at least three food groups and water. They label or orally name the foods and complete: "This meal helps my body because _____." **Choice B: Food Critic** • Using a safe new fruit or vegetable, students observe its color, smell, texture, and taste and rate it with smiley faces. Complete this activity only with permission and allergy checks. **Choice C: My Active Week** • Students draw one way they can move each day. Include accessible choices such as dancing with arms, stretching, rolling a ball, walking, wheeling, or playground games. • End with a class "Healthy Body Promise": each student chooses one realistic action for the week, such as drinking water, washing hands before lunch, or moving for play. **UDL Strategies** • Offer three project formats and multiple ways to participate. • Provide food stickers, pre-cut pictures, or digital drag-and-drop pieces. • Respect students who cannot taste a food or perform a particular movement.	• Teacher-prepared food-group picture cards – Use familiar foods from students' communities. • Lunchbox or plate template — Draw or cut-and-paste • Activity calendar — One week; inclusive movement options
EVALUATE (15 MIN)	*(Science inquiry skills: classifying, evaluating, communicating)* • Use the textbook, workbook, and a short application task. • Student Book p. 22: Cross out foods to eat less often and color the everyday healthy choices shown. • Student Book p. 23: Complete the sentences with water, sleep, and exercise; draw one daily activity. • Workbook p. 157: Sort food examples into the corresponding categories. • Unit Review Quiz p. 201: Complete selected Unit 1 questions. • Application card: Complete one prompt about food, water, or movement. **Formative checklist** • Identifies at least three varied nutritious foods. • Explains one reason the body needs water, sleep, or movement. • Builds or describes a meal with food variety. **UDL Strategies** • Offer picture sorting, oral response, drawing, or sentence completion. • Read directions and answer choices aloud. • Use fewer pictures or pre-sorted categories when needed.	• Student Book pp. 22–23 — Evaluation activities • Workbook p. 157 — Food-group sorting • Unit Review Quiz p. 201 — Selected Unit 1 items
ADDITIONAL	*(Science inquiry skills: observing, communicating, analyzing)*	Teacher-prepared cards,

5E	EXTENSIONS AND SUPPORT	RESOURCE(S) AND MATERIAL(S)
ADDITIONAL ACTIVITY *(Science inquiry skills: observing, communicating, analyzing)*	**Healthy Plate Gallery:** Pairs build different meals from picture cards. During the gallery walk, students name one food group and one healthy-body need shown in each meal.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
ENRICHMENT FOR ADVANCED LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	**Students compare two meals** and explain which has more variety. Ask them to improve one meal by adding a food group or water.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
REINFORCEMENT FOR STRUGGLING LEARNERS *(Science inquiry skills: observing, communicating, analyzing)*	**Use three broad sorting mats** first: plants, animal foods, and grains. Then connect the cards to the textbook categories. Provide color-coded group labels and a completed example.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

MAKERSPACE · MY BODY PLAYDOUGH ACTIVITY

Suggested time: 1 period (40 minutes). Students construct a model of the human body and use it to identify the head, trunk, and limbs and explain selected functions.



SAFETY NOTE

Short paper straws, craft-stick pieces, or uncooked pasta are safer connector alternatives to toothpicks. Follow school policy and supervise all connector use.

Stage	Lesson Notes	Resources
Engage	*(Science inquiry skills: observing, communicating)* • Ask: "How can we build a person using simple materials?" Display Student Book p. 24 and review the three main body regions. • Students point to the head, trunk, arms, hands, legs, and feet on their own bodies or on the book image.	• Student Book p. 24 — Project page
Explore	*(Science inquiry skills: observing, using equipment, comparing)* • Students examine playdough and connectors and test how to join two pieces without the model falling apart. • Compare connector choices: toothpicks, short paper straws, craft-stick pieces, or uncooked pasta. Select the safest option for the class.	• Playdough — Multiple colors optional • Connectors — Paper straws or craft sticks are safer alternatives to toothpicks
Explain	*(Science inquiry skills: communicating, analyzing)* • Model a plan before building: make the trunk first, then the head, arms, and legs. Demonstrate safe connector use and explain that connectors are tools, not toys. • Review the success criteria using picture icons: complete parts, connected parts, correct names, and clear explanation.	• Picture success criteria — Display throughout the project
Elaborate	*(Science inquiry skills: generating possibilities, using equipment, communicating)* • Students build individually or in pairs. After the main figure is complete, they may add eyes, ears, nose, mouth, hands, or feet. • Students prepare a short presentation: "This is the head. These are the limbs. I use my hands to hold things. I use my legs to walk."	• Modeling mats — Optional outline for support • Labels or flags — Head, trunk, limbs
Evaluate	*(Science inquiry skills: evaluating, communicating)* • Conduct a gallery walk. Each student points to the head, trunk, and limbs on the model and explains two functions. • Use the checklist below. Peer feedback may use two prompts: "I noticed..." and "I learned..."	• Project checklist — Teacher observation and student self-check

Project evaluation checklist

Criteria	Outstanding	Very Good	Keep Practicing
The model includes a head, trunk, two arms, and two legs.	☐	☐	☐
The main body parts are connected securely.	☐	☐	☐
The student correctly identifies the head, trunk, and limbs.	☐	☐	☐
The student explains at least two functions of body parts.	☐	☐	☐
The student uses materials safely and participates responsibly.	☐	☐	☐

Answers to Student Book Questions

- **Unit opener, p. 7**
  Answers will vary. Visible body parts may include the head, face, arms, hands, legs, and feet. Parts that cannot be seen may include the heart, lungs, bones, muscles, and other internal organs.
- **Student Book p. 10**
  Circle examples that clearly use the lower limbs, such as playing volleyball, using a hula hoop, riding a horse, running, and jumping. Accept other reasonable examples when students explain how the legs or feet are involved. Drawings will vary.
- **Student Book p. 11**
  Drawings and labels will vary. Expected labels may include head, eyes, ears, nose, mouth, arms, hands, legs, and feet. Arms help us reach, hold, carry, push, pull, throw, and write.
- **Student Book p. 13**
  Color the child who is looking at or reading the tablet/book. The eyes are the sense organs for sight.
- **Student Book p. 14**
  Color the popcorn and the dog as objects that produce an odor. The rainbow cannot be smelled.
- **Student Book p. 15**
  Circle the drum and the piano. The teddy bear does not produce a sound by itself.
- **Student Book p. 16**
  Scientifically, all three pictured objects can be touched. For a safety-focused classroom response, color the ball and backpack and discuss why touching a cactus may hurt because of its spines.
- **Student Book p. 17**
  Playing the piano mainly uses hearing and touch; sight is also commonly used. Labels: nose—smell; eye—sight; tongue—taste; ear—hearing; hand/skin—touch.
- **Student Book p. 19**
  Color the pictures that show running/exercise, brushing teeth or washing at the sink, bathing, and eating fruit with milk/water. Do not color the oversized doughnut or long sedentary screen-time example.
- **Student Book p. 22**
  As intended by the page, color the eggs and cheese and cross out the hot dog and hamburger. Use the activity to discuss ingredients, variety, and frequency rather than calling a person or food "bad."
- **Student Book p. 23**
  1. exercise 2. water 3. sleep. Drawings will vary.
- **Makerspace p. 24**
  Models will vary. The figure should include a head, trunk, two arms, and two legs. Students should correctly identify the main regions and explain at least two functions.

Answers to Workbook Questions

- **Workbook p. 153, Activity 1**
  Labels: head, neck, chest, stomach, arm, leg, foot.
- **Workbook p. 153, Activity 2**
  Match each word to the corresponding face part: hair, eye, ear, mouth, eyebrow, nose, cheek, teeth.
- **Workbook p. 154, Activity 3**
  David and Luis use their legs and feet to kick the soccer ball.
- **Workbook p. 154, Activity 4**
  Girl looking—see; boy eating/tasting—taste; girl smelling the flower—smell; child listening—hear; child holding/touching the ball—touch.

Answers to Workbook Questions

Workbook p. 155, Activity 5

Answers may include: keep ears clean on the outside, avoid very loud sounds, lower headphone volume, and never put objects inside the ear.

Workbook p. 155, Activity 6

Taste and smell are the two main senses expected when eating. Sight and touch may also be used and can be accepted with an explanation.

Workbook p. 155, matching

Eye—glasses; nose—flower; tongue—ice cream; ear—guitar; hand/skin—teddy bear.

Workbook p. 156, Activity 7

Bathing/showering—5; washing hands at the sink—4; eating dinner—2; exercising/running—3; sleeping—6; drinking milk—1.

Workbook p. 157

The repeated "Bread" label is an editorial error. Use these intended groups: Fruits—watermelon and kiwi; Grains/Bread—loaf and croissant; Vegetables—tomatoes, broccoli, bell pepper, and peas; Protein/Meat—chicken; Dairy—cheese. Tomato may be discussed as a botanical fruit but is commonly grouped with vegetables in food guides.

Unit Review Quiz, p. 201

Part 1: 1. b) arm 2. b) eyes 3. b) by brushing my teeth 4. a) apple

Part 2: Eyes—Help you see. Ears—Help you hear. Legs—Help you walk and run. Hands—Help you hold and write.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative.

Topic	Resource	Teacher use	Direct video link
Body parts and movement	Right Here | Jack Hartmann	Pause so students can point to or move the named body part.	Right Here | Jack Hartmann
Body parts	Learn Parts of the Body with Miss V	Pause so students can point, name, and tell how each body part is used.	Learn Parts of the Body with Miss V
Five senses	Your Body's Senses | SciShow Kids	Use selected clips to introduce the five traditional senses.	Your Body's Senses | SciShow Kids
Five senses	Miss V Teaching the 5 Senses	Use as a short introduction or review of the five senses.	Miss V Teaching the 5 Senses
Handwashing	Wash My Hands | Jack Hartmann	Pause to review the steps for washing hands.	Wash My Hands | Jack Hartmann
Healthy habits	Keeping Fit and Staying Healthy | Next Generation Science	Review cleanliness, exercise, and healthy choices. Select the most relevant segment.	Keeping Fit and Staying Healthy
Healthy eating	Food Groups for Kids	Pause to classify foods into the five food groups.	Food Groups for Kids
Healthy eating	Discover MyPlate: Reach for the Sky	Use as a movement-based introduction to the five food groups.	Discover MyPlate: Reach for the Sky
Oral health	Why Do We Brush Our Teeth? | SciShow Kids	Use to explain why brushing keeps teeth clean and healthy.	Why Do We Brush Our Teeth?

LIVING SCIENCE 1

Teacher's Guide

UNIT 2 · LIVING AND NON-LIVING THINGS



In this unit you will:

- Tell the difference between living and non-living things.
- Name what living things need to stay alive.
- Talk about what makes something a living thing.

UNIT 2

Unit focus

Students investigate how to distinguish living and non-living things, what living things need, how plants and animals grow and move, and how living things depend on suitable places to live. The unit uses observation, classification, comparison, discussion, simple investigations, movement, drawing, and model building.

Suggested pacing: 9 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 25–42 • Workbook pp. 159–163 • Unit Review Quiz p. 202

Contents

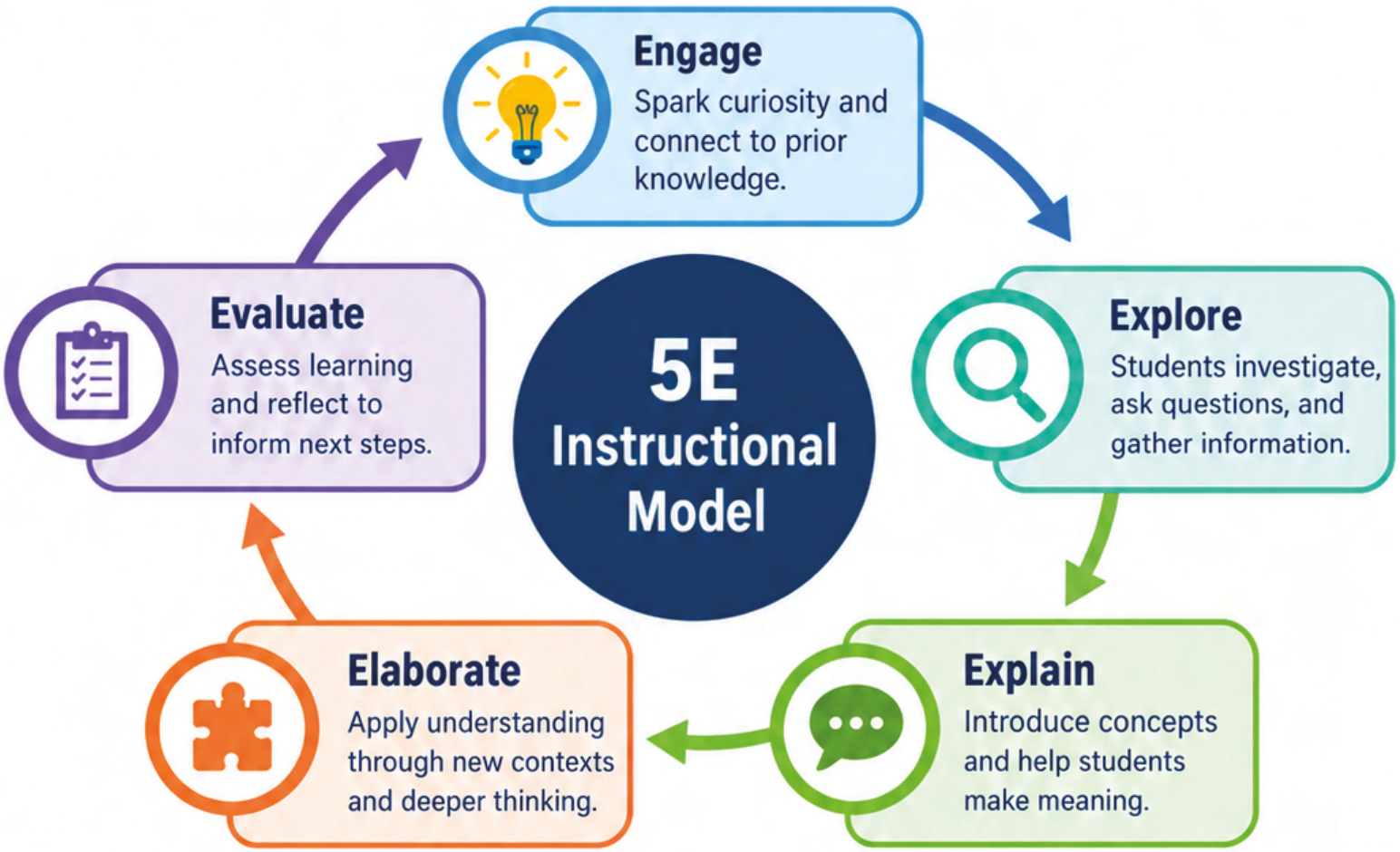
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
2.1 Lesson 2.1	Living Things
2.2 Lesson 2.2	What Do Plants Need?
2.3 Lesson 2.3	Living Things Move, Living Things Grow
2.4 Lesson 2.4	Non-living Things
Makerspace	Animal Homes
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Videos and additional resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through simple questions, familiar materials, drawings, gestures, movement, and oral language. The examples below are written for Unit 2.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What living and non-living things can you see in this picture?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show or tell one thing a plant needs to grow.
Classifying	Sorting objects or pictures by a shared characteristic.	Which pictures show living things and which show non-living things?
Comparing	Recognizing similarities and differences.	How are the needs of a plant and an animal alike? How are they different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The plant is drooping. What might it need?
Predicting	Anticipating what may happen based on evidence.	What might happen if we do not give a plant water?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use a magnifying glass to look closely at a leaf?
Analyzing	Looking closely at information to identify relationships.	Which things need food, water, and air?
Evaluating	Making a judgment based on criteria or evidence.	Is this a living thing or a non-living thing? How do you know?
Generating possibilities	Thinking of more than one possible idea or solution.	What could we do to help this plant grow better?
Formulating a simple hypothesis	Stating an expected result before a test.	I think this seed will grow if we give it water because...

Unit 2 Overview: Living and Non-living Things

UNIT LEARNING OBJECTIVES

- Distinguish between living and non-living things and give examples.
- Identify what living things need to stay alive (food, water, air, and a suitable place to live).
- Recognize that plants and animals grow and move.
- Describe how living things depend on suitable places to live.
- Identify non-living things and describe some of their properties.
- Make and explain a simple model or structure related to an animal home.

PRIMARY SCIENCE EMPHASIS

Students learn by observing, classifying, comparing, discussing, drawing, and building models. Oral language, movement, and picture-based responses are valid evidence of understanding in Grade 1.

OVERVIEW OF LESSONS

LESSON	LEARNING OBJECTIVES	NUMBER OF PERIODS
2.1	**Living Things** • Identify and name living things. • Describe some characteristics of living things. • Distinguish between living and non-living things.	2
2.2	**What Do Plants Need?** • Identify what plants need to grow (water, sunlight, air, and soil). • Describe what happens when plants do not get what they need. • Make simple observations of plant growth.	2
2.3	**Living Things Move, Living Things Grow** • Recognize that animals move in different ways. • Explain that living things grow and change over time. • Compare how plants and animals grow.	2
2.4	**Non-living Things** • Identify non-living things. • Describe some properties of non-living things (shape, material, weight). • Compare living and non-living things.	2

UNIT VOCABULARY

living thing, non-living thing, plant, animal, grow, move, food, water, air, sunlight, soil, home, habitat, shelter, need, leaf, stem, root, seed, flower, tree, rock, water, sand, wood, metal, plastic, glass

TEACHER PREPARATION

Prepare picture cards of living and non-living things, plant-growing materials, animal home images, craft materials, and simple observation tools. Review safety guidelines and plan for outdoor or indoor observation opportunities.

Unit Overview & Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
2.1	2	Identify living things; describe basic needs; use observable characteristics as evidence.	Observing, communicating, classifying, comparing, inferring	living thing, organism, food, water, air, shelter, grow, breathe, reproduce, move	Student Book pp. 25–29; Workbook p. 159
2.2	3	Identify plant needs; compare needs of plants, animals, and people; make simple predictions.	Observing, communicating, comparing, classifying, predicting, analyzing	plant, sunlight, light, water, air, nutrients, roots, leaves, space, shelter	Student Book pp. 30–36; Workbook p. 160
2.3	2	Describe movement; recognize growth and reproduction; connect young and adult animals.	Observing, communicating, comparing, sequencing, analyzing	move, walk, run, crawl, slide, jump, hop, swim, fly, grow, reproduce, parent, baby, offspring	Student Book pp. 37–39; Workbook p. 161
2.4	2	Classify non-living things and justify the classification using living-things criteria.	Observing, communicating, classifying, comparing, evaluating	non-living thing, living thing, need, grow, move, reproduce	Student Book pp. 40–41; Workbook pp. 162–163; Quiz p. 202
Makerspace	1 optional	Build and explain a model of an animal home that provides shelter and can be improved for strength or safety.	Observing, communicating, using equipment, generating possibilities, evaluating	animal home, shelter, structure, strong, safe, model	Student Book p. 42; craft sticks, clothespins, optional animal figures

Lesson 2.1 · Living Things

DURATION: 2 PERIODS

LEARNING OBJECTIVES

Identify familiar living things in pictures, the classroom, and the school environment.
Describe basic needs of living things: food, water, air, and shelter or living space.
Use observable characteristics—growth, breathing/need for air, reproduction, and movement—to explain why something is living.

SCIENCE INQUIRY SKILLS

Observing, communicating, classifying, comparing, inferring, analyzing

VOCABULARY

living thing, organism, plant, animal, person, food, water, air, shelter, living space, grow, breathe, reproduce, move, need

SCIENCE AND PEDAGOGY NOTE

Science and pedagogy note
Use several characteristics together when deciding whether something is living. Movement alone is not enough: plants are living even though they do not move from place to place, and non-living objects can move when pushed or carried. Begin with clear, familiar examples before discussing exceptions or edge cases.

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
ENGAGE (10 min)	(Science inquiry skills: observing, communicating, inferring) Primary science emphasis: Build the idea of "living" from evidence students can notice and discuss. Background: Children often use movement as the main sign of life. This lesson expands the idea to include needs, growth, breathing/air, reproduction, and movement. Unit opener Display Student Book p. 25. Ask: "What are living and non-living things?", "What things can you see outside?", and "How can you say that something is alive?" Use the cactus-on-a-rock image to invite a quick classification: plant/cactus—living; rock—non-living. Ask students what evidence they notice. What's in this lesson? What will I learn? I can identify living things. I can tell what living things need and give evidence that something is alive. UDL Strategies Accept pointing, gestures, drawing, or oral responses. Use large photo cards and real classroom examples where appropriate.	Student Book p. 25 — Unit opener Living/non-living picture cards — Familiar classroom and outdoor examples Two labels: LIVING / NON-LIVING
EXPLORE (30 min)	(Science inquiry skills: observing, classifying, comparing, communicating) Activity 1: Living-Things Hunt From the classroom window or during a short supervised walk, students notice examples such as people, trees, grass, birds, insects, rocks, benches, and signs. They record by pointing, drawing, or using picture cards. Activity 2: What does it need? Give each group a plant or animal card and basic-needs cards: food, water, air, shelter/living space. Students choose the needs that fit and explain one choice. Activity 3: Evidence sort Sort picture cards under GROWS, NEEDS AIR, REPRODUCES, and CAN MOVE FROM PLACE TO PLACE. Discuss that a living thing may show the characteristics in different ways. Guiding questions What does this living thing need? What evidence tells you it is alive? UDL Strategies Provide picture icons for each need and characteristic. Allow observation from one location if an outdoor walk is not accessible.	Outdoor/classroom observation sheet Living-things and needs cards Clipboards or hard writing surfaces — Optional Crayons or pencils

Lesson 2.1 · Living Things (Continued)

5E INSTRUCTIONAL SEQUENCE AND DIFFERENTIATION

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
EXPLAIN (25 min)	(Science inquiry skills: observing, analyzing, communicating) • Guide students through Student Book pp. 26–29. • Living things include plants, animals, and people. • Living things need resources such as food, water, air, and a suitable place to live. Plants also need light and other conditions addressed in Lesson 2.2. • Review the four characteristics presented on p. 28: living things grow, breathe/need air, reproduce, and most can move. • Language frames: – "The _____ is living because it _____." – "The _____ needs _____ to live and grow." • Teaching Tip: Ask for evidence instead of accepting "because it moves" as the only reason. • UDL Strategies: Pair each key word with a simple icon or gesture.	• Student Book pp. 26–29 — Living things, needs, and characteristics • Class anchor chart — What Living Things Need / What Living Things Do • Living Things | Jack Hartmann — Optional short review
ELABORATE (15 min)	(Science inquiry skills: comparing, inferring, communicating) • Living-Thing Detective. • Give pairs a clue card: "I need water and food," "I grow," "I have young," or "I breathe." • Students choose a matching living thing and explain why. • Challenge pairs to create one clue for another pair. • UDL Strategies: Students may act, draw, point to a picture, or say the clue aloud.	• Clue cards — Needs and characteristics • Plant and animal picture cards
EVALUATE (15 min)	(Science inquiry skills: classifying, evaluating, communicating) • Student Book p. 27: Draw what the pictured living things need. • Student Book p. 28: Match examples to growth, breathing, reproduction, and movement. • Student Book p. 29: Color the things living things need. • Workbook p. 159: Complete Activities 1–3. • Exit ticket: Name one living thing, one thing it needs, and one characteristic that shows it is living. • Formative checklist: – Identifies a familiar living thing. – Names at least three basic needs of living things. – Uses one observable characteristic as evidence. • UDL Strategies: Accept matching, pointing, drawing, acting, or oral explanation.	• Student Book pp. 27–29 — Evaluation activities • Workbook p. 159 — Living Things • Teacher observation checklist
ADDITIONAL ACTIVITY	(Science inquiry skills: observing, communicating, analyzing) • Play "Living or Not?" Hold up one clear example at a time. • Students show a LIVING or NON-LIVING card and give one reason. • Keep examples familiar and unambiguous.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
ENRICHMENT FOR ADVANCED LEARNERS	(Science inquiry skills: analyzing, evaluating, communicating) • Ask students to choose one plant and one animal and explain two characteristics they share and one way they are different.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
REINFORCEMENT FOR STRUGGLING LEARNERS	(Science inquiry skills: observing, classifying, communicating) • Use a two-column mat with only four to six clear pictures. • First sort living/non-living, then add one needs card to each living example.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 2.2 · What Do Plants Need?

DURATION: 3 PERIODS

LEARNING OBJECTIVES

Identify light, water, air, nutrients, and space as conditions plants need to live and grow.
Compare the needs of plants with the needs of animals and people.
Make a simple prediction about what may happen when a plant or animal does not receive what it needs.

SCIENCE INQUIRY SKILLS

Observing, communicating, comparing, classifying, predicting, inferring, analyzing, evaluating

VOCABULARY

plant, sunlight, light, water, air, nutrients, roots, leaves, soil, space, grow, animal, person, food, shelter, need, survive

SCIENCE AND PEDAGOGY NOTE

Science and pedagogy note
Keep the distinction between plant food and plant nutrients clear. The Student Book states that plants use energy from sunlight to make the food they need and that water carries nutrients from the soil. For Grade 1, emphasize that plants need light, water, air, nutrients, and enough space; avoid describing soil itself as "food."

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Engage (10 min)	(Science inquiry skills: observing, predicting, communicating) Primary science emphasis: Connect plant needs with evidence students can observe in real plants. Background: Students may know that plants need water and sunlight but may not yet connect air, nutrients, and space with healthy growth. Display Student Book p. 30. Invite students to talk about plants they have seen at home, school, or outdoors. Ask: "What makes a plant grow?" Record ideas without correcting them yet. What's in this lesson? What will I learn? I can name what plants need to grow. I can compare what plants, animals, and people need. UDL Strategies Use photographs, gestures, and real plants when available. Allow students to share an observation without discussing home plants if they prefer.	Student Book p. 30 — Plant discussion Healthy classroom plant or clear plant photograph Plant-needs picture cards

Lesson 2.2 · Explore & Explain

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Explore (40 min)	(Science inquiry skills: observing, comparing, predicting, communicating) Activity 1: Plant-needs stations Set out five stations or picture sets for LIGHT, WATER, AIR, NUTRIENTS, and SPACE. At each station, students match a plant picture to the condition and say or draw why it matters. Activity 2: Which plant looks healthier? Compare photo pairs of healthy and wilted/crowded plants. Students notice differences and predict one possible missing need. Activity 3: Needs Venn diagram Use picture cards to compare a plant and an animal. Put water and air in the overlap; place sunlight/light and nutrients on the plant side; food and shelter may be placed on the animal side according to the textbook framing. Safety note Do not ask students to taste plant material. Use only non-toxic classroom plants and supervise soil or potting materials. UDL Strategies Use large icons and fewer choices when needed. Provide a completed example of one station before rotation.	Plant-needs cards — Light, water, air, nutrients, space Healthy/unhealthy plant photo pairs Venn diagram mat Optional classroom plant — Follow school safety policy
Explain (30 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 31–36. Light: plants use energy from sunlight to make the food they need. Water: many plants absorb water through roots; water also helps move nutrients. Air: plants need air as part of their life processes. Nutrients: substances that help plants grow and stay healthy. Space: roots and leaves need room to spread and obtain resources. Compare with animals and people: they need food, water, air, and shelter or a safe place to live. Language frames "A plant needs _____ because _____." "Both plants and animals need _____." UDL Strategies Build a picture-supported anchor chart and revisit it during each page.	Student Book pp. 31–36 — Plant, animal, and people needs Plant-needs anchor chart Grow Your Own Plants! | SciShow Kids — Optional teacher-selected clip

Lesson 2.2 · Application & Assessment

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Elaborate (25 min)	(Science inquiry skills: predicting, generating possibilities, communicating) Plant Care Plan Pairs receive a picture of a classroom plant in a location or condition. They choose what the plant needs next: light, water, nutrients, or more space, and explain their choice. Students create a simple "Plant Needs" card with five icons and one sentence: "I will help my plant by _____." Optional extension: Needs of a pet Choose a familiar animal and identify food, water, air, and shelter. Compare the animal card with the plant card. UDL Strategies Offer drawing, cut-and-paste, oral explanation, or partner scribing.	Plant scenario cards Plant-needs checklist/template Crayons, glue, pre-cut icons
Evaluate (15 min)	(Science inquiry skills: analyzing, evaluating, communicating) Student Book p. 32: Draw one thing the cactus needs. Student Book p. 33: Label the four pictured plant needs. Student Book p. 36: Identify needs of plants, animals, and people and write three sentences. Workbook p. 160: Circle items that help a plant grow and complete the plant/animal Venn diagram. Exit ticket: Complete "A plant needs _____ and _____ to grow." Formative checklist Names at least four plant needs. Identifies at least two needs shared by plants and animals. Makes one reasonable prediction about a missing need. UDL Strategies Read directions aloud and accept picture-based answers.	Student Book pp. 32–36 — Evaluation and application Workbook p. 160 — What do plants need? Plant-needs exit card
Additional Activity	(Science inquiry skills: observing, predicting, communicating) Plant Check-Up: Observe a classroom or school plant. Students use a five-icon checklist—light, water, air, nutrients, space—and identify which needs appear to be available.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare two environments for the same plant and decide which would better meet its needs. They justify the choice with two pieces of evidence.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: classifying, communicating) Teach three needs first—light, water, air—using matching cards. Add nutrients and space after students can match the first three confidently.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 2.3 · Living Things Move, Living Things Grow

DURATION: 2 PERIODS

LEARNING OBJECTIVES

Describe different ways animals move, including walking, running, crawling, sliding, jumping, hopping, swimming, and flying.
Recognize that living things grow and change over time.
Explain that living things reproduce and connect young animals or plants with their adult forms.

SCIENCE INQUIRY SKILLS

Observing, communicating, comparing, sequencing, analyzing, generating possibilities

VOCABULARY

move, walk, run, crawl, slide, jump, hop, swim, fly, grow, change, reproduce, parent, baby, young, offspring, seed

SCIENCE AND PEDAGOGY NOTE

Distinguish movement from place to place from other kinds of movement. Animals and people can move from one place to another; plants do not locomote from place to place, although they grow and parts of plants can change position as they respond to their environment. Growth and reproduction are also important characteristics of living things.

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Engage (10 min)	(Science inquiry skills: observing, communicating, comparing) Primary science emphasis: Use movement and growth as observable evidence of life while helping students notice that different living things show these characteristics differently. Background: Children can readily act out animal movement. Connecting movement to growth and reproduction broadens their understanding of living things. Play a quick movement guessing game: hop like a frog, slither like a snake, fly like a bird, swim like a fish. Ask: "Do all living things move in the same way?" and "How are babies different from adults?" What's in this lesson? What will I learn? I can describe how animals move. I can explain that living things grow, change, and reproduce. UDL Strategies Offer standing, seated, or hand-motion versions of each movement.	Student Book p. 37 — Animal and plant movement Animal-movement cards Open classroom space — Check safety and accessibility

Lesson 2.3 · Living Things Move, Living Things Grow

5E INSTRUCTIONAL SEQUENCE · EXPLORE & EXPLAIN

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Explore (25 min)	(Science inquiry skills: observing, classifying, comparing, sequencing, communicating) Activity 1: Movement sort Students sort animal cards by how they move: WALK/RUN, HOP/JUMP, CRAWL/SLIDE, SWIM, FLY. Accept animals in more than one group when students explain. Activity 2: Grow and change Give groups simple sequence cards showing a seed/young plant/adult plant and baby/adult animals. Students put them in order and describe one change. Activity 3: Parent and young matching Match adult animals with their babies and use the words parent, baby/young, and offspring. UDL Strategies Use large photo cards, color coding, and two- or three-step sequences as needed.	Animal-movement cards Plant growth sequence cards Parent-and-young matching cards
Explain (20 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 37–39. Animals and people can move from place to place in different ways. Plants do not move from place to place, but they are living and grow and change. All living things grow. The Student Book describes changes in size, shape, appearance, and ability. Living things reproduce, meaning they produce young or offspring. Language frames "The _____ moves by _____." "As the _____ grows, it _____." "This is the parent. This is the baby/young _____." UDL Strategies Use gestures and photo sequences while reading the text aloud.	Student Book pp. 37–39 — Movement, growth, reproduction Animals on the Move | Next Generation Science Growth sequence anchor chart

Lesson 2.4 · Non-living Things

LEARNING OBJECTIVES

Identify and classify familiar non-living things.

Compare living and non-living things using needs, growth, reproduction, and movement on their own.

Use one or more pieces of evidence to explain why an example belongs in the living or non-living group.

SCIENCE INQUIRY SKILLS

Observing, communicating, classifying, comparing, analyzing, evaluating

VOCABULARY

non-living thing, living thing, need, food, water, air, grow, move, reproduce, alive, classify, compare, evidence

SCIENCE AND PEDAGOGY NOTE

Begin with clear examples such as rocks, chairs, clocks, toys, and tools. Some non-living objects come from once-living materials, and some foods shown in elementary activities can be scientifically complex. At this level, focus on whether the example itself currently carries out the life characteristics emphasized in the unit.

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Engage (10 min)	(Science inquiry skills: observing, classifying, communicating) Primary science emphasis: Classify by evidence, not simply by appearance or whether something can be moved. Background: Students now have criteria for living things. This lesson applies those criteria to non-living examples. Display two objects, such as a classroom plant and a pencil. Ask: "Which is living? What evidence supports your answer?" Make a quick class chart: NEEDS / GROWS / REPRODUCES / MOVES ON ITS OWN. What's in this lesson? What will I learn? I can identify non-living things. I can explain why something is living or non-living. UDL Strategies Use real objects and large photographs; accept yes/no cards plus one spoken or pictured reason.	Student Book p. 40 — Non-living Things One living and one non-living classroom example LIVING / NON-LIVING response cards

Lesson 2.4 · Non-living Things

LEARNING OBJECTIVES

Identify and classify familiar non-living things.

Compare living and non-living things using needs, growth, reproduction, and movement on their own.

Use one or more pieces of evidence to explain why an example belongs in the living or non-living group.

SCIENCE INQUIRY SKILLS

Observing, communicating, classifying, comparing, analyzing, evaluating

VOCABULARY

non-living thing, living thing, need, food, water, air, grow, move, reproduce, alive, classify, compare, evidence

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Begin with clear examples such as rocks, chairs, clocks, toys, and tools. Some non-living objects come from once-living materials, and some foods shown in elementary activities can be scientifically complex. At this level, focus on whether the example itself currently carries out the life characteristics emphasized in the unit.

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Lesson 2.4 · Non-living Things

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Elaborate (20 min)	(Science inquiry skills: analyzing, generating possibilities, communicating) Classroom Museum Pairs choose one classroom object and prepare a two-sentence label: its name and one reason it is non-living. Place labels beside objects for a short gallery walk. Include one living example as a contrast. UDL Strategies Allow a picture label, dictated sentence, or oral recording instead of independent writing.	Index cards or labels Classroom objects Crayons or pencils
Evaluate (15 min)	(Science inquiry skills: classifying, evaluating, communicating) Student Book p. 40: Draw one living and one non-living thing. Student Book p. 41: Circle Yes/No for each pictured example. Workbook pp. 162–163: Complete the Venn diagram, outdoor drawing task, and cut-and-paste classification. Unit Review Quiz p. 202: Complete selected or all Unit 2 items. Exit ticket: Name one non-living thing and give one reason. Formative checklist Correctly classifies clear living and non-living examples. Uses at least one criterion as evidence. Compares one living and one non-living example. UDL Strategies Read choices aloud and accept picture sorting, pointing, or oral explanation.	Student Book pp. 40–41 — Evaluation activities Workbook pp. 162–163 — Living/non-living practice Unit Review Quiz p. 202
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Mystery Object: Place a safe classroom object in a bag. Students ask questions about the living-things criteria before revealing and classifying it.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, evaluating, communicating) Students create a "tricky pair" of pictures—one living, one non-living—that share a visible feature, then explain the evidence that separates them.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use four clear pairs: plant/rock, cat/toy cat, bird/kite, person/chair. Ask one criterion at a time and model the sentence frame.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 2.4 · Non-living Things

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Explore (30 min)	(Science inquiry skills: observing, classifying, comparing, communicating) Activity 1: Sort and justify Groups sort picture cards into LIVING and NON-LIVING. After sorting, each group selects two cards and gives one reason for each classification. Activity 2: Venn diagram Compare a clear living example, such as a bird, with a clear non-living example, such as a toy bird. Students draw or place characteristics in the circles. Activity 3: Outdoor/classroom check Students identify three living and three non-living things in a safe observation area and record them with drawings. Guiding questions Does it need food, water, or air? Does it grow or reproduce? Can it move on its own? UDL Strategies Use fewer cards, paired sorting, or a teacher-led floor sort as needed.	Living/non-living photo cards Venn diagram mat Observation sheet and crayons
Explain (20 min)	(Science inquiry skills: analyzing, communicating) Guide students through Student Book pp. 40–41. Non-living things are not alive. They do not need food, water, or air as living things do. They do not grow as living things grow, reproduce, or move on their own. Review the examples in the book: rock, toy, folder, clock, chair, and calendar. Language frames "The _____ is non-living because it does not _____." "The _____ is living because it needs/grows/reproduces _____." Teaching Tip When a student finds a tricky example, return to the criteria and invite evidence rather than treating the question as a vocabulary test.	Student Book pp. 40–41 — Non-living examples and classification Living/non-living comparison chart Non-Living Things | Jack Hartmann — Optional review

MAKERSPACE · ANIMAL HOMES

Suggested time: 1 period (40 minutes) · Student Book p. 42

Students design and build a simple structure or home for an animal and explain how the model provides shelter and could be made stronger or safer.

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Engage	(Science inquiry skills: observing, communicating) Display Student Book p. 42. Ask: "Why do animals need homes or shelter?" and "What should a safe animal home do?" Students choose an animal and point to or describe where it usually lives.	Student Book p. 42 — Project page Animal picture cards or optional plastic figures
Explore	(Science inquiry skills: observing, using equipment, comparing) Students examine craft sticks and clothespins and test several ways to connect or support pieces. Compare two small test structures. Ask which is more stable and why.	Popsicle/craft sticks Clothespins Optional tape or school-approved glue
Explain	(Science inquiry skills: communicating, analyzing) Model a simple plan: choose the animal, think about its usual home, sketch or arrange the base, then add walls, a roof, perch, opening, or other useful feature. Review success criteria: fits the animal, provides shelter, stands securely, and can be explained.	Picture success criteria Simple planning sheet — Optional
Elaborate	(Science inquiry skills: generating possibilities, using equipment, communicating) Students build individually or in pairs. Encourage testing: gently tap or move the base and revise if the structure falls apart. Students prepare a short explanation: "My home is for a _____. It usually lives _____. This home is safe because _____."	Building materials Animal figure or picture Labels or presentation card

Resource Bank (Continued)

Additional classroom video resources and enrichment materials.

VIDEO RESOURCES

Topic	Resource	Teacher use	Direct video link
Non-living things	Non-Living Things | Science Song for Kids | Jack Hartmann	Use for quick classification practice and vocabulary review.	Non-Living Things | Science Song for Kids | Jack Hartmann
Animal homes	Animal Habitats | Where do Animals Live | Grade 1	Use before Makerspace to connect animal homes with shelter and habitat.	Animal Habitats | Where do Animals Live | Grade 1
Habitats	Where Do Animals Live? | EduFam	Use selected examples to discuss where animals live and why shelter matters.	Where Do Animals Live? | EduFam
Living things in soil	Soil Is Alive! | SciShow Kids	Enrichment: notice that many living things can be found in soil.	Soil Is Alive! | SciShow Kids

Teacher note

The original Word provides video titles in the “Direct video link” column rather than explicit URLs. These entries are preserved exactly as supplied.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative.

VIDEO RESOURCES

Topic	Resource	Teacher use	Direct video link
Living things	Living Things | Science Song for Kids | Jack Hartmann	Use as a movement-based review of needs and characteristics of living things.	Living Things | Science Song for Kids | Jack Hartmann
Living vs. non-living	Living and Nonliving Things for Kids | FreeSchool	Pause to identify the evidence used to classify examples.	Living and Nonliving Things for Kids | FreeSchool
Plant needs	Grow Your Own Plants! | SciShow Kids	Use selected clips to review light, water, nutrients, and plant observation.	Grow Your Own Plants! | SciShow Kids
Plant needs	What do Plants Need to Grow? | PBS Teaching in Room 9	Teacher background or selected classroom segment about investigating plant needs.	What do Plants Need to Grow? | PBS Teaching in Room 9
Animal movement	Animals on the Move | Next Generation Science	Pause so students can name movement types such as run, fly, swim, and slither.	Animals on the Move | Next Generation Science

UNIT REVIEW QUIZ · ANSWER KEY

Unit Review Quiz · Student Book p. 202

Part 1

1. b) tree 2. a) move and grow 3. b) chair

Part 2

1. living 2. non-living 3. move 4. water 5. grow.

Part 3

Part 3: Drawings and labels will vary; one example should be living and the other non-living.

ASSESSMENT REFERENCE

Student Book: Unit Review Quiz, page 202.

ANSWER KEY · WORKBOOK

Answers to Workbook Questions · pp. 159–163

Workbook p. 159, Activity 1
Answers will vary. Examples: boy/person, cat, owl, girl/person, tree, dog.

Workbook p. 159, Activity 2
1. water 2. food 3. shelter 4. sunlight 5. air.

Workbook p. 159, Activity 3
Circle/color the boy, girl, owl, and cat. Do not circle the bed, toothpaste, lamp, book, or clock.

Workbook p. 160, Activity 4
Circle the items that help a plant grow: sun/light, water, soil/nutrients, the nutrients bag, and the window as access to light/air. Do not circle the toy, cake, or fruit as plant needs in this activity.

Workbook p. 160, Activity 5
Plant only: sunlight/light, nutrients, space to grow. Both: water and air. Animal only: food and shelter/home. Accept reasonable drawings consistent with the unit.

Workbook p. 161, Activities 6–8
6. a) runs b) swims c) hops/jumps d) flies. 7. A plant grows larger and develops more leaves/stems or flowers. 8. An animal grows larger and changes from a baby/young animal into an adult; answers will vary.

Workbook p. 162, Activity 9
Living bird: needs food/water/air, grows, reproduces, and can move on its own. Non-living toy bird: does not carry out these life characteristics. In the overlap, students may draw shared visible features such as wings, beak shape, color, or body form.

Workbook p. 162, Activity 10
Drawings will vary. Accept three clear living and three clear non-living things observed safely outdoors.

Workbook p. 163, Activity 11
Living Things: butterfly, flowering plant, cat, iguana/lizard, tree, toucan. Non-Living Things: pencil sharpener, trumpet, mug, laptop, soccer ball, robot toy.

ANSWER KEY · STUDENT BOOK

Answers to Student Book Questions · pp. 25–42

Unit opener, p. 25

Answers will vary. In the main photograph, the children and trees are living things. In the Explore photograph, the cactus/plant is living and the rock is non-living. Accept other reasonable examples students identify outside.

Student Book p. 27

Drawings will vary. Reasonable needs include food, water, air, and shelter/living space for animals; plants may show water, air, sunlight/light, nutrients, and space to grow.

Student Book p. 28

Dog with puppy—3 reproduce; frog development sequence—1 grow; running horse—4 move; person breathing—2 breathe/need air.

Student Book p. 29

Color examples that represent needs of living things, especially water, food (fruit), and air. Sunlight may also be colored and discussed as a need of plants. Do not color the computer, chair, or paintbrush as basic living-things needs.

Student Book p. 32

Drawings will vary. Accept sunlight/light, water, air, nutrients, or enough space as a reasonable need of the cactus.

Student Book p. 33

Sun—sunlight/light; bag/soil amendment—nutrients; wind/cloud icon—air; splash—water.

Student Book p. 36

Color air/wind, water/rain, and food/strawberry. Sunlight is also essential for plants and may be included. Do not color the slippers, television, car, or phone. Sentences will vary; examples: "Plants need sunlight and water." "Animals need food and water." "People need air and water."

Student Book p. 38

Color the bird, cat, and pig as animals that move on their own. Do not color the jar, banana, or plant for this specific locomotion task. Reinforce that the plant is still living even though it does not move from place to place.

Student Book p. 39

Top pictures: left—baby; right—parents/adults. For the matching activity, connect each adult animal with its corresponding young. Accept oral naming when students can identify the pair correctly.

Student Book p. 40

Drawings will vary. Accept any clear living example and any clear non-living example.

Student Book p. 41

Cow—Yes; fruit pieces—No for the intended Grade 1 classification; chair—No; fish—Yes; calendar—No; dragonfly—Yes; cat—Yes; clock—No.

Makerspace p. 42

Models will vary. Students should identify the animal, state where it usually lives, explain how the structure acts as a home/shelter, and suggest one way to make it stronger or safer.

MAKERSPACE · ANIMAL HOMES

Teaching procedure (continued) and project evaluation checklist

5E PHASE	LESSON · TEACHING PROCEDURE	RESOURCES
Evaluate	(Science inquiry skills: evaluating, communicating) Conduct a gallery walk. Students identify the animal, explain where it normally lives, and name one feature that provides shelter. Ask the Student Book question: "How could you make this home stronger or safer?" Use the checklist below.	Project checklist Peer feedback prompts: "I noticed…" / "You could make it stronger by…"

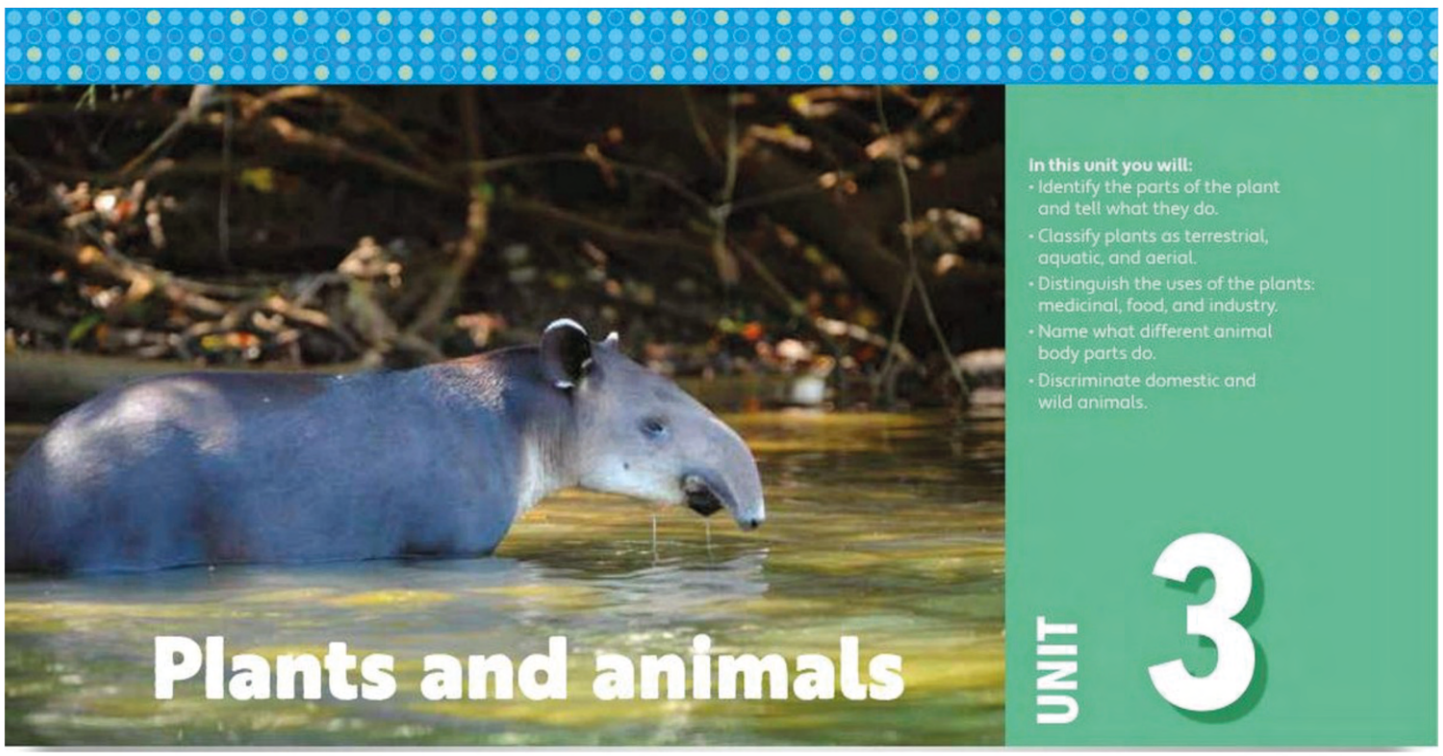
PROJECT EVALUATION CHECKLIST

CRITERIA	OUTSTANDING	VERY GOOD	KEEP PRACTICING
The model represents a home or shelter for a chosen animal.	☐	☐	☐
The structure stands securely and uses materials appropriately.	☐	☐	☐
The student identifies the animal and where it usually lives.	☐	☐	☐
The student explains one way the home provides shelter or safety.	☐	☐	☐
The student suggests or makes one improvement for strength or safety.	☐	☐	☐

LIVING SCIENCE 1

Teacher's Guide

UNIT 3 · PLANTS AND ANIMALS



Unit focus
Students investigate plant parts and their functions, where plants grow and how people use them, animal movement and body coverings, ways animals protect themselves, and the distinction between domestic and wild animals. The unit uses observation, comparison, classification, discussion, movement, drawing, simple modeling, and a seed-germination Makerspace investigation.

Suggested pacing: 9 periods of approximately 40 minutes, plus an optional Makerspace setup period and brief follow-up observations.

Student Book pp. 43–60 • Workbook pp. 165–169 • Unit Review Quiz p. 203

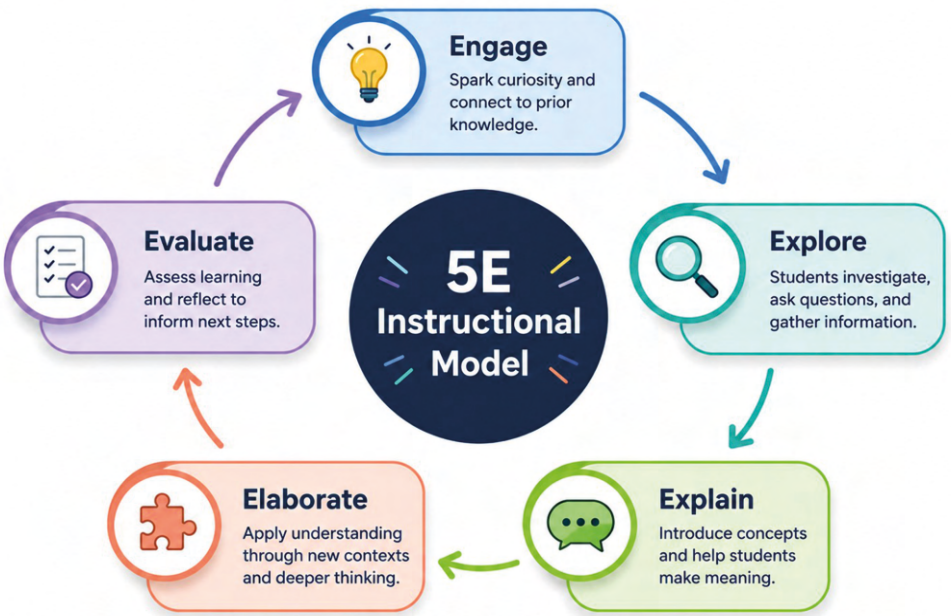
Contents

Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 3.1	It's All About Plants
Lesson 3.2	Animals
Lesson 3.3	How Do Animals Protect Themselves?
Lesson 3.4	Domestic and Wild Animals
Makerspace	Garden in a Glove
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide
Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through simple questions, familiar materials, drawings, gestures, movement, sorting, and oral language. The examples below are written for Unit 3.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What parts can you see on this plant?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show and tell how this animal moves.
Classifying	Sorting objects or pictures by a shared characteristic.	Which plants are terrestrial, aquatic, or aerial?
Comparing	Recognizing similarities and differences.	How are feathers and scales alike? How are they different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The animal has a hard shell. How might that help it?
Predicting	Anticipating what may happen based on evidence.	What do you think will happen to the seeds in the glove after several days?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use a magnifying glass to observe the seeds?
Analyzing	Looking closely at information to identify relationships.	Which body part helps this animal move or protect itself?
Evaluating	Making a judgment based on criteria or evidence.	Is this animal domestic or wild? What evidence supports your answer?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways we can help the seeds grow?
Formulating a simple hypothesis	Stating an expected result before a test.	I think the seeds will _____ because _____.

Unit 3 Overview: Plants and Animals

Unit learning objectives

- Identify the main parts of a plant—roots, stem, leaves, flower, and fruit—and describe the function presented for each part.
- Classify plants according to where they grow as terrestrial, aquatic, or aerial.
- Describe ways plants help people and animals, including food, cleaner air, natural materials, and medicinal uses presented in the Student Book.
- Describe different ways animals move and connect movement with body parts such as legs, fins, flippers, and wings.
- Identify common animal body coverings and defensive body parts or behaviors that help animals protect themselves.
- Distinguish domestic and wild animals and describe examples of how domestic animals help people.

Primary science emphasis

Students learn by observing and labeling plant structures, sorting plants by habitat, comparing animal movement and coverings, matching defensive structures to animals, classifying domestic and wild animals, and observing seed changes in a simple Makerspace setup. Oral language, pointing, gestures, drawing, sorting, and picture-based responses are valid evidence of understanding in Grade 1.

Overview of lessons

Lesson	Learning Objectives	Periods
3.1	It's All About Plants • Identify and label roots, stem, leaves, flower, and fruit and describe their functions. • Classify plants as terrestrial, aquatic, or aerial. • Identify ways plants help people and animals.	3
3.2	Animals • Describe several ways animals move and identify body parts used for movement. • Identify common animal body coverings. • Compare animals using visible characteristics.	2
3.3	How Do Animals Protect Themselves? • Identify defensive body parts and coverings presented in the Student Book. • Explain how a body part or camouflage can help an animal stay safe. • Match animals with appropriate defenses.	2
3.4	Domestic and Wild Animals • Distinguish domestic and wild animals. • Identify ways domestic animals help people. • Classify familiar animals and explain the classification.	2

Unit vocabulary

plant, roots, stem, leaves, flower, fruit, seed, terrestrial, aquatic, aerial, habitat, food, medicine, wood, paper, fabric, animal, movement, legs, fins, flippers, wings, walk, run, jump, crawl, swim, fly, slither, body covering, fur, hair, feathers, scales, skin, claws, teeth, pincers, shell, horns, antlers, spines, quills, fangs, stinger, camouflage, domestic, wild, pet, farm, natural habitat, germinate

Teacher preparation

Print or prepare plant-part labels and pictures, plant-habitat cards, plant-use pictures, animal-movement and body-covering cards, animal-defense cards, domestic/wild sorting cards, and Makerspace supplies. Arrange safe access to leaves or plant photographs for observation. Prepare clear gloves, seeds, cotton balls, magnifying glasses, markers, tape, and closures needed for the Garden in a Glove activity.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
3.1	3	Identify plant parts and functions; classify plant habitats; identify uses of plants.	Observing, communicating, classifying, comparing, analyzing	roots, stem, leaves, flower, fruit, terrestrial, aquatic, aerial, food, medicine	Student Book pp. 43–49; Workbook p. 165
3.2	2	Describe animal movement and the body parts used; identify common body coverings.	Observing, communicating, comparing, classifying, analyzing	legs, fins, flippers, wings, walk, run, jump, crawl, swim, fly, slither, fur, feathers, scales, skin	Student Book pp. 50–53; Workbook pp. 166–167
3.3	2	Identify defensive structures and behaviors; connect an animal with a way it protects itself.	Observing, communicating, comparing, classifying, inferring, analyzing	claws, teeth, pincers, shell, horns, antlers, spines, quills, fangs, stinger, camouflage	Student Book pp. 54–56; Workbook p. 168
3.4	2	Distinguish domestic and wild animals; describe how domestic animals help people.	Observing, communicating, classifying, comparing, evaluating	domestic, wild, pet, farm, natural habitat, care, work, milk, eggs, meat	Student Book pp. 57–59; Workbook p. 169; Quiz p. 203
Makerspace	1 optional	Set up and observe a seed-germination model; describe seed similarities/differences and what seeds need to grow.	Observing, communicating, using equipment, predicting, generating possibilities, evaluating	seed, cotton ball, water, observe, germinate, grow	Student Book p. 60; clear gloves, seeds, cotton balls, magnifying glasses, markers

3.1 It's All About Plants

Lesson 3.1 | Duration: 3 periods

Learning objectives

• Identify and label roots, stem, leaves, flower, and fruit and describe the function presented for each part.
• Classify familiar plants as terrestrial, aquatic, or aerial according to where they grow.
• Identify ways plants help people and animals, including food, air, natural materials, and medicinal uses presented in the Student Book.

Science Inquiry Skills

Observing, communicating, classifying, comparing, analyzing, evaluating

Vocabulary

plant, roots, stem, leaves, flower, fruit, seed, terrestrial, aquatic, aerial, food, medicine, wood, paper, fabric, natural resource

Science and pedagogy note

Keep the lesson organized around the categories and functions used in the Student Book. When discussing plant habitats, use terrestrial, aquatic, and aerial as the classroom classification. When discussing uses, connect examples directly to the book: food, cleaner air, natural materials such as wood, paper, or fabric, and medicinal plants such as chamomile, mint, and rosemary.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Begin with visible differences among real or photographed plants and connect those observations to plant structures and habitats. Background: Students already know that plants are living things. This lesson focuses on visible parts, where plants grow, and ways plants are useful. Unit opener Display Student Book p. 43. Ask students to compare the two plants and discuss similarities and differences. Use the seed photograph and ask: "How can we help these seeds grow into a healthy plant?" Record ideas for later reference. What's in this lesson? What will I learn? I can name the parts of a plant and tell what they do. I can classify where plants grow and tell how plants help us. UDL Strategies Allow students to respond by pointing, drawing, gesturing, or speaking. Use large photographs and tactile plant-part cards when available.	Student Book p. 43 — Unit opener Two contrasting plant photographs or real plants Plant-part picture cards

3.1 It's All About Plants (Continued)

Lesson 3.1 | Duration: 3 periods

5E	Lesson	Resources and Materials
Explore (40 min)	(Science inquiry skills: observing, classifying, comparing, communicating) Activity 1: Leaf observation Use the Student Book p. 44 activity or teacher-provided leaves. Students compare two leaves by color, shape, size, or edge pattern and record with a drawing. Activity 2: Build the plant Groups assemble picture pieces for roots, stem, leaves, flower, and fruit. Students place each label and match a simple function card to the part. Activity 3: Where does it grow? Sort plant photographs under TERRESTRIAL, AQUATIC, and AERIAL. Use examples similar to those on Student Book p. 47. Activity 4: How plants help us Sort pictures into FOOD, NATURAL MATERIALS, and MEDICINAL USES. Include examples shown in the Student Book. UDL Strategies Offer pre-cut cards or magnetic pieces for students who need motor support. Reduce the number of categories during the first sort if needed.	Leaves or leaf photographs — Follow school collection rules Plant-part pieces and function cards Terrestrial/aquatic/aerial plant cards Plant-use picture cards Crayons, tape, child-safe scissors
Explain (30 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 44–49. Roots: take in water and nutrients from the soil and hold the plant firmly in the ground. Stem: holds up the plant and carries water and nutrients to leaves and other parts. Leaves: take in air and catch sunlight the plant needs to make food. Flower: helps in reproduction by making new seeds. Fruit: protects the seeds. Plant habitats in the book: terrestrial plants grow on land; aquatic plants grow in water; aerial plants grow on trunks or branches of trees. Plant uses in the book include food, cleaner air, natural materials such as wood/paper/fabric, and medicine. Language frames "The _____ helps the plant _____." "This is a _____ plant because it grows _____." "People use this plant for _____." UDL Strategies Use a labeled class plant diagram and repeat each function with a gesture.	Student Book pp. 44–49 — Plant parts, habitats, and uses Class plant diagram / anchor chart Plant habitat and use cards Parts Of A Plant | The Dr. Binocs Show | Peekaboo Kidz Terrestrial and Aquatic Habitats for Kids | Smile and Learn Why Plants Matter | Kew Gardens · KS1 Watch and Learn

3.1 It's All About Plants (Continued)

Lesson 3.1 | Duration: 3 periods

5E	Lesson	Resources and Materials
Elaborate (25 min)	(Science inquiry skills: comparing, analyzing, generating possibilities, communicating) Plant Detective Card Pairs choose one plant photograph. They identify visible parts, classify where it grows, and name one way it helps people or animals. Students complete a three-part response: "I see _____." "It grows _____." "It helps us by _____." Optional extension: compare two plants from different habitats and name one similarity and one difference. UDL Strategies Offer drawing, pointing, cut-and-paste, or oral recording options.	Plant Detective template Plant photographs from different habitats Word bank and sentence frames
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book p. 46: Label flower, roots, stem, leaves, and fruit. Student Book p. 47: Classify the pictured plants as terrestrial, aerial, or aquatic. Student Book p. 49: Add examples of plants; accept examples students can identify and discuss. Workbook p. 165: Complete plant-part, habitat, and medicinal-plant activities. Exit ticket: Name one plant part and its function, or classify one plant by habitat. Formative checklist Labels at least four plant parts correctly. Classifies a familiar plant into one of the three habitat groups. Names one way plants help people or animals. UDL Strategies Accept picture matching, pointing, drawing, or oral explanation.	Student Book pp. 46–49 — Evaluation and application Workbook p. 165 — All about plants Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Leaf Comparison Gallery: Students place two leaf drawings side by side and tell one way the leaves are alike and one way they are different.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students choose one plant and connect it to two different benefits or uses shown in the unit, then explain both connections.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use a five-part plant puzzle first: roots, stem, leaves, flower, fruit. After students can label the parts, add one function card at a time and then introduce the three habitat labels.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

3.2 Animals

Lesson 3.2 | Duration: 2 periods

Learning objectives

• Describe different ways animals move and identify body parts used for movement.
• Identify common animal body coverings presented in the Student Book: fur/hair, feathers, scales, and skin in the classification activity.
• Compare animals using visible characteristics such as movement, body parts, and coverings.

Science Inquiry Skills

Observing, communicating, comparing, classifying, analyzing, generating possibilities

Vocabulary

animal, move, legs, fins, flippers, wings, walk, run, jump, crawl, climb, fly, swim, slither, body covering, fur, hair, feathers, scales, skin

Science and pedagogy note

Student Book pp. 50–53 form Lesson 3.2 in the unit sequence. Page 52 has a footer label that appears inconsistent with that sequence; this guide treats the animal-body-covering content on pp. 52–53 as part of Lesson 3.2. Use the body-covering categories presented in the text and activity.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Connect visible animal structures to what animals do, especially movement. Background: Students know many animal names and actions. This lesson organizes those observations around movement body parts and coverings. Display Student Book p. 50. Ask students to name the animals and describe similarities and differences. Ask: "How does each animal move?" and "Which body part helps it?" What's in this lesson? What will I learn? I can tell how animals move and which body parts help them move. I can identify different animal body coverings. UDL Strategies Use animal sounds, photographs, gestures, and movement choices. Offer standing, seated, or hand-motion versions of movements.	Student Book p. 50 — Animal comparison and movement Animal picture cards Open classroom space — Check safety and accessibility

3.2 Animals (Continued)

Lesson 3.2 | Duration: 2 periods

5E	Lesson	Resources and Materials
Explore (30 min)	(Science inquiry skills: observing, classifying, comparing, communicating) Activity 1: Movement sort Sort animal cards by movement: WALK/RUN, JUMP/HOP, CRAWL/CLIMB, SWIM, FLY, SLITHER. Accept more than one reasonable movement when students explain. Activity 2: Body-part match Match legs, fins/flippers, and wings to animals that use those structures for movement. Activity 3: Covering sort Sort animals under FUR/HAIR, FEATHERS, SCALES, and SKIN, following the categories used in the Student Book activity. Guiding questions Which body part helps this animal move? What covers this animal's body? UDL Strategies Use large photo cards and color-coded category mats.	Animal-movement cards Body-part cards — Legs, fins/flippers, wings Body-covering cards and category mats
Explain (25 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 50–53. Land animals may use legs to walk, run, jump, or crawl. Animals that live underwater may use fins or flippers to swim. Animals with wings can fly. Animals without legs, fins, paws, or wings may slither, as shown by the earthworm and snake examples. Body coverings in the text include hair/fur for mammals, feathers for birds, and scales for reptiles and fish; the p. 53 activity also includes skin as a category. Language frames "The _____ uses its _____ to _____." "The _____ is covered with _____." UDL Strategies Use gestures and real or photographed textures when appropriate.	Student Book pp. 50–53 — Movement and body coverings Movement/body-part anchor chart Body-covering photo cards Animal Body Parts | Science for Kids Field Trip: Little Rock Zoo — Body Coverings | PBS

3.2 Animals (Continued)

Lesson 3.2 | Duration: 2 periods

5E	Lesson	Resources and Materials
Elaborate (20 min)	(Science inquiry skills: comparing, generating possibilities, communicating) Animal Action Card Pairs choose an animal and complete two ideas: "It moves by _____." and "It uses _____ to move." Add a third clue about its covering: "Its body is covered with _____." Students exchange clues and guess the animal. UDL Strategies Students may act, point to a picture, or use sentence strips instead of writing.	Animal action cards Sentence strips / word bank Animal photographs
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book p. 51: Match each animal with the movement word. Student Book p. 53: Color animals according to fur, scales, feathers, or skin. Workbook p. 166: Identify movement body parts and complete movement words. Workbook p. 167: Match animals to body coverings. Exit ticket: Name one animal, how it moves, and one body part or covering. Formative checklist Names at least three movement types. Connects one animal to a body part used for movement. Identifies a body covering for a familiar animal. UDL Strategies Accept matching, acting, pointing, drawing, or oral explanation.	Student Book pp. 51 and 53 — Evaluation activities Workbook pp. 166–167 — Animals Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Animal Movement Charades: Students choose an animal card and demonstrate or point to a movement. Classmates name the movement and the body part used.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students choose one animal that can move in more than one way and explain which body parts support each movement.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Begin with three movement/body-part pairs: legs—walk/run, fins/flippers—swim, wings—fly. Add slither and the four body-covering categories after students are successful.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 3.3 – How Do Animals Protect Themselves?

Duration: 2 periods

Learning objectives

Identify defensive body parts and coverings presented in the Student Book, including claws, teeth, pincers, shells, horns, antlers, spines/quills, fangs, and stingers.

Explain that camouflage and other body features can help an animal avoid harm or defend itself.

Match familiar animals with an appropriate defensive body part or protective feature.

Science Inquiry Skills

Observing, communicating, comparing, classifying, inferring, analyzing, evaluating

Vocabulary

protect, defense, claws, teeth, pincers, shell, horns, antlers, spines, quills, scales, fangs, stinger, camouflage, surroundings

Science and pedagogy note

Keep the focus on observable structures and behaviors shown in the Student Book. Students do not need detailed explanations of toxins or predator-prey relationships. Use photographs and matching tasks rather than demonstrations involving sharp structures, stingers, or live animals.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, inferring, communicating) **Primary science emphasis: Help students connect a visible body part or behavior with a protective function.** Background: Animals in the Student Book use different structures and camouflage to protect themselves. Display several images from Student Book p. 54 without naming the defense. Ask: "What do you notice?" and "How might this part help the animal?" **What's in this lesson? What will I learn?** I can identify body parts that help animals protect themselves. I can explain one way an animal stays safe. **UDL Strategies** Use large, clear photographs and avoid images that may be distressing.	Student Book p. 54 — Defensive body parts Animal-defense picture cards Defense word cards

Lesson 3.3 – How Do Animals Protect Themselves? (Continued)

5E	Lesson	Resources and Materials
Explore (30 min)	(Science inquiry skills: observing, classifying, comparing, inferring, communicating) **Activity 1: Defense match** Students match animal pictures with defense cards: claws/teeth, pincers, hard shell, horns/antlers, spines/quills, fangs, stinger, or camouflage. **Activity 2: Sort the defenses** Sort cards into BODY PART / BODY COVERING / CAMOUFLAGE. Discuss that more than one protective feature may be possible for an animal. **Activity 3: What would help?** Show a familiar animal card and ask students to choose a protective feature from the book that fits the animal. **UDL Strategies** Use fewer cards and two-choice matching for students who need support.	Animal-defense photo cards Defense labels / category mats Student Book pp. 54–55 for reference
Explain (25 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 54–55. Examples in the book include sharp teeth and claws, crab pincers and outer shell, hard shells of turtles/tortoises/snails, horns and antlers, spines/quills, armor-like scales, fangs, stingers, and camouflage. Emphasize the function: these structures or behaviors help animals protect themselves from harm. **Language frames** "The _____ uses its _____ to protect itself." "The _____ stays safe by _____." **UDL Strategies** Pair each word with the animal photograph used in the book.	Student Book pp. 54–55 — Animal defenses Class defense chart — Animal / Protective feature Defense picture cards Amazing Animal Defenses | Learn Bright

Lesson 3.3 – How Do Animals Protect Themselves? (Continued)

5E	Lesson	Resources and Materials
Elaborate (20 min)	(Science inquiry skills: inferring, generating possibilities, communicating) **Animal Safety Clues** Students choose an animal and create one clue without naming it: "I have _____ to protect myself." Classmates identify the animal or defense. Pairs compare two animals with different defenses and tell how each one stays safe. **UDL Strategies** Offer picture sentence strips and allow students to point instead of writing.	Animal clue cards Sentence frames Defense photographs
Evaluate (15 min)	(Science inquiry skills: analyzing, evaluating, communicating) Student Book p. 56: Connect animals with an appropriate body covering or defensive body part. Workbook p. 168: Identify the animal described and name the defensive body part. Exit ticket: Complete "A _____ protects itself with _____." **Formative checklist** Identifies at least three defensive body parts or features. Matches a familiar animal to an appropriate defense. Explains the protective function in simple language. **UDL Strategies** Accept matching, pointing, drawing, or oral explanation.	Student Book p. 56 — Evaluation activity Workbook p. 168 — Animal defenses Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) **Defense Picture Walk: Display six animal images. Students place a matching defense label beside each and explain one choice.**	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare two animals that use different kinds of protection, such as a shell and camouflage, and explain how the two strategies differ.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, matching, communicating) Teach four high-contrast pairs first: turtle—shell, goat—horns, hedgehog—spines/quills, cat—claws. Add camouflage, fangs, and stingers after these are secure.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 3.4 – Domestic and Wild Animals

Learning objectives

Distinguish domestic animals from wild animals using the descriptions and examples in the Student Book.

Identify ways domestic animals help people, including work, farming, milk, eggs, meat, companionship, and protection as presented in the lesson.

Classify familiar animals as domestic or wild and give a simple reason for the classification.

Science Inquiry Skills

Observing, communicating, classifying, comparing, analyzing, evaluating

Vocabulary

domestic animal, wild animal, pet, farm, natural habitat, care, feeding, grooming, protection, work, milk, eggs, meat, shelter

Science and pedagogy note

Science and pedagogy note

Use the Student Book's domestic/wild categories and familiar examples. Focus on where the animals live, their relationship with people, and the care described in the text. Avoid asking students to approach or handle unfamiliar animals during observation activities.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Classify animals using the relationship with people and the living place described in the unit. Background: The Student Book contrasts animals kept in homes or farms with animals that live in natural habitats and do not depend on people for daily needs. Display one domestic and one wild animal from Student Book pp. 57–59. Ask: "Where does this animal live?" and "Does it live with people?" **What's in this lesson? What will I learn?** I can tell the difference between domestic and wild animals. I can tell one way a domestic animal helps people. **UDL Strategies** Use picture choices and familiar examples before less familiar animals.	Student Book pp. 57–59 — Domestic and wild animals Domestic/wild animal picture cards Two category labels or mats

Lesson 3.4 – Domestic and Wild Animals (Continued)

5E	Lesson	Resources and Materials
Explore (30 min)	(Science inquiry skills: observing, classifying, comparing, communicating) **Activity 1: Domestic or wild?** Groups sort animal cards under DOMESTIC and WILD. Use examples found in the Student Book and Workbook. **Activity 2: How domestic animals help** Match domestic animals with roles shown in the text: work/farming, milk, eggs/meat, companionship, or protection. **Activity 3: Where does it live?** Place home/farm and natural-habitat picture cards beside animals and discuss the relationship with people. **UDL Strategies** Reduce choices to two or four animals at a time when needed. Allow students to classify by placing a picture rather than writing.	Domestic/wild sorting cards Animal-help role cards Home/farm and natural-habitat pictures
Explain (25 min)	(Science inquiry skills: observing, analyzing, communicating) Guide students through Student Book pp. 57–59. Domestic animals in the book live with people in homes or on farms and receive basic care such as feeding, grooming, vaccinations, and protection. Examples of how domestic animals help people include work, farming, milk, meat, eggs, companionship, and protection. Wild animals in the book live in natural settings and do not depend on people for shelter, food, or water. **Language frames** "The _____ is domestic/wild because _____." "The _____ helps people by _____." **UDL Strategies** Keep a two-column class chart visible throughout the lesson.	Student Book pp. 57–59 — Domestic and wild animals Class chart — Domestic / Wild Animal-help matching cards Pet, Farm, and Wild Animals | Types of Animals for Kids

Lesson 3.4 – Domestic and Wild Animals (Continued)

5E	Lesson	Resources and Materials
Elaborate (20 min)	(Science inquiry skills: comparing, evaluating, communicating) **Animal Profile Card** Students choose an animal, classify it as domestic or wild, draw where it lives, and add one fact from the lesson. For a domestic animal, students may add how it helps people. For a wild animal, they may add a natural place where it lives. **UDL Strategies** Provide picture stickers, pre-drawn habitat choices, or partner scribing.	Animal Profile template Animal and habitat cards Crayons / pencils
Evaluate (15 min)	(Science inquiry skills: classifying, evaluating, communicating) Student Book p. 59: Complete the true/false statements. Workbook p. 169: Sort the pictured animals into domestic and wild groups. Unit Review Quiz p. 203: Complete selected Unit 3 questions and sorting activity. Exit ticket: Name one domestic animal and one wild animal. **Formative checklist** Correctly classifies familiar domestic and wild animals. Names one way a domestic animal helps people. Gives a simple reason for one classification. **UDL Strategies** Accept sorting, pointing, drawing, or oral responses.	Student Book p. 59 — True/false evaluation Workbook p. 169 — Domestic and Wild Animals Unit Review Quiz p. 203 — Selected items
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Domestic/Wild Gallery: Post animal photographs around the room. Students place a D or W card beside each and explain one selection.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, evaluating, communicating) Students compare one domestic and one wild animal that may look similar or share a body covering, then explain the different relationship each has with people.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: classifying, communicating) Use a four-picture sort first: dog and cow for domestic; lion and zebra for wild. Add additional animals from the Workbook after students can explain the first four.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Makerspace – Garden in a Glove

Suggested time: 1 setup period (40 minutes), followed by brief observations over several days. Students prepare seeds in a clear glove, observe changes, and discuss what seeds need to grow.

Safety note: Use clear gloves only as project containers; students should never place them over the face or head. Supervise permanent-marker use, handle wet materials carefully, and follow school procedures for seeds, allergies, and cleanup.

5E	Lesson	Resources and Materials
Engage	(Science inquiry skills: observing, communicating) Display Student Book p. 60. Ask students to compare two or more seed types: "How are the seeds alike?" and "How are they different?" Ask the book question: "What do you think the seeds will need to grow into plants inside the glove?"	Student Book p. 60 — Project page Several seed types for observation
Explore	(Science inquiry skills: observing, using equipment, comparing) Students use a magnifying glass to observe seed color, size, and shape. Wet cotton balls and compare a dry cotton ball with a wet one. Discuss why the procedure uses wet cotton. Students organize which seed type will go into each finger of the glove.	Magnifying glasses Clear gloves Seeds and cotton balls Water
Explain	(Science inquiry skills: communicating, predicting, analyzing) Review the project procedure from Student Book p. 60: label the glove, wet and wring out cotton balls, place seeds on each cotton ball, put one cotton ball in each finger, close the glove, and hang it for observation. Students make a simple prediction: "I think the seeds will _____."	Permanent markers Twist tie or pipe cleaner / tape as used in the book procedure Prediction strip How Does A Seed Become A Plant? | SciShow Kids

Makerspace – Garden in a Glove (Continued)

5E	Lesson	Resources and Materials
Elaborate	(Science inquiry skills: using equipment, generating possibilities, communicating) Students prepare the Garden in a Glove setup individually or in pairs, following the book sequence. Over several days, students observe the glove briefly and draw or mark visible changes. If different seed types are used, compare which changes appear first.	Completed glove setup Window, wall, or class display area Simple observation log
Evaluate	(Science inquiry skills: evaluating, communicating) Students use their first and later observations to answer: "What changed?" and "What did the seeds need during this setup?" Students compare two seed types or two observation days and share one similarity or difference. Use the checklist below for the setup and observation process.	Project checklist Observation drawings / notes

Project evaluation checklist

Criteria	Outstanding	Very Good	Keep Practicing
The student follows the Garden in a Glove setup sequence with support as needed.	☐	☐	☐
The seeds and wet cotton balls are placed correctly in the glove fingers.	☐	☐	☐
The student uses the magnifying glass and other materials safely.	☐	☐	☐
The student records at least one observation or change over time.	☐	☐	☐
The student names at least one thing seeds need to grow in the project.	☐	☐	☐

Answers to Student Book Questions

Unit opener, p. 43

Answers will vary. Students may describe similarities such as both examples being plants and differences such as size, flower/fruit appearance, leaf shape, or overall form. For the seed question, accept ideas connected to the needs of plants studied in Unit 2 and revisited during the Makerspace.

Student Book p. 46

Labels: leaves, fruit, flower, stem, roots, following the arrows in the diagram.

Student Book p. 47

Top-left flower—T (terrestrial); orchid growing on a branch—A (aerial); cactus—T (terrestrial); floating water plant—AQ (aquatic).

Student Book p. 49

Examples will vary. The page itself presents chamomile, mint, and rosemary as medicinal-plant examples.

Student Book p. 51

Snake—slither; horse—run; bird—fly; elephant—walk; spider—crawl; koala—climb; kangaroo—jump; dolphin—swim.

Student Book p. 53

Cat—fur (orange); chicken—feathers (blue); snake—scales (green); pig—skin (pink).

Student Book p. 56

Appropriate matches include hedgehog—spines; turtle—shell; goat/cow—horns; leopard—claws; crab—claws or shell, depending on the connection students make to the text. Accept a defensible match supported by the lesson.

Student Book p. 59

1. F 2. F 3. F 4. T.

Makerspace p. 60

Observations and predictions will vary. Students should compare seed appearance and identify needs discussed in the project and earlier plant lessons, such as water and suitable growing conditions.

Student Book p. 44

Leaf examples will vary. Accept two safely collected or teacher-provided leaves and observations based on visible similarities or differences.

Student Book p. 48

Answers will vary. Examples explicitly shown or named in the lesson include food and natural materials such as wood, paper, or fabric.

Student Book pp. 54–55

Responses to discussion prompts will vary. Accept explanations that connect an animal with one of the protective structures or behaviors shown in the lesson.

Answers to Workbook Questions

Workbook p. 165, Activity 1

A. leaf B. root C. stem D. flower. Note: "flower" is the intended answer available in the Workbook word bank for item D.

Workbook p. 165, Activity 2

From left to right: aquatic, terrestrial, terrestrial, aerial.

Workbook p. 165, Activity 3

Mint is explicitly identified as a medicinal plant in the Student Book. The activity also appears to intend ginger as a medicinal example; rose and ferns are not presented as medicinal examples in these Unit 3 pages.

Workbook p. 166, Activity 4

Shark—fins, swims; parrot—wings, flies; ant—legs, walks/crawls; penguin—flippers, swims. Accept legs/walks as an additional observation for the penguin if explained.

Workbook p. 166, Activity 5

Snake—slithers; goldfish—swims; squirrel—climbs; monkey—swings; kangaroo—hops; parrot—flies.

Workbook p. 167, Activity 6

Fur: fox, leopard, bear. Feathers: rooster/chicken and ostrich. Scales: shark. Shell: crab and turtle.

Workbook p. 168, Activity 7

Powerful claws and teeth—cougar/big cat; body parts: claws and teeth. Quills—hedgehog; body part: quills/spines. Tail stinger—scorpion; body part: stinger.

Workbook p. 169, Activity 8

Domestic Animals: goat, pig, rooster/chicken, sheep, cow. Wild Animals: leopard/big cat, rhinoceros, bear, elephant, kangaroo.

Workbook pp. 165–169

Accept equivalent animal or plant names when the picture is correctly identified and the classification or body part matches the activity.

Unit Review Quiz – Answer Key

Unit Review Quiz, p. 203

Part 1: 1. b) root 2. c) lion 3. b) to protect themselves

Parts 2 and 3

Part 2: Domestic Animals—cat, goat, dog. Wild Animals—tiger, elephant, zebra. Part 3: Answers will vary. Accept one plant need from the unit; a domestic animal plus a way it helps people; and one protective body part, covering, or behavior shown in the unit.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or "Open video" to follow the link.

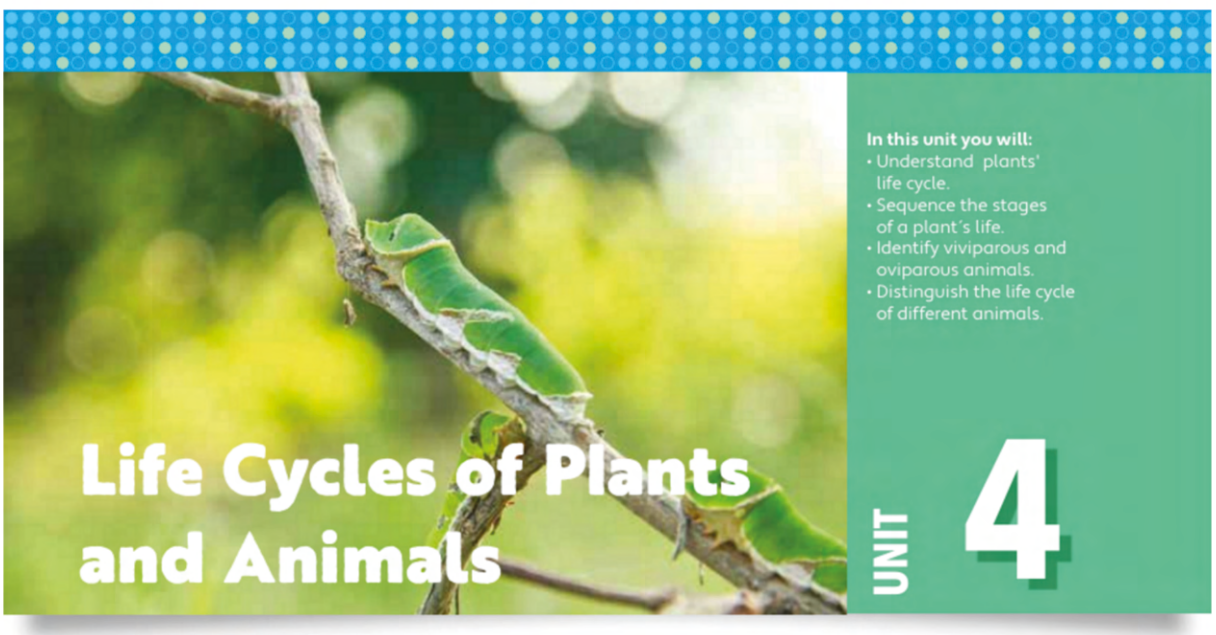
Topic	Resource	Teacher use	Direct video link
Plant parts	Parts Of A Plant | The Dr. Binocs Show | Peekaboo Kidz	Pause to identify roots, stem, leaves, flowers, fruit, and seeds and connect each part to a simple function.	**Open video**
Plant habitats	Terrestrial and Aquatic Habitats for Kids | Smile and Learn	Use selected examples to compare land and water habitats, then extend with the Student Book examples of aerial plants.	**Open video**
Plant uses	Why Plants Matter | Kew Gardens · KS1 Watch and Learn	Pause to identify ways plants provide food, medicine, clothing/materials, products, and clean air.	**Open video**
Animal movement	Animal Body Parts | Science for Kids	Use the sections on wings, fins, tails, claws, and hooves to connect body parts with flying, swimming, climbing, running, and balance.	**Open video**
Body coverings	Field Trip: Little Rock Zoo — Body Coverings | PBS	Pause to classify examples by fur/hair, feathers, scales, shells, or skin and discuss how coverings help animals.	**Open video**

Resource Bank (Continued)

Topic	Resource	Teacher use	Direct video link
Animal defenses	Amazing Animal Defenses | Learn Bright	Use teacher-selected clips to review camouflage, spines, fleeing, warning colors, and other ways animals protect themselves.	**Open video**
Domestic and wild	Pet, Farm, and Wild Animals | Types of Animals for Kids	Pause to sort examples as animals that live with people/on farms or animals that live in natural habitats.	**Open video**
Seed observation	How Does A Seed Become A Plant? | SciShow Kids	Use before or after Garden in a Glove so students predict and observe how a seed changes as it begins to grow.	**Open video**
Unit review	Animal Classification for Kids | Free Life Science Video	Use only selected segments that reinforce animal body coverings and familiar animal characteristics; skip details beyond Grade 1.	**Open video**

LIVING SCIENCE 1
Teacher's Guide

UNIT 4 · LIFE CYCLES OF PLANTS AND ANIMALS



Unit focus

Students investigate how plants and animals grow and change through life-cycle stages. They identify the needs and stages of a plant, classify animals as oviparous or viviparous, sequence mammal, frog, and butterfly life cycles, compare young organisms with their parents, and explain parental care and communication. The unit uses observation, sequencing, comparison, classification, discussion, movement, drawing, modeling, and a water-bottle Makerspace project.

Suggested pacing: 10 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 61–78 • Workbook pp. 171–175 • Unit Review Quiz p. 204

Contents

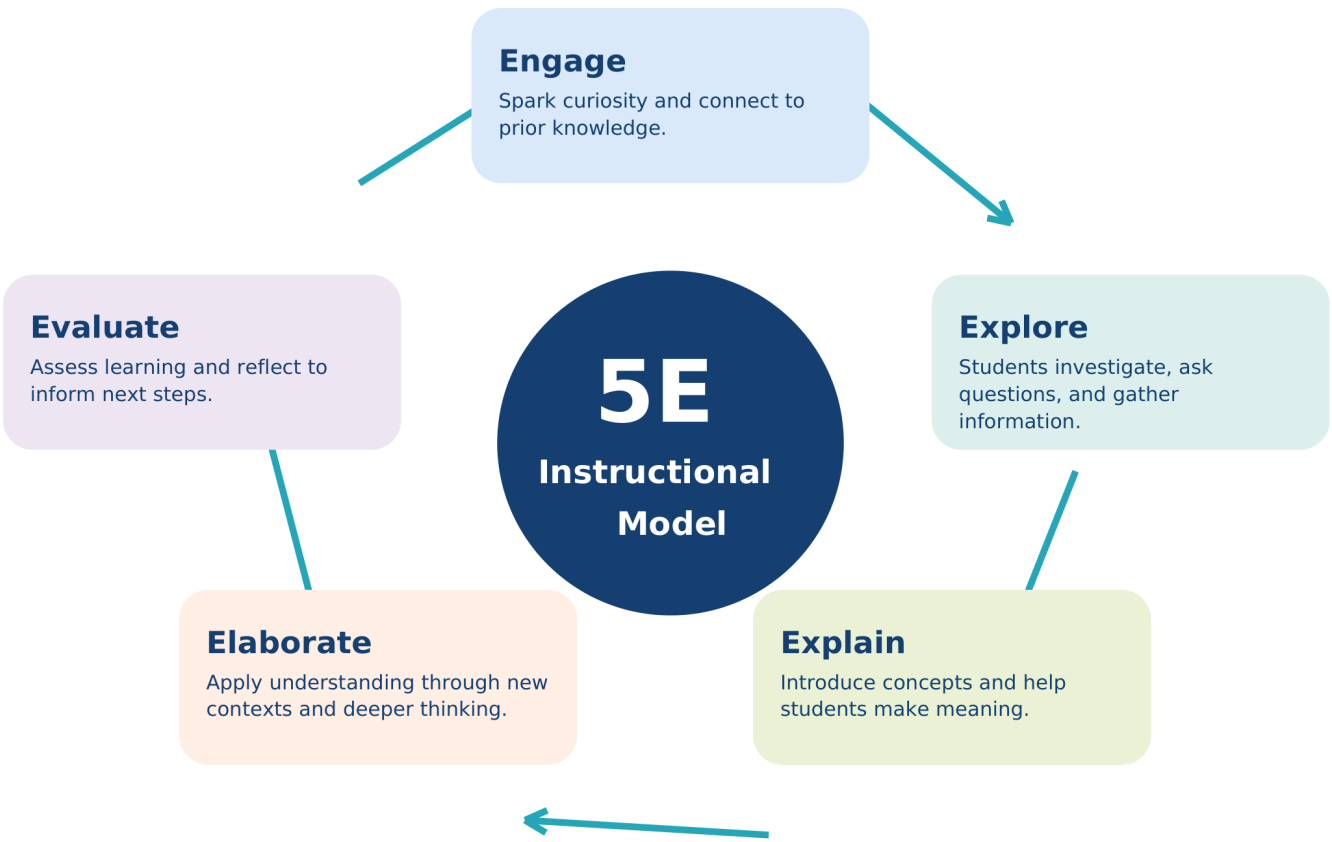
Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 4.1	What Is a Life Cycle?
Lesson 4.2	Animals' Life Cycles
Lesson 4.3	Baby Animals and Plants
Lesson 4.4	Animal Parents Take Care of Their Babies
Makerspace	Make Your Own Jellyfish in a Bottle
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through sequencing, picture sorting, comparison, observation, modeling, movement, drawing, and oral language. The examples below are written for Unit 4.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What stages or changes can you see in this life cycle?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show and tell what happens after the egg or seed stage.
Classifying	Sorting objects or pictures by a shared characteristic.	Which animals are oviparous, and which are viviparous?
Comparing	Recognizing similarities and differences.	How is the young animal like its parent? How is it different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The parent is calling. What might the baby need?
Predicting	Anticipating what may happen based on evidence.	What do you think will happen after the seed sprouts?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use the bottle, scissors, and water safely?
Analyzing	Looking closely at information to identify relationships.	What pattern do you notice in the frog and butterfly cycles?
Evaluating	Making a judgment based on criteria or evidence.	Does this sequence show the stages in the correct order? What is your evidence?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways an animal parent can help its young?
Formulating a simple hypothesis	Stating an expected result before a test.	I think the young animal will _____ because _____.

Unit 4 Overview: Life Cycles of Plants and Animals

Unit learning objectives

• Explain that a life cycle is the series of stages a living thing goes through during its lifetime.

• Identify soil, sunlight, air, and water as the four plant needs emphasized in the Student Book and sequence seed, sprout, seedling, and adult plant stages.

• Distinguish oviparous animals, which lay eggs, from viviparous animals, which give birth to live young.

• Describe and sequence selected mammal, frog, and butterfly life cycles.

• Compare young plants and animals with their parents using visible similarities and differences.

• Describe ways animal parents help young survive by feeding, warming, protecting, sheltering, teaching, and communicating.

Primary science emphasis

Students learn by observing and sequencing plant and animal life-cycle stages, sorting animals by how offspring are produced, comparing young organisms with adults, matching parents and offspring, and explaining how parental behaviors help young survive. Oral language, pointing, movement, picture sequencing, drawing, and matching are valid evidence of understanding in Grade 1.

Overview of lessons

Lesson	Learning Objectives	Periods
4.1	What Is a Life Cycle? Explain life cycle and identify the four plant needs emphasized in the book. Sequence seed, sprout, seedling, adult plant, and new-seed stages.	3
4.2	Animals' Life Cycles Distinguish oviparous and viviparous animals. Describe mammal growth and sequence frog and butterfly life cycles.	3
4.3	Baby Animals and Plants Compare young organisms with their parents. Identify needs of young animals and ways parents may help.	2
4.4	Animal Parents Take Care of Their Babies Describe parental care, teaching, and communication. Match familiar parents and offspring and explain how a behavior supports survival.	2

Unit vocabulary

life cycle, stage, grow, change, soil, sunlight, air, water, nutrients, seed, sprout, seedling, adult plant, flower, fruit, seed pod, reproduction, offspring, viviparous, oviparous, give birth, egg, hatch, mammal, zebra, jaguar, frog, tadpole, froglet, butterfly, larva, caterpillar, pupa, chrysalis, parent, young, similar, different, food, shelter, survive, care, protect, teach, communicate, warning, danger, predator, jellyfish, tentacles

Teacher preparation

Prepare plant-needs cards, plant and animal life-cycle sequence cards, oviparous/viviparous sorting cards, parent–offspring photographs, similarity/difference frames, and parental-care behavior cards. For the Makerspace, collect clean clear plastic bottles, thin plastic bags, thread, food coloring, child-safe scissors, towels, and materials for sealing caps. Preview all videos and confirm school access.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
4.1	3	Explain life cycle; identify plant needs; sequence a plant life cycle.	Observing, communicating, classifying, comparing, sequencing, predicting, analyzing	life cycle, soil, sunlight, air, water, seed, sprout, seedling, adult plant	Student Book pp. 61–65; Workbook p. 171
4.2	3	Distinguish oviparous and viviparous animals; sequence mammal, frog, and butterfly cycles.	Observing, communicating, classifying, comparing, sequencing, inferring, analyzing	reproduction, offspring, viviparous, oviparous, egg, hatch, tadpole, froglet, larva, pupa	Student Book pp. 66–71; Workbook pp. 172–173
4.3	2	Compare young organisms with parents; identify needs and parental help.	Observing, communicating, comparing, inferring, analyzing, evaluating	parent, young, similar, different, food, water, shelter, survive	Student Book pp. 72–74; Workbook p. 173
4.4	2	Describe parental care, teaching, and communication; match parents and offspring.	Observing, communicating, matching, comparing, inferring, evaluating	care, feed, protect, shelter, teach, communicate, warning, danger	Student Book pp. 75–77; Workbook pp. 174–175; Quiz p. 204
Makerspace	1 optional	Build and observe a jellyfish model; identify visible parts and discuss ocean-plastic safety.	Observing, communicating, using equipment, predicting, generating possibilities, evaluating	jellyfish, bell, tentacles, bottle, float, sink, ocean, plastic	Student Book p. 78; clear bottles, plastic bags, thread, food coloring, scissors

4.1 What Is a Life Cycle?

Lesson 4.1 **Duration: 3 periods**

Learning objectives

- Explain the meaning of life cycle and recognize that living things grow and change through stages.
- Identify soil, sunlight, air, and water as the plant needs emphasized in the Student Book.
- Sequence a plant life cycle from seed to sprout, seedling, adult flowering plant, and new seeds.

Science Inquiry Skills

Observing, communicating, classifying, comparing, sequencing, predicting, analyzing, evaluating

Vocabulary

life cycle, stage, grow, change, soil, sunlight, air, water, nutrients, seed, sprout, seedling, adult plant, flower, fruit, seed pod

Science and pedagogy note

Keep the plant-needs instruction aligned with Student Book pp. 62–63: soil, sunlight, air, and water. Explain that soil gives many land plants support and nutrients; avoid suggesting that every plant must grow in soil. Keep the life-cycle sequence concrete and circular: new seeds can begin another cycle.

5E	Lesson	Resources and Mate
Engage **(10 min)**	(Science inquiry skills: observing, comparing, communicating) **Primary science emphasis: Notice that living things grow and change in an ordered sequence.** **Background: Students know that plants are living things. This lesson connects plant needs with visible life-cycle stages.** **Unit opener** Display Student Book p. 61. Ask students to compare the plant sequence and ant cycle. Ask: "What changes from one picture to the next?" and "Do the stages repeat?" Record ideas. **What's in this lesson? What will I learn?** I can explain what a life cycle is. I can name what plants need and put plant stages in order. **UDL Strategies** Use large sequence cards, gestures for grow/change, and oral or picture responses. Let students handle and reorder cards before naming each stage.	Student Book p. 61 — Unit opener Plant and ant life-cycle pictures Chart paper / sticky notes

Lesson 4.1 · Explore & Explain

5E	Lesson	Resources and Mate
Explore **(40 min)**	(Science inquiry skills: observing, classifying, sequencing, predicting, communicating) **Activity 1: Plant-needs sort** Sort the eight pictures from Student Book p. 63 into PLANT NEEDS / NOT PLANT NEEDS: soil, sunlight, air, water versus donut, juice, eggs, sandwich. **Activity 2: Life-cycle sequence** Groups order seed, sprout, seedling, flowering adult, fruit/seed pod, and new-seed cards. Students explain what changed between adjacent stages. **Activity 3: Stage movement** Act out a seed, emerging sprout, growing seedling, adult plant, and seed release. **Guiding questions** What comes before and after the seedling? Why can a life cycle be shown in a circle? **UDL Strategies** Color-code the sequence and provide a four-stage version before adding detail.	Plant-needs picture cards Plant life-cycle sequence cards Stage labels / floor arrows Crayons, glue, child-safe scissors
Explain **(30 min)**	(Science inquiry skills: observing, analyzing, sequencing, communicating) Guide students through Student Book pp. 62–64. A life cycle is the series of stages a living thing goes through during its lifetime. The book emphasizes soil, sunlight, air, and water as plant needs. A seed begins to grow when it has suitable conditions. A sprout becomes a seedling with roots and leaves. The seedling grows into an adult plant. Flowers and fruits may produce seeds that begin a new cycle. **Language frames** "A plant needs _____ to grow." "First _____. Next _____. Then _____. Last _____." **UDL Strategies** Keep an illustrated sequence visible and point to each stage as students speak.	Student Book pp. 62–64 — Plant needs and life cycle Plant-needs anchor chart Life-cycle arrows and stage cards How Does A Seed Become A Plant? | SciShow Kids

Lesson 4.1 · Elaborate, Evaluate & Differentiation

5E	Lesson	Resources and Mate
Elaborate **(25 min)**	(Science inquiry skills: sequencing, predicting, generating possibilities, communicating) **Plant Life-Cycle Wheel** Students make or arrange a circular model with four to six plant stages. Partners cover one stage, predict the missing picture, and justify its position. Optional extension: add a symbol for a plant need beside the stage where it is useful. **UDL Strategies** Offer pre-cut pictures, tracing labels, partner scribing, or oral recording.	Life-Cycle Wheel template Stage pictures and arrows Paper fasteners / glue Word bank
Evaluate **(15 min)**	(Science inquiry skills: classifying, sequencing, analyzing, evaluating, communicating) Student Book p. 63: Circle the four plant needs. Student Book p. 65: Match descriptions to the plant-life-cycle sequence. Workbook p. 171: Complete Activities 1–4. Exit ticket: Put three plant stages in order and name one plant need. **Formative checklist** Explains life cycle as stages of growth and change. Identifies soil, sunlight, air, and water in the book activity. Sequences seed, seedling, adult plant, and new seeds. **UDL Strategies** Accept card ordering, pointing, drawing, acting, or oral explanation.	Student Book pp. 63 and 65 — Evaluation activities Workbook p. 171 — What is a life cycle? Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Human Life-Cycle Line-Up: Students arrange baby, child, adolescent, adult, and older-adult pictures, then compare this sequence with a plant life cycle.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students add arrows and captions to a plant cycle and explain why fruit or a seed pod connects the adult plant back to a new seed.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, sequencing, communicating) Begin with three cards: seed—seedling—adult plant. Add sprout and new-seed stages after students can explain the basic order.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

4.2 Animals' Life Cycles

Lesson 4.2 **Duration: 3 periods**

Learning objectives

- Distinguish oviparous and viviparous animals using the descriptions and examples in the Student Book.
- Describe how selected mammals grow from live young into adults.
- Sequence the life cycles of a frog and a butterfly and compare their stages.

Science Inquiry Skills

Observing, communicating, classifying, comparing, sequencing, inferring, analyzing, evaluating

Vocabulary

reproduction, offspring, viviparous, oviparous, give birth, egg, hatch, mammal, zebra, jaguar, frog, tadpole, froglet, adult frog, butterfly, larva, caterpillar, pupa, chrysalis

Science and pedagogy note

Use oviparous and viviparous exactly as the book's two reproductive categories, while explaining that both describe how young begin life. Keep frog and butterfly work focused on observable sequence and change. Use photographs or models; do not bring live eggs or animals to class unless school safety and welfare procedures explicitly permit it.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, comparing, classifying, communicating) Primary science emphasis: Compare how animals begin life and how their bodies change across stages. Background: Students can recognize adult and baby animals. This lesson introduces egg-laying/live-birth categories and two metamorphic cycles. Display Student Book p. 66. Ask: "Which animals are shown with eggs?" and "Which are shown with live young?" Show one frog and one butterfly cycle without labels. Invite students to notice changes. **What's in this lesson? What will I learn?** I can classify animals as oviparous or viviparous. I can put frog and butterfly stages in order. **UDL Strategies** Use photo cards, real-size gestures, two-choice questions, and repeated stage chants.	Student Book p. 66 — Animal reproduction Egg / live-young photo pairs Unlabeled frog and butterfly cycles

Lesson 4.2 · Explore & Explain

5E	Lesson	Resources and Materials
Explore (45 min)	(Science inquiry skills: observing, classifying, comparing, sequencing, communicating) **Activity 1: Egg or live young?** Sort familiar animals under OVIPAROUS and VIVIPAROUS. Ask students to support each choice with a picture clue or known fact. **Activity 2: Mammal growth** Order baby and adult zebra or jaguar pictures. Identify features that stay the same and changes in size. **Activity 3: Frog and butterfly cycles** Sequence frog eggs—tadpole—froglet—adult frog and butterfly egg—larva/caterpillar—pupa/chrysalis—adult. Place the two cycles side by side and compare the egg, young, changing, and adult stages. **UDL Strategies** Use tactile arrows, fewer cards, color-coded labels, and partner rehearsal.	Oviparous/viviparous sorting cards Zebra and jaguar growth cards Frog and butterfly sequence sets Category mats and arrows
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, sequencing, communicating) Guide students through Student Book pp. 66–71. Viviparous animals give birth to live young; oviparous animals lay eggs from which young hatch. The zebra and jaguar examples show young mammals growing larger while retaining recognizable body features. Frog sequence: eggs, tadpole, froglet, adult frog. Butterfly sequence: egg, larva/caterpillar, pupa/chrysalis, adult butterfly. Some parents care for young after birth or hatching; others provide little or no care. **Language frames** "The _____ is oviparous/viviparous because _____." "After the _____ stage comes _____." **UDL Strategies** Pair every technical word with the book picture and a simple action.	Student Book pp. 66–71 — Animal life cycles Two-category reproduction chart Frog and butterfly cycle diagrams The Life Cycle of a Frog | Video for Kids How Does a Caterpillar Become a Butterfly? | SciShow Kids

Lesson 4.2 · Elaborate, Evaluate & Differentiation

5E	Lesson	Resources and Materials
Elaborate (20 min)	(Science inquiry skills: comparing, sequencing, generating possibilities, communicating) **Life-Cycle Museum** Groups build one animal cycle on a desk or poster and prepare a short guided tour. Visitors ask: "What comes next?" and "Which stage looks most different from the adult?" Students add an egg/live-young label when appropriate. **UDL Strategies** Allow acting, pointing, audio recording, or picture labels instead of full sentences.	Animal cycle cards Poster paper / arrows Egg / live-young labels Sentence frames
Evaluate (20 min)	(Science inquiry skills: classifying, sequencing, analyzing, evaluating, communicating) Student Book p. 67: Classify the pictured animals. Student Book p. 71: Label and write the butterfly stages. Workbook p. 172: Classify six animals as oviparous or viviparous. Workbook p. 173: Label the frog life cycle. Exit ticket: Choose one cycle and name the stage after the egg. **Formative checklist** Uses oviparous and viviparous correctly for familiar examples. Sequences four frog or butterfly stages. Names one similarity or difference between two animal cycles. **UDL Strategies** Accept sorting, numbered pictures, pointing, acting, or oral explanation.	Student Book pp. 67 and 71 — Evaluation activities Workbook pp. 172–173 — Animal life cycles Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Life-Cycle Relay: Teams place one stage at a time in a floor sequence, then read the completed cycle together.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare the frog and butterfly cycles using two similarities and two differences, including how the young stages look and move.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, sequencing, communicating) Teach one four-stage cycle at a time with identical colors and arrows. Practice oral sequencing before introducing the second cycle.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 4.3 · Baby Animals and Plants

Lesson 4.3 **Duration: 2 periods**

Learning objectives

- Identify visible ways young plants and animals are similar to their parents.
- Identify visible ways young plants and animals are different from their parents.
- Explain that young animals need food, water, and shelter and may receive help from their parents.

Science Inquiry Skills

Observing, communicating, comparing, inferring, analyzing, evaluating

Vocabulary

parent, young, offspring, similar, different, roots, stem, leaves, flowers, fruits, fur, stripes, claws, food, water, shelter, survive, hunt, milk

Science and pedagogy note

Keep comparisons based on visible, age-appropriate evidence in Student Book pp. 72–74. Emphasize that young organisms are the same kind as their parents even when size, color, body covering, or number of leaves differs. Do not imply that every animal receives the same type or amount of parental care.

5E	Lesson	Resources and Materials
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Use observable characteristics to compare young organisms and adults. Background: Students have sequenced life cycles. They now focus on features that stay similar and features that change. • Display the tomato plants and tiger family on Student Book p. 72. • Ask: "What tells you the young plant or cub is the same kind as its parent?" and "What may change as it grows?" What's in this lesson? What will I learn? • I can tell how young plants and animals are like their parents. • I can tell how they are different and name what young animals need. UDL Strategies • Use SAME / DIFFERENT cards, pointing, partner talk, and picture choices.	• Student Book p. 72 — Young organisms and parents • Parent–young photo pairs • SAME / DIFFERENT cards

Lesson 4.3 · Explore & Explain

5E	Lesson	Resources and Materials
Explore (40 min)	(Science inquiry skills: observing, comparing, classifying, inferring, communicating) Activity 1: Same and different • Pairs compare tomato plants, sunflowers, tigers, kittens, and goslings by size, color, leaves, body parts, and covering. Activity 2: What does the young need? • Match FOOD, WATER, and SHELTER cards with young-animal photographs. • Add a parent-help card when the book shows feeding, protection, or teaching. Activity 3: Parent–young clues • Students choose a pair and give one similarity clue and one difference clue. UDL Strategies • Offer two-choice comparisons and sentence frames with picture symbols.	• Plant and animal comparison cards • Food / water / shelter symbols • Parent-help cards • Venn hoops or two-column mats
Explain (30 min)	(Science inquiry skills: observing, analyzing, inferring, communicating) • Guide students through Student Book pp. 72–74. • Young organisms often share structures or coverings with their parents: roots and leaves in plants; fur, stripes, legs, and claws in tigers. • Young organisms may be smaller, have fewer leaves, or have different colors or softer coverings. • Young animals need food, water, and shelter. The book shows adult lions teaching cubs and a dog feeding puppies milk. Language frames • "The young _____ is like its parent because _____." • "It is different because _____." • "The parent helps by _____." UDL Strategies • Model one complete comparison before students use the frames.	• Student Book pp. 72–74 — Similarities, differences, and needs • Same / Different class chart • Need and care picture cards • Jaguar Mother and Cubs in the Wild | BBC Studios

Lesson 4.3 · Elaborate, Evaluate & Differentiation

5E	Lesson	Resources and Materials
Elaborate (25 min)	(Science inquiry skills: comparing, inferring, generating possibilities, communicating) Growing-Up Profile • Students draw or choose one young organism and its adult. • They add one feature that stays similar and one feature that changes. • For an animal, they add one need and a possible way a parent helps. UDL Strategies • Provide stickers, pre-drawn outlines, word banks, or partner scribing.	• Growing-Up Profile template • Parent–young pictures • Crayons / pencils • Word bank
Evaluate (15 min)	(Science inquiry skills: comparing, analyzing, evaluating, communicating) • Student Book p. 73: Describe how goslings differ from the adult goose. • Student Book p. 74: Draw or paste an animal and its offspring. • Workbook p. 173: Compare a young pumpkin plant with its parent. • Exit ticket: Tell one similarity, one difference, and one need of a young animal. Formative checklist • Identifies one visible similarity. • Identifies one visible difference. • Names food, water, or shelter as a need and one possible source of help. UDL Strategies • Accept pointing to evidence, drawing, matching, or oral explanation.	• Student Book pp. 73–74 — Evaluation activities • Workbook p. 173 — Baby Animals and Plants • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Mystery Family Match: Students pair mixed photographs of adults and young, then explain the visible clue used for each match.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare two kinds of young organisms and explain why being smaller does not mean they are different kinds of living things.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, sequencing, communicating) Use one high-contrast pair at a time. Ask first for one same feature, then one different feature, using picture choices.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Lesson 4.4 · Animal Parents Take Care of Their Babies

Lesson 4.4 **Duration: 2 periods**

Learning objectives

- Describe ways animal parents care for young by feeding, warming, protecting, and providing shelter.
- Explain that some animal parents teach their young to find food, water, and safety.
- Identify sound as one way parents and young communicate needs or warnings.

Science Inquiry Skills

Observing, communicating, matching, comparing, inferring, analyzing, evaluating

Vocabulary

parent, baby, young, care, feed, warmth, protect, shelter, teach, food, water, safe, communicate, sound, warning, danger, predator

Science and pedagogy note

Focus on the parental behaviors shown in Student Book pp. 75–77: warming, protecting, feeding, sheltering, teaching, and communicating. The Evaluate prompts on pp. 75–76 repeat wording about goslings that does not match the pictured tasks; use the visible panda-care prompt on p. 75 and the parent–offspring matching pictures on p. 76.

5E	Lesson	Resources and Materials
Engage (10 min)	*(Science inquiry skills: observing, inferring, communicating)* Primary science emphasis: Connect a parent behavior with the need it helps a young animal meet. Background: Students know that young animals need food, water, and shelter. This lesson examines care, teaching, and communication. • Display selected pictures from Student Book pp. 75–77. • Ask: "What is the parent doing?" and "How could that help the baby survive?" **What's in this lesson? What will I learn?** • I can describe ways animal parents care for and teach their young. • I can explain one way parents and young communicate. **UDL Strategies** • Use clear photographs, action cards, sound cues, and gesture responses.	• Student Book pp. 75–77 — Parental behavior • Care / teach / communicate picture cards • Need labels

Lesson 4.4 · Explore & Explain

5E	Lesson	Resources and Materials
Explore **(40 min)**	*(Science inquiry skills: observing, matching, comparing, inferring, communicating)* **Activity 1: How does it help?** • Match FEED, KEEP WARM, PROTECT, PROVIDE SHELTER, TEACH, and WARN with parent–young photographs. **Activity 2: Parent and offspring** • Match adult elephant, pig, duck, tiger, shark, and rabbit with their young and offspring names from the Workbook. **Activity 3: Communication clues** • Sort examples into YOUNG NEEDS SOMETHING / PARENT WARNS OR CALLS. Use sounds only at a comfortable volume. **UDL Strategies** • Reduce the matching set, use real photographs, and permit pointing or partner responses.	• Parental-care behavior cards • Parent–offspring matching set • Offspring-name labels Communication scenario cards
Explain **(30 min)**	*(Science inquiry skills: observing, analyzing, inferring, communicating)* • Guide students through Student Book pp. 75–77. Parents may keep young warm, protect them from danger, feed them, and provide shelter. Parents may teach young where to find food and water and how to stay safe. Parents and young may communicate with sounds. A parent can call or warn; young may cry or call when they need food or water. Communication supports survival because it helps animals respond to needs or danger. **Language frames** • "The parent helps the young by _____." • "The sound tells the young/parent _____." **UDL Strategies** • Keep a behavior → need chart visible and model each link with one photograph.	• Student Book pp. 75–77 — Care, teaching, and communication • Behavior → Need anchor chart • Parent–offspring photographs • How Hippos Manage Their Young | BBC Studios • New-born Panda Reunited With Mother | BBC Earth

Lesson 4.4 · Elaborate, Evaluate & Differentiation

5E	Lesson	Resources and Materials
Elaborate (25 min)	*(Science inquiry skills: inferring, evaluating, generating possibilities, communicating)* **Survival Helper Role-Play** • Pairs draw one need and one parent behavior card, then act or describe how the behavior helps. • Classmates identify the behavior and the need. • Students suggest another safe way the parent might help. **UDL Strategies** • Students may use puppets, point to picture cards, or choose a recorded sound instead of acting.	• Need and behavior cards • Animal puppets or photographs • Sentence frames • Optional sound clips
Evaluate (15 min)	*(Science inquiry skills: matching, analyzing, evaluating, communicating)* • Student Book p. 75: Explain how the pictured adult behavior helps the young survive. • Student Book p. 76: Match each young animal with its adult. • Student Book p. 77: Identify calling as the communication shown. • Workbook pp. 174–175: Match offspring with parents and names. • Unit Review Quiz p. 204: Complete Part 1 and the butterfly-cycle drawing. **Formative checklist** • Names at least two forms of parental care. • Matches familiar parents and offspring. • Explains how one behavior or sound helps a young animal. **UDL Strategies** • Accept matching, acting, pointing, drawing, or oral explanation.	• Student Book pp. 75–77 — Evaluation activities • Workbook pp. 174–175 — Parent and offspring match • Unit Review Quiz p. 204 • Teacher observation checklist
Additional Activity	*(Science inquiry skills: observing, communicating, analyzing)* • Care Behavior Gallery: Students place food, warmth, shelter, teaching, or warning labels beside parent–young photographs and explain one choice.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	*(Science inquiry skills: comparing, analyzing, communicating)* • Students compare two parental behaviors and explain which need each behavior meets and whether the behaviors could work together.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	*(Science inquiry skills: observing, sequencing, communicating)* • Begin with three direct pairs: feeding—food, huddling—warmth, warning call—danger. Add shelter and teaching after students explain the first three.	• Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Makerspace · Make Your Own Jellyfish in a Bottle

Suggested time: 1 period (40 minutes). Students build a sealed jellyfish model in a clear plastic bottle, observe how its parts move in water, and connect the project to keeping plastic bags out of the ocean.

Safety note
Use only clean, unbreakable plastic bottles. An adult should prepare difficult cuts when needed and supervise child-safe scissors, thread, small plastic pieces, water, and food coloring. Seal caps securely; students must not drink the colored water. Keep plastic away from faces and mouths, clean spills promptly, and collect every scrap for proper disposal or reuse.

5E	Lesson	Resources and Materials
Engage	(Science inquiry skills: observing, communicating) Display Student Book p. 78 and a clear bottle of water. Ask: "What parts can you see on the model jellyfish?" and "What do those parts remind you of on a real jellyfish?" Introduce the ocean-plastic discussion question.	• Student Book p. 78 — Project page • Jellyfish photograph or short clip • Empty clear bottle
Explore	(Science inquiry skills: observing, using equipment, predicting) Students compare dry plastic with plastic submerged in water and predict how a small jellyfish shape will move. Demonstrate safe scissor, thread, bottle, and food-coloring use. Students identify the model's bell/body and tentacles.	• Clear plastic bottle and water • Thin plastic bag • Thread • Food coloring • Child-safe scissors
Explain	(Science inquiry skills: communicating, analyzing) Review the book procedure: cut a small plastic square and tie strip; pinch and tie the center to make the head; snip tentacles; place the model in the bottle; add 1–2 drops of coloring and water; cap tightly; swirl gently. Explain that the model moves because water pushes the lightweight plastic; it does not reproduce the movement of a living jellyfish exactly.	• Teacher demonstration model • Towels / tray • Cap-sealing material • Jellyfish | National Geographic

Makerspace · Jellyfish in a Bottle (Continued)

5E	Lesson	Resources and Materials
Elaborate	(Science inquiry skills: using equipment, generating possibilities, communicating) Students build the model individually or in pairs. They gently turn or swirl the sealed bottle and observe how the bell and tentacles move. Students compare slow and faster movement, then discuss why plastic bags and scraps must be kept out of the ocean.	• Completed sealed bottle • Observation prompt card • How We Can Keep Plastics Out of Our Ocean | National Geographic
Evaluate	(Science inquiry skills: evaluating, communicating) Students identify two visible parts, describe one movement they observed, and answer: "Why is it important to keep plastic bags out of the ocean?" Use the checklist below to assess safe construction, observation, explanation, and environmental responsibility.	• Project checklist • Student model • Oral or drawn reflection

Project evaluation checklist

Criteria	Outstanding	Very Good	Keep Practicing
The student follows the jellyfish-model sequence with support as needed.	☐	☐	☐
The bottle is filled and sealed safely, and all plastic scraps are collected.	☐	☐	☐
The student identifies the bell/body and tentacles on the model.	☐	☐	☐
The student describes how the model moves when the bottle is turned or swirled.	☐	☐	☐
The student explains one reason plastic bags should be kept out of the ocean.	☐	☐	☐

Answers to Student Book Questions

Student Book · pp. 61–78	
Unit opener, p. 61	Answers will vary. Similarities may include that both plants and animals begin as young forms, grow, change, become adults, and produce new young. Differences may include the number and appearance of stages; the ant cycle shown includes egg, larva, pupa, and adult, while the plant grows from seed through sprout and adult stages.
Student Book p. 63	Circle soil with nutrients, water, sun, and air.
Student Book p. 65	Correct sequence: first, a seed is planted in soil; next, a sprout comes out of the soil; then, the sprout grows into a plant with a flower; last, the flower becomes a fruit or seed pod containing new seeds.
Student Book p. 67	Viviparous: giraffe, cat, kangaroo. Oviparous: swan/bird. Accept the category words or correctly drawn connecting lines.
Student Book p. 69	Responses to the body-parts question will vary. Accept age-appropriate examples that connect a body part with a function, such as legs for walking, hands for holding, eyes for seeing, or lungs for breathing.
Student Book p. 71, Activity 1	From left to right: Eggs; Larva (caterpillar); Pupa (chrysalis); Adult (butterfly).
Student Book p. 71, Activity 2	First, egg. Next, larva/caterpillar. Then, pupa/chrysalis. Last, adult butterfly.
Student Book p. 72	Tiger cubs will grow bigger and taller and will look more like adult tigers while keeping features such as fur, stripes, four legs, and claws.
Student Book p. 73	Answers will vary. Young goslings are smaller and have soft down; their color and feathers differ from the adult goose. Accept visible comparisons supported by the picture.
Student Book p. 74	Drawings or photographs will vary. Students should name an animal and show its offspring. For the communication question, accept ideas such as crying, calling, or making sounds when young need food, water, or protection.
Student Book pp. 75–76	On p. 75, accept explanations that the adult panda keeps the young close, warm, and protected. On p. 76, match elephant calf—adult elephant; young rabbit—adult rabbit; kitten—adult cat; duckling—adult chicken. The repeated gosling wording appears inconsistent with the pictured tasks; assess the picture-based behavior or matching shown on each page.
Student Book p. 77	Circle "Calling its baby." Makerspace p. 78 Responses will vary. Visible model parts may include the bell/body and tentacles. Students may say tentacles help a jellyfish capture food and the bell helps it move. Plastic bags should stay out of the ocean because animals can become trapped in them or mistake them for food.

Answers to Workbook Questions

Workbook · pp. 171–175	
Workbook p. 171, Activity 1	c) All of the stages in a living thing's life.
Workbook p. 171, Activity 2	Drawings will vary. A complete response shows the seedling growing taller, developing more leaves, and becoming an adult plant that may produce flowers, fruits, and seeds.
Workbook p. 171, Activity 3	a) seed – seedling – adult plant.
Workbook p. 171, Activity 4	Draw soil, sunlight, air, and water. Accept clear symbols or labeled pictures.
Workbook p. 172, Activity 5	Viviparous: cat, monkey, horse, coati/raccoon-like mammal. Oviparous: chicken and fish.
Workbook p. 173, Activity 6	Top left: frog. Top right: eggs. Bottom left: tadpole. Bottom right: froglet.
Workbook p. 173, Activity 7	Answers will vary. Similarities may include the same leaf shape, stems, and growth pattern. Differences may include that the young plant is smaller, has fewer leaves, and may not yet have flowers or pumpkins.
Workbook pp. 174–175, Activity 8	Elephant—calf; pig—piglet; duck—duckling; tiger—cub; shark—pup; rabbit—kitten (the word supplied in the Workbook; kit is also scientifically acceptable).
Workbook pp. 171–175	Accept equivalent wording when the response accurately describes the stage, classification, similarity/difference, need, or parent–offspring relationship shown.

Unit Review Quiz · Answer Key

Unit Review Quiz · p. 204

Part 1

1. b) The way a living thing grows and changes 2. b) butterfly 3. c) They are smaller and may look different 4. b) Take care of them

Part 2

Draw and label the butterfly life cycle in order: Egg → Caterpillar (larva) → Pupa (chrysalis) → Butterfly (adult). Accept a circular or linear sequence when arrows and labels show the correct order.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or "Open video" to follow the link.

Topic	Resource	Teacher use	Direct video link
Plant needs and germination	**How Does A Seed Become A Plant? | SciShow Kids**	Use to connect water, light, air, and suitable growing conditions with the change from seed to young plant.	Open video
Plant life cycle	**Wisconsin Fast Plants Life Cycle Time Lapse**	Pause at visible stages and ask students to order seed, sprout, seedling, flowering plant, and new seeds.	Open video
Oviparous and viviparous	**Animal Reproduction: Egg-Laying Animals and Mammals**	Use selected examples to sort animals by hatching from eggs or being born live; keep terminology at the Grade 1 level.	Open video
Frog life cycle	**The Life Cycle of a Frog | Video for Kids**	Pause to sequence eggs, tadpole, froglet, and adult frog and identify changes in tail and legs.	Open video
Butterfly life cycle	**How Does a Caterpillar Become a Butterfly? | SciShow Kids**	Use to reinforce egg, larva/caterpillar, pupa/chrysalis, and adult butterfly in order.	Open video

Resource Bank (Continued)

Additional videos for parental care, ocean conservation, and unit review.

Topic	Resource	Teacher use	Direct video link
Young and parents	**Jaguar Mother and Cubs in the Wild | BBC Studios**	Use a brief, teacher-selected segment to compare adult and cub body features and discuss parental presence.	Open video
Parental care	**How Hippos Manage Their Young | BBC Studios**	Pause to identify protective behaviors and ask which need each behavior helps the young meet.	Open video
Jellyfish and ocean plastic	**How We Can Keep Plastics Out of Our Ocean | National Geographic**	Use after the Makerspace discussion to connect responsible plastic use with protecting ocean animals.	Open video
Unit review	**How an Egg Becomes a Baby Penguin | BBC Earth**	Use selected segments to revisit egg development, hatching, young/adult differences, and parental care.	Open video

LIVING SCIENCE 1
Teacher's Guide

UNIT 5 · WEATHER AND SEASONS



Unit focus

Students observe and describe daily weather, interpret simple forecasts, identify tools used to measure temperature, wind, rain, and snow, recognize major extreme-weather events and safety responses, and compare seasonal patterns. They communicate with words, symbols, pictures, simple models, and a Four Seasons Tree Craft.

Suggested pacing: 9 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 79–96 · Workbook pp. 177–181 · Unit Review Quiz p. 205

Contents

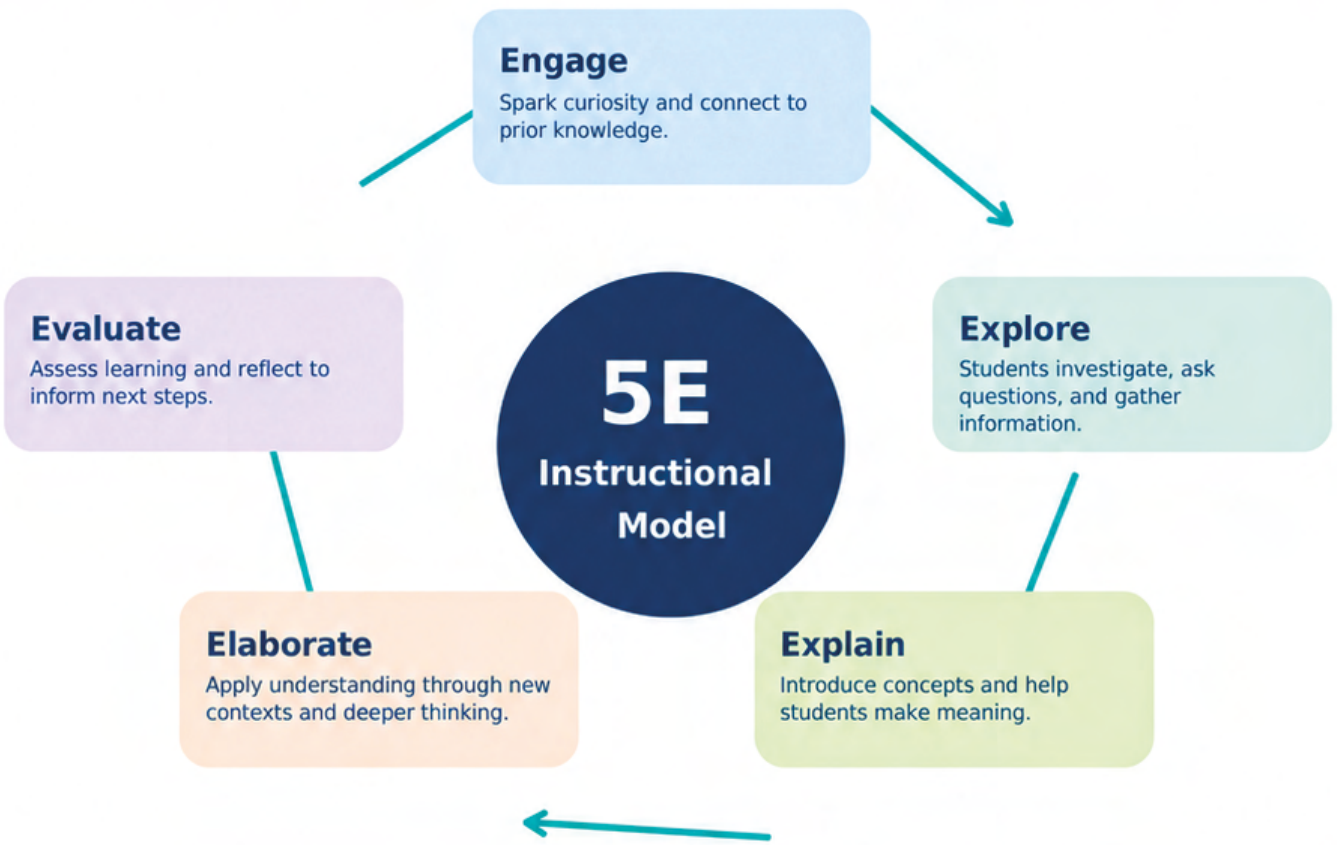
Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 5.1	What Is the Weather?
Lesson 5.2	Measuring Weather
Lesson 5.3	Extreme Weather
Lesson 5.4	Seasons
Makerspace	Four Seasons Tree Craft
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through outdoor observation, picture sorting, simple measurement, forecast interpretation, comparison, modeling, drawing, and oral language. The examples below are written for Unit 5.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What weather clues can you see or feel today?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show and tell how the weather changed from yesterday.
Classifying	Sorting objects or pictures by a shared characteristic.	Which tool would help us measure temperature, wind, or rain?
Comparing	Recognizing similarities and differences.	How are a flood and a drought different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The forecast shows rain. What should we prepare?
Predicting	Anticipating what may happen based on evidence.	What do you think the weather symbol for tomorrow will show?
Using apparatus and equipment	Using simple tools and materials safely.	How can we observe outdoors and use tools safely?
Analyzing	Looking closely at information to identify relationships.	What pattern do you notice as the seasons repeat?
Evaluating	Making a judgment based on criteria or evidence.	Does this picture match spring, summer, fall, or winter? What is your evidence?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways people prepare for extreme weather?
Formulating a simple hypothesis	Stating an expected result before a test.	I think tomorrow will be _____ because _____.

Unit 5 Overview: Weather and Seasons

Unit learning objectives

- Describe daily weather using observable conditions such as sunny, cloudy, rainy, snowy, windy, stormy, hot, and cold.
- Interpret a simple weather forecast and record weather observations with words, pictures, or symbols.
- Identify a thermometer, wind vane, anemometer, rain gauge, and snowfall measurement and state what each measures.
- Recognize thunderstorms, tornadoes, hurricanes, wildfires, droughts, and floods and follow adult-directed safety procedures.
- Name and describe spring, summer, fall, and winter using typical weather, plant, animal, and human-activity clues.
- Compare four-season patterns with tropical wet and dry seasons and explain that seasonal patterns repeat each year.

Primary science emphasis

Students learn through repeated observation, comparison, classification, simple measurement, forecast interpretation, and evidence-based discussion. Weather and seasons should be connected to students' local experience while retaining the vocabulary and examples in the Student Book. Oral language, pointing, sorting, drawing, symbols, movement, and simple models are valid evidence of understanding in Grade 1.

Overview of lessons

Lesson	Learning Objectives	Periods
5.1	What Is the Weather? • Describe and record daily weather. • Use common weather words and interpret a simple forecast.	2
5.2	Measuring Weather • Identify tools for temperature, wind, rain, and snowfall. • Connect each tool with what it measures.	2
5.3	Extreme Weather • Identify six extreme-weather events. • Explain effects and safe adult-directed responses.	2
5.4	Seasons • Describe spring, summer, fall, and winter. • Compare four seasons with tropical wet and dry seasons.	3

Unit vocabulary

weather, temperature, hot, cold, sunny, cloudy, partly cloudy, rainy, snowy, windy, stormy, cloud, rain, snow, sleet, hail, thunder, lightning, forecast, thermometer, wind vane, anemometer, rain gauge, direction, speed, amount, extreme weather, thunderstorm, tornado, hurricane, wildfire, drought, flood, safety, alert, emergency kit, season, spring, summer, fall, winter, wet season, dry season, pattern

Teacher preparation

Prepare weather-word and symbol cards, a class weather calendar, a simple forecast chart, photographs or safe models of a thermometer, wind vane, anemometer, and rain gauge, extreme-weather picture/safety cards, and season-sorting materials. Follow school and local emergency procedures. For the Makerspace, collect blue cardstock, clean paper rolls, cotton balls, nontoxic paint and glue, paintbrushes, construction paper, table protection, and child-safe scissors.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
5.1	2	Describe and record weather; interpret a simple forecast.	Observing, communicating, classifying, comparing, recording, predicting	weather, sunny, cloudy, rainy, snowy, windy, stormy, forecast	Student Book pp. 79–82; Workbook p. 177
5.2	2	Identify weather tools and connect each with its measurement.	Observing, comparing, using equipment, measuring, recording, analyzing	temperature, thermometer, wind vane, anemometer, rain gauge	Student Book pp. 83–86; Workbook p. 178
5.3	2	Identify extreme weather; explain effects and safe responses.	Observing, classifying, comparing, inferring, analyzing, evaluating	thunderstorm, tornado, hurricane, wildfire, drought, flood, alert	Student Book pp. 87–90; Workbook p. 179
5.4	3	Describe and compare seasonal patterns, including wet and dry seasons.	Observing, classifying, comparing, sequencing, identifying patterns	spring, summer, fall, winter, wet season, dry season	Student Book pp. 91–95; Workbook pp. 180–181; Quiz p. 205
Makerspace	1 optional	Build a four-season tree model and explain visible seasonal changes.	Observing, communicating, using equipment, generating possibilities, evaluating	season, tree, leaves, flowers, sun, cloud, snow	Student Book p. 96; cardstock, paper roll, cotton balls, paint, glue

5.1 What Is the Weather?

Lesson 5.1 | Duration: 2 periods

Learning objectives

- Describe weather as what the air outside is like at a particular place and time.
- Use weather words and symbols to observe, compare, and record daily conditions.
- Interpret a simple five-day forecast and identify basic storm-safety actions.

Science Inquiry Skills

Observing, communicating, classifying, comparing, recording, predicting, analyzing, evaluating

Vocabulary

weather, sunny, cloudy, partly cloudy, rainy, snowy, windy, stormy, hot, cold, cloud, rain, snow, sleet, hail, thunder, lightning, forecast

Science and pedagogy note

Weather describes short-term outdoor conditions and can change from day to day. Keep observations concrete and local. If students go outside, use the school's supervision and sun/rain procedures. Discuss lightning and storms calmly and follow official adult-directed safety guidance.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Use observable clues to describe weather at a place and time. Background: Students experience weather every day; the lesson develops precise language and repeated observation. Display Student Book p. 79. Invite students to name shapes they see in the clouds. Look outside or make a brief supervised observation. Ask: "What is the air and sky like today?" What's in this lesson? What will I learn? I can describe and record today's weather. I can read a simple weather forecast. UDL Strategies Use weather icons, gestures, two-choice questions, and oral or picture responses.	Student Book p. 79 — Unit opener Weather icon cards Window view or supervised outdoor area

5.1 What Is the Weather?

Explore & Explain

5E	Lesson	Resource(s) and Material(s)
Explore (35 min)	(Science inquiry skills: observing, classifying, comparing, recording, communicating) Activity 1: Weather detectives Observe sky cover, precipitation, wind clues, and how hot or cold the air feels. Record one symbol and one word on a class weather calendar. Activity 2: Weather-word sort Match sunny, cloudy, partly cloudy, rainy, snowy, windy, and stormy cards with pictures. Compare today with a previous day. Activity 3: Five-day forecast Use the chart on p. 82 to answer which day is cloudy or rainy and identify information not shown. UDL Strategies Provide high-contrast icons and allow pointing or partner recording.	Weather calendar Weather word and symbol cards Student Book p. 82 — Forecast chart Clipboard / crayons
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) Guide students through Student Book pp. 80–82. Weather is what the air outside is like at a particular place and time. Clouds contain tiny water drops. Rain falls as water drops; snow falls as ice crystals. A storm may bring heavy rain, snow, sleet, hail, strong winds, thunder, or lightning. A forecast tells what weather is expected. Language frames "Today is _____ and _____." "The forecast for _____ is _____." UDL Strategies Keep a word–icon chart visible and model one complete observation.	Student Book pp. 80–82 — Weather and forecasts Weather word–icon anchor chart The Weather SONG | Science for Kids | Grades K–2 All About Clouds for Kids | FreeSchool

5.1 What Is the Weather?

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s) and Material(s)
Elaborate (25 min)	(Science inquiry skills: recording, predicting, generating possibilities, communicating) Class Weather Report Pairs prepare a 20-second report naming sky, temperature feeling, wind, and precipitation. Students select an icon for tomorrow and explain the evidence or clarify that it is a prediction. UDL Strategies Allow prerecorded audio, pointing to icons, shared speaking, or sentence frames.	Weather-report frame Weather icons Class weather calendar
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book p. 82: Interpret the forecast and label weather symbols. Workbook p. 177: Complete Activities 1–3. Exit ticket: Choose two words or symbols that describe today's weather. Formative checklist Uses an appropriate weather word. Matches common weather symbols and conditions. Reads one day correctly from the forecast. UDL Strategies Accept pointing, matching, drawing, signing, or oral explanation.	Student Book p. 82 — Evaluation activities Workbook p. 177 — What is the weather? Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Weather Charades: Students select a weather card, act a safe clue, and classmates name the condition and evidence.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare two days on the class calendar and write or dictate two differences and one similarity.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Begin with sunny, cloudy, and rainy. Match real photographs to icons before adding windy, snowy, and stormy.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

5.2 Measuring Weather

Introduction & Engage

Lesson 5.2 **Duration: 2 periods**

Learning objectives

- Explain that temperature tells how hot or cold the air is and identify a thermometer as the measuring tool.
- Identify a wind vane, anemometer, and rain gauge and state what each measures.
- Use pictures or simple models to compare temperature, wind, rain, and snowfall observations.

Science Inquiry Skills

Observing, communicating, comparing, using equipment, measuring, recording, analyzing, evaluating

Vocabulary

temperature, thermometer, degrees Celsius, wind vane, direction, anemometer, wind speed, rain gauge, amount, rain, snowfall, depth

Science and pedagogy note

Students need to connect each tool with the quantity it measures, not master instrument calibration. Use child-safe models and teacher-prepared demonstrations. Do not place glass thermometers in students' hands; avoid outdoor measurement during unsafe weather.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Choose a tool that provides evidence about a weather condition. Background: Students can describe weather. This lesson introduces tools that make observations more specific. Display the two thermometers on Student Book p. 83. Ask which shows colder and hotter air. Reveal weather-tool pictures one at a time and invite predictions about what each measures. **What's in this lesson? What will I learn?** I can name weather tools and tell what they measure. I can compare simple weather measurements. **UDL Strategies** Use real objects or large photos, gestures, and tool–measurement matching cards.	Student Book p. 83 — Thermometers Weather-tool photographs or safe models Tool mystery bag

5.2 Measuring Weather

Explore & Explain

5E	Lesson	Resource(s) and Material(s)
Explore (35 min)	(Science inquiry skills: observing, using equipment, measuring, recording, communicating) **Activity 1: Tool stations** At supervised stations, examine a thermometer, wind vane model, anemometer model, and rain gauge. Match each tool with temperature, wind direction, wind speed, or amount of rain. **Activity 2: Model the measurement** Use arrows to show wind direction, count model anemometer turns, and compare rain-gauge levels. Compare the two book thermometers as hotter/colder. **UDL Strategies** Use one tool at a time, tactile arrows, color coding, and partner handling.	Safe thermometer or photograph Wind vane and anemometer models Plastic rain gauge / level cards Tool–measurement cards
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) Guide students through Student Book pp. 83–86. Temperature tells how hot or cold the air is; a thermometer measures it. A wind vane shows wind direction; an anemometer measures wind speed. A rain gauge measures how much rain falls. Snowfall can be measured by depth. The tool and the observation must match. **Language frames** "A _____ measures _____." "This reading is hotter/colder than _____." **UDL Strategies** Display a four-pair tool chart and rehearse each pair with an action.	Student Book pp. 83–86 — Measuring weather Tool → Measurement anchor chart Various Types of Thermometers | Science for Kids How to Use a Rain Gauge | CoCoRaHS

5.2 Measuring Weather

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s) and Material(s)
Elaborate (25 min)	(Science inquiry skills: using equipment, recording, predicting, communicating) **Mini Weather Station** Groups arrange tool pictures or safe models and create a station label for each. Given a question such as "How fast is the wind?", students select the correct tool and explain why. **UDL Strategies** Offer picture prompts, reduced choices, and partner or recorded explanations.	Tool models or photographs Measurement question cards Station labels Recording sheet
Evaluate (15 min)	(Science inquiry skills: matching, analyzing, evaluating, communicating) Student Book p. 86: Identify weather conditions and match instruments to measurements. Workbook p. 178: Complete Activities 4–6. Exit ticket: Select the tool for one weather question and state what it measures. **Formative checklist** Connects thermometer with temperature. Connects wind vane/anemometer with direction/speed. Connects rain gauge with amount of rain. **UDL Strategies** Accept object selection, matching, pointing, drawing, or oral explanation.	Student Book p. 86 — Evaluation activities Workbook p. 178 — Measuring Weather Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Tool–Question Relay: Students carry a question card to the correct instrument picture and explain the match.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students design a simple daily weather record with spaces for temperature, wind direction, wind speed, and precipitation.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Practice two contrasts first: thermometer—hot/cold and rain gauge—rain amount. Add the two wind tools after these are secure.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

5.3 Extreme Weather

Introduction & Engage

Lesson 5.3 **Duration: 2 periods**

Learning objectives

- Identify thunderstorms, tornadoes, hurricanes, wildfires, droughts, and floods from key features.
- Explain that extreme weather can affect people, animals, plants, and places.
- Identify safe, adult-directed responses to weather alerts and emergencies.

Science Inquiry Skills

Observing, communicating, classifying, comparing, inferring, analyzing, evaluating

Vocabulary

extreme weather, thunderstorm, thunder, lightning, hail, tornado, hurricane, strong wind, wildfire, drought, flood, weather alert, emergency kit, safe place

Science and pedagogy note

Teach preparedness without dramatizing disasters. Never simulate dangerous weather or ask students to share distressing experiences. Use school and local official procedures for alerts, shelter, evacuation, and reunification. The book includes wildfire because weather conditions can influence how fires start or spread; keep that relationship age-appropriate.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) **Primary science emphasis: Use visible and described features to identify extreme-weather events.** **Background: Students know ordinary weather words. This lesson distinguishes hazardous events and emphasizes calm, adult-directed safety.** • Display selected images from Student Book pp. 87–90 without labels. • Ask: "What clue do you notice?" and "Which trusted adult or alert tells us what to do?" **What's in this lesson? What will I learn?** • I can identify several kinds of extreme weather. • I can name a safe action directed by adults. **UDL Strategies** • Preview images, allow students to opt out of sound effects, and use calm visual routines.	• Student Book pp. 87–90 — Extreme weather • Event picture cards • School safety symbols

5.3 Extreme Weather

Explore & Explain

5E	Lesson	Resource(s) and Material(s)
Explore (35 min)	(Science inquiry skills: observing, classifying, comparing, inferring, communicating) **Activity 1: Feature match** • Match thunder/lightning/heavy rain, rotating funnel, strong circular storm, uncontrolled fire, long dry period, and too much water with the correct event. **Activity 2: Effect sort** • Sort age-appropriate effects on people, plants, animals, roads, homes, or habitats. **Activity 3: Alert and action** • Match simple alert cards with "listen to an adult," "move to the school safe area," or "take the emergency kit" according to local procedures. **UDL Strategies** • Use clear icons, fewer cards, and no realistic disaster sounds.	• Extreme-weather feature cards • Event labels • Effect and safety-action cards • School emergency plan
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 87–90. • Thunderstorms may bring thunder, lightning, heavy rain, hail, and strong winds. • Tornadoes are rapidly rotating columns of air; hurricanes are large storms with very strong winds and heavy rain. • Wildfires are uncontrolled fires; droughts are long dry periods; floods cover normally dry land with water. • During an alert, stay calm, listen to trusted adults, and follow the school or local safety plan. **Language frames** • "I know it is a _____ because _____." • "A safe action is _____ when an adult directs us." **UDL Strategies** • Use one defining clue and one safety action per event before adding detail.	• Student Book pp. 87–90 — Extreme weather • Event → Feature anchor chart • What Causes Thunder and Lightning? | SciShow Kids • Tornado Facts for Kids

5.3 Extreme Weather

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s) and Material(s)
Elaborate (25 min)	(Science inquiry skills: inferring, evaluating, generating possibilities, communicating) **Prepared, Not Scared** • Groups design a simple classroom safety card with one alert symbol, one trusted-adult action, and two kit items. • Students explain how the action reduces risk without reenacting the event. **UDL Strategies** • Offer preprinted symbols, partner scribing, and oral or recorded explanations.	• Safety-card template • Alert and kit-item icons • Crayons / glue • Local official safety guidance
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) • Student Book p. 90: Label flood and drought. • Workbook p. 179: Identify four events and complete a weather alert. • Exit ticket: Match one event with a feature and one adult-directed safe action. **Formative checklist** • Identifies events from key clues. • Names one possible effect. • Selects a calm, adult-directed safety response. **UDL Strategies** • Accept matching, pointing, drawing, or oral explanation; do not require personal disclosure.	• Student Book p. 90 — Evaluation activity • Workbook p. 179 — Extreme Weather • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Weather-Alert Match: Students pair a symbol, event name, and teacher-approved safety direction, then read the three-part match.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare two events by weather clues, possible effects, and one way official instructions may differ.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Teach three contrasting picture pairs first: flood/drought, thunderstorm/tornado, hurricane/wildfire. Add definitions after picture matching.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

5.4 Seasons

Introduction & Engage

Lesson 5.4 **Duration: 3 periods**

Learning objectives

- Name spring, summer, fall, and winter and identify common signs of each season.
- Compare seasonal changes in weather, plants, animals, clothing, and activities.
- Compare four-season patterns with the wet and dry seasons found in tropical places.

Science Inquiry Skills

Observing, communicating, classifying, comparing, sequencing, identifying patterns, analyzing, evaluating

Vocabulary

season, spring, summer, fall, winter, warm, hot, cool, cold, flowers, fruit, harvest, leaves, snow, ice, wet season, dry season, pattern

Science and pedagogy note

Seasonal examples vary by location. Teach the four-season sequence in the Student Book while validating tropical patterns such as Costa Rica's wet and dry seasons. At Grade 1, explain simply that Earth's tilt and movement around the Sun create seasonal patterns; avoid saying seasons occur because Earth is closer to or farther from the Sun.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) **Primary science emphasis: Identify repeating seasonal patterns from changes in weather and living things.** **Background: Students have observed daily weather. Seasons describe longer patterns and may look different across regions.** • Display the four scenes on Student Book p. 91. Ask what clues reveal each season. • Invite students to compare the book's four seasons with local wet and dry periods. **What's in this lesson? What will I learn?** • I can name and describe the four seasons. • I can compare four seasons with wet and dry seasons. **UDL Strategies** • Use season colors, clothing/activity props, and locally familiar photographs.	• Student Book p. 91 — Four seasons • Season scene cards • Local wet/dry season photographs

5.4 Seasons

Explore & Explain

5E	Lesson	Resource(s) and Material(s)
Explore (45 min)	(Science inquiry skills: observing, classifying, comparing, sequencing, communicating) **Activity 1: Season clues** • Sort trees, weather, clothing, animals, and activities under spring, summer, fall, and winter. **Activity 2: Season circle** • Sequence the four seasons in a repeating circle and explain what changes between adjacent seasons. **Activity 3: Local comparison** • Sort familiar local photos into wet and dry seasons. Compare those patterns with the four-season examples. **UDL Strategies** • Use fewer categories, tactile arrows, partner talk, and both local and book visuals.	• Season clue cards • Four-season circle and arrows • Wet/dry season photo set • Category mats
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, identifying patterns, communicating) • Guide students through Student Book pp. 91–95. • Spring often becomes warmer and brings new plant growth; summer is usually hotter; fall often becomes cooler and leaves may change; winter is usually coldest and may bring snow or ice. • Plants, animals, clothing, and activities may change with the season. • Earth's tilt and movement around the Sun create repeating seasonal patterns. • Many tropical places have wet and dry seasons instead of four strongly marked seasons. **Language frames** • "In _____, I notice _____." • "The wet/dry season is like _____ because _____." **UDL Strategies** • Keep a four-column chart and a separate wet/dry comparison visible.	• Student Book pp. 91–95 — Seasons • Four-season anchor chart • Wet / Dry comparison chart • Four Seasons | Science for Kids | Smile and Learn • Why Do We Have Seasons? | Science for Kids

5.4 Seasons

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s) and Material(s)
Elaborate (25 min)	(Science inquiry skills: comparing, identifying patterns, generating possibilities, communicating) Season Expert Panels • Groups prepare one season poster with weather, tree/plant, animal, clothing, and activity clues. • A fifth group prepares a local wet/dry comparison. Groups present and answer one evidence question. **UDL Strategies** • Allow collage, labeled drawing, audio, acting, or shared presentation roles.	• Season poster templates • Picture cutouts • Crayons / glue • Local weather photographs
Evaluate (20 min)	(Science inquiry skills: classifying, sequencing, analyzing, evaluating, communicating) • Student Book p. 94: Label the four trees; p. 95: complete local/seasonal responses. • Workbook pp. 180–181: Complete Activities 9–12. • Unit Review Quiz p. 205: Complete Parts 1 and 2. • Exit ticket: Name one season and give two supporting clues. **Formative checklist** • Names and sequences the four seasons. • Classifies common seasonal clues. • Explains one similarity or difference between four-season and wet/dry patterns. **UDL Strategies** • Accept sorting, picture labels, drawing, acting, or oral explanation.	• Student Book pp. 94–95 — Evaluation activities • Workbook pp. 180–181 — Seasons • Unit Review Quiz p. 205 • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Season Soundscape: Groups create safe, quiet sounds or movements for rain, wind, birds, leaves, or snow and explain the seasonal clue.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students build a two-column comparison of the book's four seasons and local wet/dry seasons, including weather and activity evidence.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Match one strong clue to each season first: flowers—spring, hot sun—summer, colored leaves—fall, snow—winter. Then add local exceptions.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

Makerspace

Four Seasons Tree Craft

Suggested time: 1 period (40 minutes). Students create a four-season tree model and use its colors and details to communicate changes in weather and plants across the year.

Safety note
Use clean paper rolls, child-safe scissors, nontoxic washable paint and glue, and table protection. Check cotton, paint, and adhesive sensitivities. An adult should pre-cut stiff materials as needed. Keep cotton and small scraps away from mouths, clean spills promptly, and allow painted pieces to dry before handling.

5E Stage	Lesson Notes	Resources
Engage	(Science inquiry skills: observing, communicating) Display Student Book p. 96 and four seasonal tree images. Ask: "What changes on the tree?" and "What weather clues could we add around it?" Review the project goal and safe material use.	Student Book p. 96 — Project page Four seasonal tree photographs Completed teacher model
Explore	(Science inquiry skills: observing, classifying, using equipment) Students sort colors and decorations by season: green for summer; green, yellow, and orange for fall; pink and white for spring; white or bare details for winter. They test how cotton balls attach to the paper-roll trunk.	Blue cardstock Clean paper rolls and cotton balls Nontoxic glue and paint Child-safe scissors
Explain	(Science inquiry skills: communicating, sequencing, analyzing) Review the book procedure: form the trunk from a paper roll; attach cotton-ball foliage; paint seasonal sections; add construction-paper clouds, sun, rain, flowers, leaves, or snowflakes. Explain that the model shows typical clues, which vary by place.	Teacher demonstration model Paintbrushes / paint trays Construction paper Four Seasons | Science for Kids | Smile and Learn

Makerspace

Four Seasons Tree Craft · Continued

5E Stage	Lesson Notes	Resources
Elaborate	(Science inquiry skills: using equipment, generating possibilities, communicating) Students build individually or in pairs, adding at least one tree clue and one weather clue for each season. Partners rotate the model and explain spring, summer, fall, and winter in order. Optional local extension: add wet/dry season labels.	Student models Season word bank Weather-symbol cutouts Drying area
Evaluate	(Science inquiry skills: evaluating, communicating) Students identify all four seasons, explain two visible changes, and state that seasonal clues can differ by location. Use the checklist below to assess safe construction, scientific accuracy, sequence, and communication.	Project checklist Student model Oral or drawn reflection

Project Assessment Checklist

Criteria	Outstanding	Very Good	Keep Practicing
The student follows the Four Seasons Tree Craft sequence with support as needed.	☐	☐	☐
Materials are used safely and the work area is kept orderly.	☐	☐	☐
The model includes recognizable clues for spring, summer, fall, and winter.	☐	☐	☐
The student explains at least two changes in the tree or weather across seasons.	☐	☐	☐
The student recognizes that seasonal patterns or timing can vary by location.	☐	☐	☐

Answers to Student Book Questions

Student Book · Pages 79–96

Unit opener, p. 79
Answers will vary. Accept imaginative cloud-shape descriptions supported by the picture. For the outdoor prompt, students should describe observable conditions such as sunny/cloudy, hot/cold, windy/calm, or wet/dry.

Student Book pp. 80–81
Answers will vary. Students should use appropriate weather words. A cloud is made of tiny water drops; rain falls as water drops, while snow falls as ice crystals. During a storm, follow teacher, family, and local safety instructions.

Student Book p. 82, forecast
The chart shows Monday sunny, Tuesday partly cloudy, Wednesday cloudy, Thursday rainy, and Friday rainy with some sun. Saturday is not shown, so it cannot be determined from the chart. Friday is rainy; Wednesday is cloudy.

Student Book p. 82, weather symbols
From left to right: sunny; rainy/partly sunny; snowy; cloudy.

Student Book p. 83
The left thermometer is colder (approximately –20 °C); the right thermometer is hotter (approximately 30 °C).

Student Book pp. 84–85
A wind vane measures wind direction; an anemometer measures wind speed; a rain gauge measures the amount of rain. Snowfall can be measured by its depth. Drawings and observations will vary.

Student Book p. 86, Activity 1
1. rainy 2. windy 3. sunny 4. sunny 5. snowy. Activity 2 Thermometer—temperature; rain gauge—amount of rain; wind vane—wind direction; anemometer—wind speed.

Student Book pp. 87–88
Accept descriptions that use defining clues: thunderstorm—thunder, lightning, heavy rain or hail; tornado—rapidly rotating column of air; hurricane—large storm with very strong winds and heavy rain.

Student Book p. 89
Wildfires can burn plants, destroy habitats and buildings, create smoke, and cause people and animals to move to safety. Accept age-appropriate effects supported by the lesson.

Student Book p. 90
First picture: flood. Second picture: drought.

Student Book pp. 91–94
Common sequence: spring, summer, fall, winter. On p. 94, label the trees from left to right: summer, fall, spring, winter.

Student Book p. 95
Answers and drawings will vary. Accept activities and clothing that fit the season or local wet/dry pattern. Makerspace p. 96: models vary; students should explain at least one tree or weather change across seasons.

Answers to Workbook Questions

Workbook · Pages 177–181

Workbook p. 177, Activity 1
Left picture: rainy. Right picture: sunny.

Workbook p. 177, Activity 2
b) How hot or cold the air outside is.

Workbook p. 177, Activity 3
Cloudy: third symbol. Rainy: first symbol. Stormy: third symbol.

Workbook p. 178, Activities 4–5
4. c) thermometer. 5. c) anemometer.

Workbook p. 178, Activity 6
Left thermometer: hotter; color red. Right thermometer: colder; color blue.

Workbook p. 179, Activity 7
From left to right, top to bottom: flood; hurricane; thunderstorm; wildfire.

Workbook p. 179, Activity 8
Complete the alert with Heavy rain & hail and Dangerous lightning. Date, location, and time will vary. Emergency-kit drawings may include water, flashlight, radio and batteries, and first-aid supplies.

Workbook pp. 180–181, Activities 9–12
9. wet and dry. 10. summer. 11. winter. 12. Winter—snowman, snowflake; Spring—umbrella, flowers; Summer—sun, beach chair; Fall—orange-leaved tree, boots.

Workbook pp. 177–181
Accept equivalent wording and locally appropriate examples when they accurately describe weather, tools, safety, or seasonal patterns.

Unit Review Quiz: Answer Key

Unit Review Quiz · Page 205

Part 1:

1. thermometer 2. sunny 3. tornado 4. season 5. rainy

Part 2:

1. Weather is what the air outside is like at a particular place and time. 2. Clues may include dark clouds or a rainy forecast. 3. Accept any extreme-weather event from the unit. 4. Answers will vary; students should name a season and give a relevant reason.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or "Open video" to follow the link.

Topic	Resource	Teacher use	Direct video link
Weather words	**The Weather SONG | Science for Kids | Grades K–2**	Use for movement and repeated practice with sunny, cloudy, rainy, snowy, windy, and stormy vocabulary.	Open video
Clouds	**All About Clouds for Kids | FreeSchool**	Use selected segments to connect clouds with tiny water drops and observable weather clues.	Open video
Temperature	**Various Types of Thermometers | Science for Kids**	Preview and select the introductory segment to reinforce that thermometers measure temperature.	Open video
Rain measurement	**How to Use a Rain Gauge | CoCoRaHS**	Use a short demonstration to show how a rain gauge collects and measures rainfall.	Open video
Thunder and lightning	**What Causes Thunder and Lightning? | SciShow Kids**	Use teacher-selected segments to reinforce thunderstorm vocabulary and calm safety discussion.	Open video

Resource Bank (Continued)

Topic	Resource	Teacher use	Direct video link
Tornadoes	**Tornado Facts for Kids**	Pause to identify the rotating funnel shape and compare it with other extreme-weather events.	Open video
Wildfires	**Wildfires 101 | National Geographic**	Use only a brief, previewed segment to identify wildfire effects and the role of dry, windy conditions.	Open video
Four seasons	**Four Seasons | Science for Kids | Smile and Learn**	Pause at each season to classify weather, plants, clothing, and activities.	Open video
Season patterns	**Why Do We Have Seasons? | Science for Kids**	Use the simple animation to reinforce Earth's tilt and repeating seasonal patterns without overloading detail.	Open video

LIVING SCIENCE 1
Teacher's Guide

UNIT 6 · EARTH AND SPACE



Unit focus

Students investigate the Sun, Earth, Moon, planets, and familiar sources of heat and light. They model Earth's rotation and revolution, distinguish the Moon's orbit, identify planet characteristics, classify energy sources, and compare reversible and irreversible changes. The unit uses observation, picture analysis, movement, sorting, drawing, modeling, discussion, and a supervised solar-oven Makerspace project.

Suggested pacing: 10 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 97–114 · Workbook pp. 183–187 · Unit Review Quiz p. 206

Contents

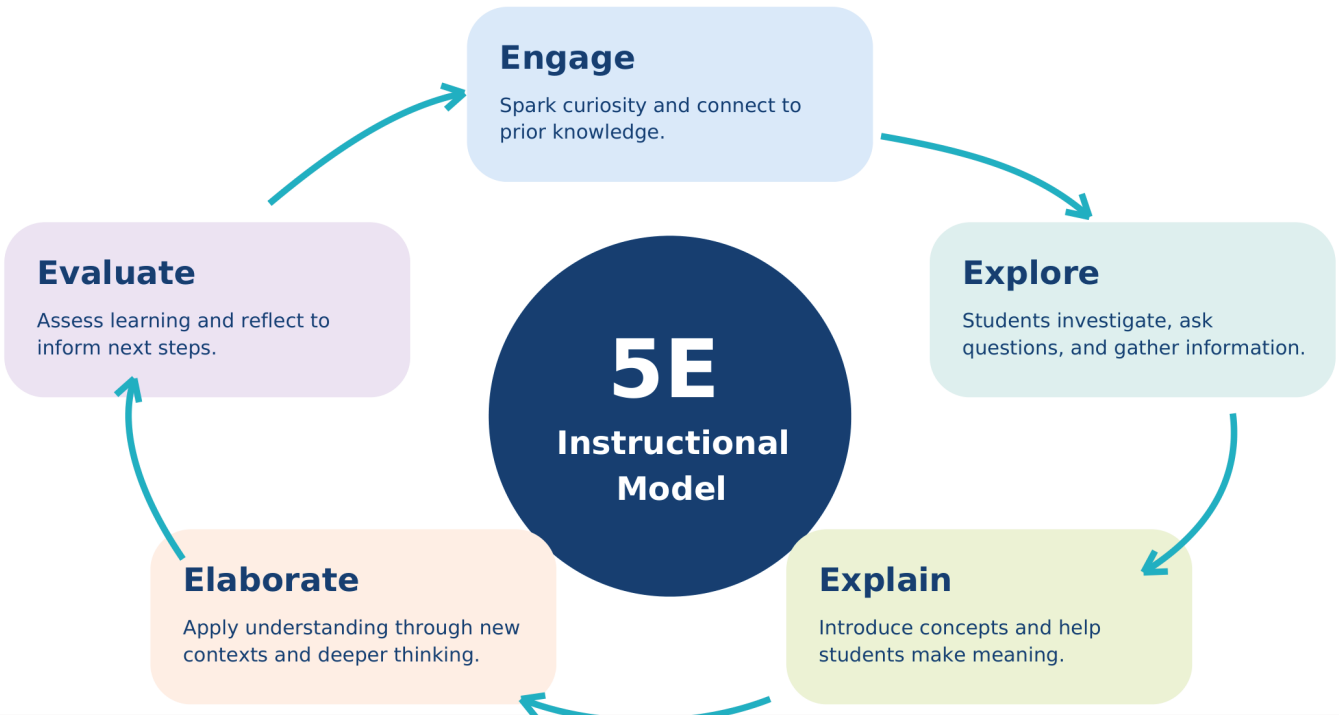
Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 6.1	What Is the Sun?
Lesson 6.2	How Earth Moves
Lesson 6.3	What Are Planets?
Lesson 6.4	Heat and Light
Makerspace	Build a Pizza Box Solar Oven
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through sky observation, picture analysis, movement models, sorting, comparison, prediction, drawing, simple investigations, and oral language. The examples below are written for Unit 6.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What clues show that the Sun gives us light and heat?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show how Earth moves to make day and night.
Classifying	Sorting objects or pictures by a shared characteristic.	Which movement is rotation, and which is revolution?
Comparing	Recognizing similarities and differences.	How is the Moon different from the Sun?
Inferring	Using observations and prior knowledge to suggest an explanation.	The Moon looks bright. Where does its light come from?
Predicting	Anticipating what may happen based on evidence.	What do you predict will happen when this side of Earth turns away from the Sun?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use models, sunlight, and warm materials safely?
Analyzing	Looking closely at information to identify relationships.	What pattern do you notice as Earth rotates?
Evaluating	Making a judgment based on criteria or evidence.	Does this object produce heat, light, or both? What is your evidence?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways we can model an orbit?
Formulating a simple hypothesis	Stating an expected result before a test.	I think the solar oven will become _____ because _____.

Unit 6 Overview: Earth and Space

Unit learning objectives

- Identify the Sun as a star made of very hot gases and describe its importance as Earth's main source of light and heat.
- Explain that Earth rotates on its axis in about 24 hours and revolves around the Sun in about 365 days.
- Describe the Moon as Earth's natural satellite, explain that it reflects sunlight, and recognize that it orbits Earth.
- Recognize a planet as a large, nearly round object that orbits a star and does not make its own light.
- Identify and classify common sources and uses of heat and light.
- Distinguish selected reversible and irreversible changes caused by heating or cooling and apply the ideas in a solar-oven model.

Primary science emphasis

Students learn by observing sky patterns safely, modeling motions, matching objects with scientific categories, and explaining evidence. Models should be presented as simplified representations, not exact scale copies. Never look directly at the Sun. Oral language, pointing, movement, picture sorting, drawing, and model demonstration are valid evidence of understanding in Grade 1.

Overview of lessons

Lesson	Learning Objectives	Number of Periods
6.1	What Is the Sun? • Identify the Sun and describe its importance. • Observe light, warmth, and apparent daily position safely.	2
6.2	How Earth Moves • Distinguish rotation and revolution. • Model day/night and describe the Moon's orbit and reflected light.	3
6.3	What Are Planets? • Identify defining planet characteristics. • Recognize Earth in a Sun–planet–Moon model.	2
6.4	Heat and Light • Classify sources and uses of heat and light. • Compare reversible and irreversible changes.	3

Unit vocabulary

Sun, star, Solar System, hot gas, sunlight, light, heat, warmth, solar energy, morning, noon, evening, rise, set, Earth, axis, rotate, rotation, day, night, revolve, revolution, year, season, Moon, natural satellite, orbit, reflect, phase, rock, metal, planet, round, gravity, source, heater, stove, firewood, coal, lightbulb, candle, flashlight, energy, warm, cool, solid, liquid, gas, heating, cooling, reversible change, irreversible change, solar oven

Teacher preparation

Prepare Sun–Earth–Moon models, rotation/revolution arrows, day/night cards, planet photographs and feature cards, heat/light source pictures, and reversible/irreversible change pairs. Establish a strict no-direct-Sun-viewing rule. For the Makerspace, collect clean pizza boxes, black paper, foil, plastic wrap, tape, glue, rulers, pencils, and wooden sticks; only an adult may use the utility knife. Plan supervised outdoor testing and a non-food observation sample.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
6.1	2	Identify the Sun; explain benefits; observe daily light and warmth safely.	Observing, communicating, comparing, recording, inferring, predicting	Sun, star, light, heat, sunlight, morning, noon, evening	Student Book pp. 97–101; Workbook p. 183
6.2	3	Distinguish rotation/revolution; model day/night; describe the Moon.	Observing, comparing, modeling, sequencing, inferring, analyzing	axis, rotation, day, night, revolution, orbit, Moon, satellite, reflect	Student Book pp. 102–105; Workbook pp. 184–185
6.3	2	Identify planet characteristics and the Sun–Earth–Moon relationship.	Observing, classifying, comparing, modeling, inferring, analyzing	planet, star, orbit, round, reflect, rocky, gas, gravity	Student Book pp. 106–108; Workbook p. 186
6.4	3	Classify heat/light sources; compare reversible and irreversible changes.	Observing, classifying, comparing, using equipment, predicting, evaluating	heat, light, source, warm, cool, reversible, irreversible	Student Book pp. 109–113; Workbook pp. 186–187; Quiz p. 206
Makerspace	1 optional	Build and test a pizza-box solar oven model; explain energy transfer.	Observing, communicating, using equipment, predicting, recording, evaluating	solar oven, sunlight, heat, reflect, absorb, insulate, warm	Student Book p. 114; pizza box, foil, plastic wrap, black paper, tape

6.1 What Is the Sun?

Lesson 6.1 | Duration: 2 periods

Learning objectives

• Identify the Sun as the star at the center of the Solar System and describe basic characteristics.

• Explain that the Sun provides Earth with light and heat and supports plants and other living things.

• Observe and describe apparent changes in the Sun's position and the light and warmth across a day.

Science Inquiry Skills

Observing, communicating, comparing, recording, inferring, predicting, analyzing, evaluating

Vocabulary

Sun, star, Solar System, hot gas, light, heat, warmth, sunlight, plants, solar energy, vitamin D, morning, noon, evening, rise, set

Science and pedagogy note

Never ask students to look directly at the Sun, even through sunglasses, clouds, cameras, binoculars, or homemade filters. Observe only indirect evidence such as shadows, brightness, and warmth. The Sun appears to move because Earth rotates; the Sun itself does not travel across Earth's sky each day.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Use indirect evidence to identify the Sun's effects on Earth. Background: Students know the daytime sky is bright. This lesson connects the Sun with light, heat, plant growth, and daily patterns. Display Student Book p. 97. Ask what students know about the Sun and why the scene is bright. State the safety rule: never look directly at the Sun. Observe a shaded and sunlit area instead. What's in this lesson? What will I learn? I can describe the Sun and explain why it is important. I can observe its effects safely. UDL Strategies Use photographs, light/warmth icons, gestures, and oral or picture responses.	Student Book p. 97 — Unit opener Sun / light / heat picture cards Safe shaded and sunlit observation areas

6.1 What Is the Sun?

Explore, Explain, Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s)
Explore (40 min)	(Science inquiry skills: observing, comparing, recording, predicting, communicating) Activity 1: Sunlight evidence Compare brightness and surface warmth in shade and indirect sunlight without touching very hot surfaces. Record observations with bright/dim and warm/cool symbols. Activity 2: Shadow pattern Trace or photograph one fixed object's shadow at two teacher-selected times. Predict how the shadow may change; do not look toward the Sun. Activity 3: Benefit sort Sort plant growth, warmth, daylight, outdoor activity, solar electricity, and healthy-bone examples. UDL Strategies Offer tactile icons, fewer choices, partner recording, and sentence frames.	Bright / dim and warm / cool cards Fixed outdoor object and chalk Sun-benefit picture cards Observation sheet
Explain (30 min)	(Science inquiry skills: observing, analyzing, inferring, communicating) Guide students through Student Book pp. 98–100. The Sun is a star at the center of our Solar System. It is made of very hot gases. The Sun is Earth's main source of natural light and heat and helps plants make food. Solar energy can be changed into electricity. As Earth rotates, the Sun appears to rise in the east, be higher around noon, and set in the west. Language frames "The Sun gives us _____ and _____." "I observed _____ without looking at the Sun." UDL Strategies Keep a Sun → effect chart visible and pair each word with a photograph.	Student Book pp. 98–100 — Sun and daily effects Sun → Effect anchor chart The Sun | Educational Video for Kids Why Do We Have Day and Night? | Science for Kids
Elaborate (25 min)	(Science inquiry skills: comparing, recording, inferring, generating possibilities, communicating) A Day with the Sun Groups arrange morning, noon, and evening scenes and add brightness, warmth, and shadow clues. Students prepare a short explanation of why the Sun appears in different places in the sky. UDL Strategies Allow picture sequencing, acting, audio recording, or shared speaking.	Morning / noon / evening cards Shadow pictures Sequence arrows Language frames
Evaluate (15 min)	(Science inquiry skills: analyzing, evaluating, communicating) Student Book p. 101: Complete the Sun facts and three multiple-choice items. Workbook p. 183: Complete Activities 1–3. Exit ticket: Name one Sun characteristic and two benefits. Formative checklist Identifies the Sun as a star. Names light and heat as benefits. Describes one safe observation of the Sun's effects. UDL Strategies Accept selecting pictures, pointing, drawing, or oral explanation.	Student Book p. 101 — Evaluation activities Workbook p. 183 — What Is the Sun? Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Sun-Benefit Gallery: Students place a light, heat, plant, activity, or solar-energy label beside a photograph and explain the connection.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare morning and noon shadows and propose a simple explanation using Earth's rotation and the Sun's apparent position.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use three direct pairs first: Sun—light, Sun—heat, sunlight—plant growth. Add morning/noon/evening after students explain the benefits.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

6.2 How Earth Moves

Lesson 6.2 | Duration: 3 periods

Learning objectives

- Distinguish rotation on an axis from revolution around the Sun and connect each movement with its time scale.
- Use a model to explain day and night and recognize Earth's tilted yearly orbit as the basis of seasonal patterns.
- Describe the Moon as Earth's natural satellite that reflects sunlight and orbits Earth in about one month.

Science Inquiry Skills

Observing, communicating, comparing, modeling, sequencing, inferring, analyzing, evaluating

Vocabulary

Earth, axis, spin, rotate, rotation, day, night, revolve, revolution, orbit, year, season, tilt, Moon, natural satellite, reflect, phase, rock, metal

Science and pedagogy note

Correct a misleading sentence on Student Book p. 102: seasons are not caused by different parts of Earth becoming closest to the Sun. Earth's tilt changes the angle and length of sunlight during its yearly revolution. Keep this explanation simple. The book uses about 28 days for the Moon's orbit; accept this Grade 1 approximation.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, modeling, communicating) Primary science emphasis: Use movement models to distinguish rotation, revolution, and orbit. Background: Students know the Sun appears to move. This lesson explains Earth's rotation, yearly revolution, and the Moon's orbit. Hold a globe or ball beside a stationary lamp. Ask what "spinning" and "going around" might mean. Show a Moon picture and ask why it looks bright if it does not make its own light. What's in this lesson? What will I learn? I can show rotation and revolution. I can describe the Moon's movement and reflected light. UDL Strategies Use floor arrows, body movement, tactile models, and repeated motion words.	Student Book pp. 102 and 104 Lamp / Sun card Globe or Earth ball Moon ball

6.2 How Earth Moves

Explore & Explain

5E	Lesson	Resource(s)
Explore (45 min)	(Science inquiry skills: observing, modeling, sequencing, predicting, communicating) Activity 1: Rotation and day/night Rotate a marked Earth ball beside a stationary lamp. Track when the mark faces light or darkness. Predict what happens as the mark turns away and back toward the light. Activity 2: Revolution pathway Carry the Earth model around a Sun marker while keeping its axis tilted in the same direction. Contrast one spin (about a day) with one trip around the Sun (about a year). Activity 3: Moon orbit Move a Moon ball around the Earth model and observe that the lit part depends on sunlight. UDL Strategies Assign one movement per student and use color-coded arrows and labels.	Lamp or flashlight fixed as Sun Marked Earth ball / tilted axis Moon ball Rotation and revolution floor arrows
Explain (35 min)	(Science inquiry skills: modeling, analyzing, comparing, communicating) Guide students through Student Book pp. 102–105. Rotation is Earth spinning on its axis; one rotation takes about 24 hours and produces day and night. Revolution is Earth traveling around the Sun; one revolution takes about 365 days, or one year. Earth's tilt and revolution produce seasonal patterns—not changing distance from the Sun. The Moon is Earth's natural satellite. It is rock and metal, reflects sunlight, and orbits Earth in about one month. The visible lit part changes as the Moon orbits; these changes are Moon phases. Language frames "Rotation means _____ and takes about _____." "The Moon looks bright because _____." UDL Strategies Keep a Rotation / Revolution / Moon Orbit comparison chart visible.	Student Book pp. 102–105 — Earth and Moon Three-motion comparison chart Day and Night | National Geographic Moon Phases | NASA Space Place

6.2 How Earth Moves

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s)
Elaborate (25 min)	(Science inquiry skills: modeling, sequencing, inferring, generating possibilities, communicating) Space Movement Museum Small groups build one labeled model: rotation/day-night, revolution/year, or Moon orbit/reflected light. Visitors identify what moves, what it moves around, the approximate time, and one result. UDL Strategies Allow movement, pointing, labeled drawings, audio, or partner explanation.	Sun–Earth–Moon model materials Motion labels and arrows Museum question cards Sentence frames
Evaluate (20 min)	(Science inquiry skills: classifying, modeling, analyzing, evaluating, communicating) Student Book p. 103: Classify four statements and draw Earth's revolution. Student Book p. 105: Answer four Moon questions. Workbook pp. 184–185: Complete Activities 4–10. Exit ticket: Demonstrate one motion and name its time scale. Formative checklist Distinguishes rotation from revolution. Connects rotation with day/night and revolution with a year. Explains that the Moon orbits Earth and reflects sunlight. UDL Strategies Accept model demonstration, matching, drawing, or oral explanation.	Student Book pp. 103 and 105 — Evaluation activities Workbook pp. 184–185 — How Earth Moves Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Motion-Word Relay: Students match rotate, revolve, orbit, 24 hours, 365 days, and about one month to the correct model.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students add arrows and labels to a Sun–Earth–Moon diagram and explain why the same model is not drawn to true scale.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Practice rotation as "spin in place" and revolution as "travel around" separately before combining movements in one model.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

6.3 What Are Planets?

Lesson 6.3 | Duration: 3 periods

Learning objectives

- Identify a planet as a large, nearly round object that orbits a star.
- Explain that planets reflect light and may be rocky or made mostly of gas.
- Recognize Earth as one of eight planets in the Solar System and identify the Sun, Earth, and Moon in a model.

Science Inquiry Skills

Observing, communicating, classifying, comparing, modeling, inferring, analyzing, evaluating

Vocabulary

planet, star, Sun, Solar System, orbit, round, reflect, rocky planet, gas giant, gravity, Earth, Moon, asteroid

Science and pedagogy note

Keep the planet definition accurate and simple: a planet is nearly round, orbits a star, and does not make its own light. Avoid teaching that distance from the Sun alone determines temperature; atmospheres and other factors matter. Models and illustrations are not to scale and may use imaginative colors.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Classify planets using defining features rather than appearance alone. Background: Students know Earth and the Moon. This lesson places Earth among the eight planets orbiting the Sun. Display the Solar System picture on Student Book p. 108. Ask what similarities and differences students notice. Show a star, planet, and Moon card. Ask which makes its own light and which objects orbit another body. What's in this lesson? What will I learn? I can describe a planet. I can identify the Sun, Earth, and Moon in a simple model. UDL Strategies Use large photographs, object labels, three-choice questions, and tactile spheres.	Student Book pp. 106–108 Star / planet / Moon cards Solar System image

6.3 What Are Planets?

Explore & Explain

5E	Lesson	Resource(s)
Explore (40 min)	(Science inquiry skills: observing, classifying, comparing, modeling, communicating) Activity 1: Planet or not? Sort cards using nearly round, orbits a star, and reflects light as the planet criteria. Compare a rocky planet image with a gas-giant image. Activity 2: Solar System positions Arrange a large Sun, eight planet markers, and selected Moon markers in a simplified order model. Identify Earth as a planet and the Moon as Earth's natural satellite. Activity 3: Gravity clue Use an arrow toward a planet's center to represent gravity pulling objects toward it. UDL Strategies Use fewer objects, color-coded orbit paths, and partner placement.	Planet / star / Moon sorting cards Rocky and gas planet photos Orbit mats and labels Gravity arrow cards
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) Guide students through Student Book pp. 106–108. A planet is a large, nearly round object that orbits a star. Planets do not make their own light; they reflect light from their star. Some planets are rocky, such as Earth; gas giants are made mostly of gases. Gravity pulls objects toward planets. Eight planets orbit the Sun in our Solar System. Planets differ in size, color, composition, temperature, and other features. Language frames "A planet _____ a star and reflects _____." "Earth is a _____; the Moon is a _____." UDL Strategies Pair every characteristic with one picture and a simple action.	Student Book pp. 106–108 — Planets Planet characteristics chart Introducing the Solar System and Beyond: Kids Edition The Solar System | NASA Space Place

6.3 What Are Planets?

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s)
Elaborate (25 min)	(Science inquiry skills: comparing, modeling, generating possibilities, communicating) Design a Planet Card Students draw an imaginary planet but must include the defining planet features in labels. They select rocky or mostly gas, add an orbit arrow, and explain why the object is a planet, not a star or Moon. UDL Strategies Provide pre-drawn circles, labels, collage pieces, or partner scribing.	Planet-card template Feature labels Crayons / collage materials Orbit arrows
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book p. 108: Label Sun, planet/Earth, and Moon. Workbook p. 186, Activity 11: Draw Earth and write three planet characteristics. Exit ticket: Give two reasons Earth is a planet. Formative checklist States that a planet orbits a star. States that a planet is nearly round and reflects light. Distinguishes Sun, Earth, and Moon. UDL Strategies Accept sorting, pointing, labeled drawing, or oral explanation.	Student Book p. 108 — Evaluation activity Workbook p. 186 — What Are Planets? Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Solar System Floor Model: Students hold object labels and stand on orbit paths, then identify who orbits the Sun and who orbits Earth.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students compare a rocky planet and a gas giant using two visible differences and the shared characteristics that make both planets.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use a three-card contrast: Sun makes light, Earth orbits the Sun, Moon orbits Earth. Add rocky/gas and gravity after the relationships are secure.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

6.4 Heat and Light

Lesson 6.4 | Duration: 2 periods

Learning objectives

- Identify the Sun and familiar objects as sources of heat, light, or both and describe everyday uses.
- Explain that heat flows from warmer to cooler objects and can cause changes of state.
- Classify selected changes caused by heating or cooling as reversible or irreversible.

Science Inquiry Skills

Observing, communicating, classifying, comparing, using equipment, predicting, analyzing, evaluating

Vocabulary

heat, light, source, Sun, heater, firewood, gas stove, coal, lightbulb, candle, torch, lantern, flashlight, energy, warmer, cooler, solid, liquid, gas, heating, cooling, reversible, irreversible

Science and pedagogy note

Use safe, familiar examples. Some objects produce heat or light; others retain, reflect, or use energy. Heating and cooling can cause reversible changes, while cooking or burning can produce irreversible changes.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, classifying, communicating) Primary science emphasis: Use observable effects to classify sources of heat, light, or both. Background: Students know the Sun gives light and heat. This lesson extends the idea to familiar sources, uses, and material changes. Display Student Book p. 109. Ask which scenes are bright/dark and warm/cool. Sort a flashlight, lamp, heater, and Sun picture into HEAT, LIGHT, or BOTH. What's in this lesson? What will I learn? I can classify sources of heat and light. I can tell whether a change can be undone. UDL Strategies Use real safe objects, picture icons, gestures, and three category mats.	Student Book pp. 109–110 Heat / Light / Both mats Safe source pictures or objects

6.4 Heat and Light

Elaborate, Evaluate & Differentiation

5E	Lesson	Resource(s)
Elaborate (25 min)	(Science inquiry skills: predicting, analyzing, generating possibilities, communicating) Energy and Change Stations At picture-based stations, students name the source, its use, and whether a shown change is reversible. Groups improve one confusing card by adding an evidence clue, such as glow, warmth, melting, or a new substance. UDL Strategies Allow sorting, pointing, drawing arrows, audio, or partner explanation.	Source and change station cards Evidence clue stickers Recording sheet Sentence frames
Evaluate (20 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book pp. 111 and 113: Identify heat sources, complete True/False, draw heat sources, and circle light sources. Workbook pp. 186–187: Complete Activities 12–14. Unit Review Quiz p. 206: Complete Parts 1–3. Exit ticket: Classify one source and one change with evidence. Formative checklist Classifies familiar sources as heat, light, or both. Names one appropriate daily use. Distinguishes a reversible from an irreversible example. UDL Strategies Accept object selection, sorting, matching, drawing, or oral explanation.	Student Book pp. 111 and 113 — Evaluation activities Workbook pp. 186–187 — Heat and Light Unit Review Quiz p. 206 Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Energy-Source Hunt: Students locate safe classroom examples or photographs and label each as producing light, heat, both, or neither.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students explain why a coat, mirror, or Moon is not an energy source even though each can be connected with warmth or light.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Begin with flashlight—light, heater—heat, and Sun—both. Practice direct matches before adding reversible and irreversible changes.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

6.4 Heat and Light

Explore & Explain

5E	Lesson	Resource(s)
Explore (45 min)	(Science inquiry skills: observing, classifying, comparing, predicting, communicating) Activity 1: Source sort Classify Sun, heater, stove, fire, lightbulb, candle, flashlight, coat, and bicycle. Explain that a source produces energy; some items use or retain energy instead. Activity 2: Uses match Match warming, cooking, drying, reading, working, and nighttime visibility to suitable sources. Activity 3: Change pairs Compare ice/water, water/steam, butter/melted butter, juice/frozen pop, raw/cooked egg, and wood/ashes. Predict which changes can be reversed. UDL Strategies Use high-contrast pairs, reduced choices, and partner explanation.	Source picture cards Heat / Light / Both mats Use cards Reversible / Irreversible picture pairs
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) Guide students through Student Book pp. 109–112. The Sun is Earth's main natural source of heat and light; other sources include heaters, stoves, fires, lightbulbs, candles, and flashlights. Heat is energy that moves from warmer to cooler objects and can change matter between solid, liquid, and gas. A reversible change can be undone, such as water changing between liquid and steam. An irreversible change cannot return to its original material easily, such as cooking an egg or burning wood. Language frames "The _____ produces heat/light/both." "This change is reversible/irreversible because _____." UDL Strategies Keep a Source → Use and Change → Can/Can't Undo chart visible.	Student Book pp. 109–112 — Heat, light, and change Heat / Light / Both chart Sources of Light | Science for Kids Reversible and Irreversible Changes | Science for Kids

Makerspace · Build a Pizza Box Solar Oven

Suggested time: 1 period (40 minutes), plus supervised outdoor testing time

Students build a pizza-box model that captures sunlight and use observations to explain how light energy can warm materials.

Safety note

Only an adult may use the utility knife or make the box cuts. Students must never look directly at the Sun or aim reflected sunlight toward faces, eyes, people, animals, vehicles, or buildings. Test outdoors only with close adult supervision on a stable surface; avoid strong wind and extreme heat. Treat the oven, foil, box, and sample as potentially hot. Use a non-food sample or do not eat anything warmed in the classroom model.

5E	Lesson	Resource(s)
Engage	(Inquiry skills: observing, communicating) Display Student Book p. 114 and the closed teacher model. Ask: "Which material may reflect light?" and "Which dark material may absorb energy?" Review the no-direct-Sun-viewing and adult-cutting rules.	Student Book p. 114 — Project page Completed teacher model Safety-rule cards
Explore	(Inquiry skills: observing, predicting, using equipment) Students examine foil, black paper, clear plastic wrap, and cardboard indoors. They predict each material's job: reflect sunlight, absorb energy, trap warmed air, or support the structure. An adult prepares all knife cuts.	Clean pizza box Foil, black paper, plastic wrap Tape, glue, ruler, pencil Adult-only utility knife
Explain	(Inquiry skills: communicating, sequencing, analyzing) Review the procedure: clean the box; draw a square 3 cm from the lid edges; an adult cuts three sides; fold and cover the flap with foil; seal the opening with plastic wrap; line the box and add black paper; prop the flap with a stick. Sunlight reflects into the box, the dark surface absorbs energy, and the clear cover reduces heat loss.	Teacher demonstration model Wooden stick Non-food test sample How to Build a Solar Oven | SciShow Kids

Makerspace · Build a Pizza Box Solar Oven

Elaborate, Evaluate & Project Evaluation Checklist

5E	Lesson	Resource(s)
Elaborate	(Inquiry skills: using equipment, predicting, recording, communicating) Under close adult supervision, place models in direct sunlight on a stable surface. Students record sky conditions and compare the sample before and after a short test. If conditions are cloudy or windy, test with a teacher-prepared data set instead.	Supervised sunny test area Timer and observation sheet Adult-handled thermometer, optional Teacher-prepared comparison data
Evaluate	(Inquiry skills: analyzing, evaluating, communicating) Students identify the reflector, absorber, clear cover, and one safety rule. They explain what changed, whether the oven worked best in sun or cloud, and one improvement. Use the checklist below; do not taste the sample.	Project checklist Student model Oral or drawn reflection

Project Evaluation Checklist

Criteria	Outstanding	Very Good	Keep Practicin
The student follows the solar-oven sequence with support and respects every safety rule.	☐	☐	☐
The model includes a foil reflector, clear cover, dark absorber, and stable lid support.	☐	☐	☐
The student predicts and records an observable result from the supervised test.	☐	☐	☐
The student explains that reflected sunlight and the dark surface help warm the box.	☐	☐	☐
The student evaluates the model and suggests one evidence-based improvement.	☐	☐	☐

Answers to Student Book Questions

Student Book · Pages 97–114

Unit opener, p. 97
The Sun is a star. Sunlight makes daytime bright; the atmosphere scatters sunlight and makes the sky look blue. The Sun provides light and heat and supports life.

Student Book p. 98
The Sun is the star at the center of the Solar System. It is made of very hot gases and gives light and heat. Earth's rotation causes its apparent daily movement.

Student Book p. 99
The Sun's heat keeps environments warm. Sunlight supports plant growth and daily activities. Accept other accurate examples.

Student Book p. 100
As Earth rotates, the Sun appears to rise in the east, is higher near noon, and sets in the west. Light and warmth commonly change across the day.

Student Book p. 101, Activity 1
The Sun is a star made of very hot gases. It is much larger than Earth and is important because it provides light and heat and supports life.

Student Book p. 101, Activity 2
1. big 2. round 3. hot.

Student Book pp. 102–103
Rotation: day/night; Earth spins on an axis. Revolution: seasonal cycle; Earth moves around the Sun. The drawing shows Earth orbiting the Sun. Clarify that Earth's tilt—not distance—produces seasons.

Student Book pp. 104–105
Earth looks blue mainly because of its oceans. Moon questions: 1. over 4.5 billion years 2. Earth 3. about 28 days (book approximation) 4. twelve people.

Student Book pp. 106–108
Planets differ in size, color, composition, and temperature. On p. 108, left to right: Sun; Planet (Earth); Moon.

Student Book pp. 109–110
Heat: heater, firewood, gas stove, coal, Sun. Light: tube light, lightbulb, candle, torch/lantern, flashlight, Sun. Uses include warming, cooking, drying, seeing, reading, and nighttime driving.

Student Book pp. 111–112
Check heater, candle, hair dryer, and stove/oven. Water changing between liquid and steam is reversible; cooking an egg is irreversible.

Student Book p. 113
1. T 2. T 3. F 4. T. Drawings vary. Circle flashlight, Sun, and candle. Makerspace p. 114: answers vary; direct sunlight works best, while clouds and wind reduce warming.

Answers to Workbook Questions

Workbook · Pages 183–187

Workbook p. 183, Activities 1–2
1. The Sun. 2. Check light.

Workbook p. 183
, Activity 3 Answers vary. Benefits include light, warmth, plant growth, outdoor activity, solar energy, and vitamin D production.

Workbook p. 184, Activities 4–6
4. Revolution. 5. 365 days. 6. The seasons.

Workbook p. 185, Activities 7–10
7. Rotation. 8. Day and night. 9. 1 day. 10. The Moon.

Workbook p. 186
, Activity 11 Drawings vary. Accept three: nearly round, orbits a star, reflects light, has gravity, rocky or mostly gas.

Workbook p. 186
, Activity 12 Heat only: iron, toaster. Safe/cool: snowman, piano, rose. Accept heat-and-light for a visibly glowing toaster element if explained.

Workbook p. 187
, Activity 13 Check the first three pairs: liquid water/steam, solid/melted butter, and juice/frozen pop. Do not check burning wood/ashes; burning is irreversible.

Workbook p. 187
, Activity 14 Heat—coffee maker, fire. Light—lightbulb, flashlight. Sun and candle produce both; accept either placement with an explanation or mark both before gluing.

Workbook pp. 183–187
Accept equivalent wording and evidence-based classifications when more than one answer is defensible.

Unit Review Quiz: Answer Key

Unit Review Quiz · Page 206

Part 1

1. b) light and heat 2. c) spinning 3. a) the Earth 4. b) source of light

Part 2 and Part 3

Part 2: 1. Accept warming, cooking, drying, or another accurate daily use. 2. Accept the Sun, clouds, or other daytime objects. 3. A planet is a large, nearly round object that orbits a star and reflects light. Part 3: Sources of light—Sun, fire, flashlight, light bulb. Sources of heat—Sun, fire, oven. The Sun and fire belong in both categories.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or "Open video" to follow the link.

Topic	Resource	Teacher use	Direct video link
The Sun	**The Sun | Educational Video for Kids**	Use selected segments to reinforce that the Sun is a star and Earth's main source of light and heat.	Open video
Day and night	**Why Do We Have Day and Night? | Science for Kids**	Pause the animation to connect Earth's rotation with the light and dark sides.	Open video
Earth's motions	**Day and Night | National Geographic**	Use a teacher-selected segment to contrast spinning in place with traveling around another object.	Open video
The Moon	**Moon Phases for Kids**	Use to reinforce reflected sunlight, orbit, and the changing visible lit portion of the Moon.	Open video
Solar System	**Introducing the Solar System and Beyond: Kids Edition**	Pause to identify the Sun, eight planets, Earth, and selected moons; clarify that images are not to scale.	Open video

Resource Bank (Continued)

Topic	Resource	Teacher use	Direct video link
Planet comparison	**Let's Explore Our Solar System | NASA Kids Science**	Select age-appropriate clips to compare rocky planets and gas giants without requiring memorization.	Open video
Heat and light	**Sources of Light | Science for Kids**	Use familiar objects to sort sources of light, heat, both, or neither and discuss evidence.	Open video
Changes	**Reversible and Irreversible Changes | Science for Kids**	Pause at safe examples and ask whether the original material can be recovered.	Open video
Solar oven	**How to Build a Solar Oven | SciShow Kids**	Preview before Makerspace to identify the reflector, absorber, clear cover, and safe testing procedure.	Open video

LIVING SCIENCE 1
Teacher's Guide

UNIT 7 · MATTER



Unit Focus

Students identify matter, compare mass, describe physical properties, classify objects by property and function, distinguish solids, liquids, and gases, and explain melting, freezing, evaporation, and condensation. They use repeated observation, picture analysis, balance and container models, sorting, drawing, discussion, and the Raisins Dance Makerspace investigation.

Suggested pacing: 10 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 115–132 · Workbook pp. 189–193 · Unit Review Quiz p. 207

Contents

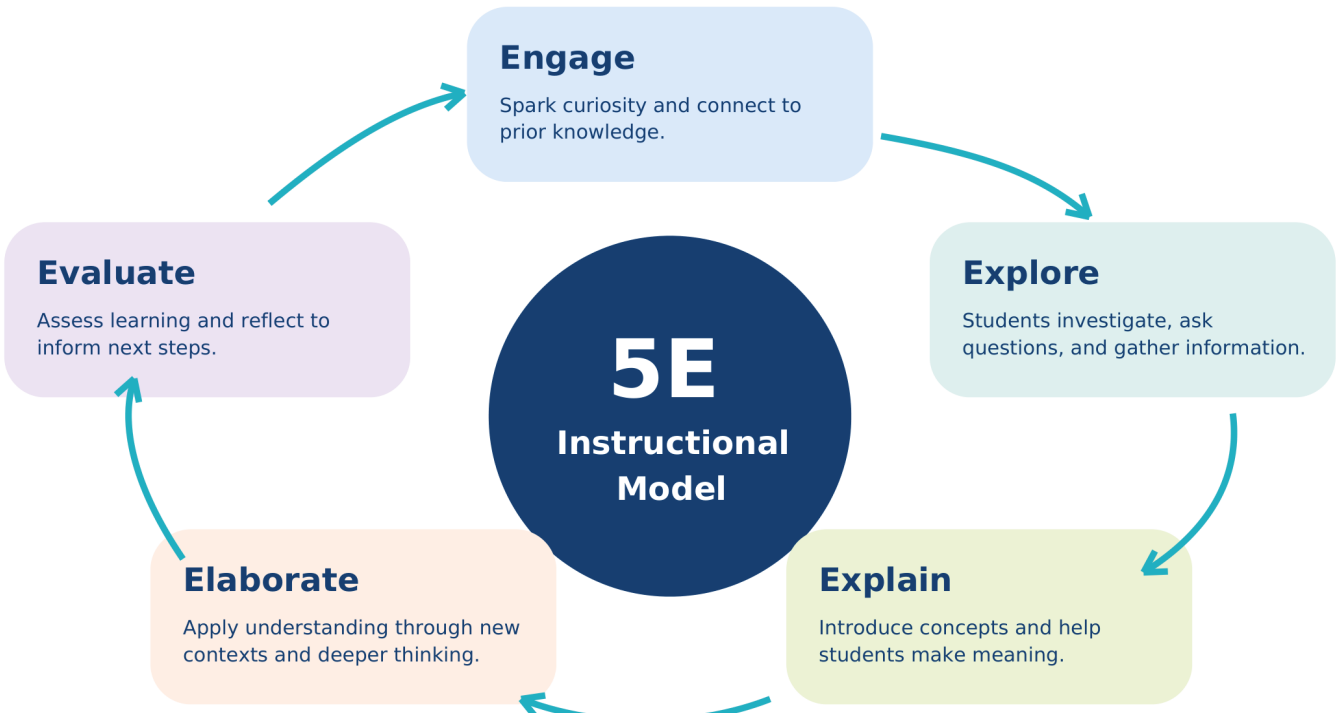
Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 7.1	All About Matter!
Lesson 7.2	Properties of Matter
Lesson 7.3	States of Matter
Lesson 7.4	Changing Matter
Makerspace	Raisins Dance
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through observation, description, comparison, balance use, classification, state modeling, prediction, picture analysis, drawing, and oral language. The examples below are written for Unit 7.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	What evidence shows that air or water is matter?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show and tell which object has more mass on the balance.
Classifying	Sorting objects or pictures by a shared characteristic.	Which property did you use to make this group?
Comparing	Recognizing similarities and differences.	How are a solid and a liquid different?
Inferring	Using observations and prior knowledge to suggest an explanation.	The object changed shape in a new container. What can you infer?
Predicting	Anticipating what may happen based on evidence.	What do you predict will happen when ice is warmed?
Using apparatus and equipment	Using simple tools and materials safely.	How can we use the balance, containers, and soda safely?
Analyzing	Looking closely at information to identify relationships.	What pattern do you notice as the raisins rise and sink?
Evaluating	Making a judgment based on criteria or evidence.	Does this picture show melting or freezing? What is your evidence?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways we can classify the same objects?
Formulating a simple hypothesis	Stating an expected result before a test.	I think the raisins will _____ because _____.

Unit 7 Overview: Matter

Unit learning objectives

- Explain that matter is anything that has mass and takes up space and identify matter in the classroom and outdoors.
- Describe and compare matter using observable physical properties such as color, shape, size, hardness, and texture.
- Classify objects in more than one way using shared properties or function and explain the chosen rule.
- Distinguish solids, liquids, and gases by whether they keep their shape and how they occupy space.
- Identify melting, freezing, evaporation, and condensation as changes of state caused by heating or cooling.
- Plan, observe, and explain the Raisins Dance investigation using evidence about solids, liquids, and gas bubbles.

Primary science emphasis

Students learn by using observable evidence: whether matter takes up space, which side of a balance goes down, which properties can be seen or felt, whether a sample keeps its shape, and what changes after heating or cooling. Encourage more than one valid classification when students state a consistent rule. Oral language, pointing, sorting, drawing, and model demonstration are valid evidence of understanding in Grade 1.

Overview of lessons

Lesson	Learning Objectives	Periods
7.1	All About Matter! • Define matter and identify examples. • Compare the mass of objects using a balance model.	2
7.2	Properties of Matter • Describe matter using observable properties. • Classify the same objects by property or function.	3
7.3	States of Matter • Distinguish solids, liquids, and gases. • Classify familiar materials by state using evidence.	3
7.4	Changing Matter • Identify four changes of state. • Explain familiar heating and cooling situations.	2

Unit vocabulary

matter, mass, space, balance, compare, physical property, color, shape, size, hardness, texture, hard, soft, rough, smooth, group, classify, function, solid, liquid, gas, state of matter, hold shape, flow, pour, container, spread, air, oxygen, water, steam, tea, heat, cool, change of state, melting, freezing, evaporation, condensation, water vapor, droplet, carbon dioxide, bubble, sink, float, observe, predict

Teacher preparation

Prepare classroom-object photographs, simple pan balances, sealed bags of air, property word and picture cards, two sorting mats, safe solids and liquids in clear containers, solid/liquid/gas cards, and before-and-after state-change images. Avoid tasting materials and handling hot substances. For Makerspace, use clear plastic cups when possible, room-temperature clear carbonated soda, raisins, trays, paper towels, and observation sheets; check food allergies and choking risks.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
7.1	2	Define matter; identify examples; compare mass with a balance.	Observing, communicating, comparing, classifying, using equipment	matter, mass, space, air, water, balance, compare	Student Book pp. 115–116; Workbook p. 189
7.2	3	Describe physical properties; classify by property or function.	Observing, classifying, comparing, generating possibilities, analyzing	property, color, shape, size, hard, soft, rough, smooth, function	Student Book pp. 117–123; Workbook pp. 190–191
7.3	3	Distinguish solids, liquids, and gases and classify examples.	Observing, classifying, comparing, modeling, predicting, analyzing	solid, liquid, gas, shape, flow, container, spread, air, oxygen	Student Book pp. 124–128; Workbook p. 192
7.4	2	Identify melting, freezing, evaporation, and condensation.	Observing, comparing, sequencing, predicting, inferring, evaluating	heating, cooling, melting, freezing, evaporation, condensation	Student Book pp. 129–131; Workbook p. 193; Quiz p. 207
Makerspace	1 optional	Observe and explain the repeating movement of raisins in carbonated soda.	Observing, communicating, predicting, recording, identifying patterns, evaluating	solid, liquid, gas, carbon dioxide, bubble, sink, float	Student Book p. 132; clear cup, raisins, clear carbonated soda, tray

7.1 All About Matter!

Lesson 7.1 | Duration: 2 periods

Learning objectives

• Define matter as anything that has mass and takes up space.
• Identify solids, liquids, gases, living things, and air as examples of matter.
• Use a balance model to compare the mass of two objects without confusing mass with size.

Science Inquiry Skills

Observing, communicating, comparing, classifying, using equipment, inferring, analyzing, evaluating

Vocabulary

matter, mass, space, object, material, air, water, balance, compare, more mass, less mass, equal mass

Science and pedagogy note

Matter has mass and occupies space. Air counts as matter even though it is usually invisible. At this level, a pan balance is used to compare mass; avoid replacing mass with "how much space" or assuming the larger-looking object always has more mass. Keep all samples clean, sealed, and non-food for classroom handling.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, communicating, comparing) Primary science emphasis: Use evidence that objects and materials take up space and have mass. Background: Students can name classroom objects. This lesson broadens matter to include liquids, air, and living things. • Display Student Book p. 115. List matter visible in the classroom and outdoor scene. • Show an empty-looking sealed bag containing air. Ask whether something inside takes up space. • What's in this lesson? What will I learn? • I can explain what matter is and name examples. • I can compare mass using a balance. UDL Strategies: Use real objects, picture cards, gestures for space/mass, and oral or drawing responses.	• Student Book p. 115 — Unit opener • Sealed bag of air • Classroom matter photographs
Explore (40 min)	(Science inquiry skills: observing, comparing, classifying, using equipment, communicating) Activity 1: Matter hunt • Students point to or photograph solids, liquids, living things, and examples involving air. • For each example, ask: "What space does it take up?" Activity 2: Air takes space • Compare a flat bag with a sealed inflated bag. Press gently and describe the evidence without opening it. Activity 3: Balance comparison • Use a pan balance to compare two safe objects. Record more mass, less mass, or equal/balanced. • Repeat with one pair where the larger-looking object has less mass. UDL Strategies: Use picture choices, partner roles, and balance arrows showing the lower side.	• Matter hunt sheet • Sealed flat and inflated bags • Pan balances • Safe comparison objects
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 115–116. • Matter is anything that has mass and takes up space. • Desks, water, air, plants, animals, and people are matter. • Mass is the amount of matter in an object. A balance compares mass. • On a pan balance, the side with more mass usually moves lower. Language frames: "_____ is matter because it _____."	• Student Book pp. 115–116 — Matter and mass • Matter / Evidence anchor chart • What Is Matter? | Fun Science for Kids • Measuring and Comparing Masses Using a Simple Balance

5E	Lesson	Resource(s)
Explain (continued)	"The _____ has more/less mass than _____." UDL Strategies: Keep a Matter / Evidence chart and a balance diagram visible.	• Balance diagram
Elaborate (25 min)	(Science inquiry skills: classifying, comparing, generating possibilities, communicating) Matter Museum • Groups create a display with one solid, one liquid in a sealed container, one living thing picture, and one air example. • Students add evidence labels: takes up space and has mass. UDL Strategies: Allow real objects, photos, tactile labels, partner scribing, or audio descriptions.	• Matter Museum labels • Safe objects and sealed liquid • Air photograph or sealed bag • Evidence cards
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) • Student Book p. 116: Name and describe classroom matter. • Workbook p. 189: Complete Activities 1–2. • Exit ticket: Name one visible and one invisible example of matter and give evidence. Formative checklist • States that matter has mass and takes up space. • Identifies air and water as matter. • Reads a simple balance comparison correctly. UDL Strategies: Accept object selection, pointing, drawing, or oral explanation.	• Student Book p. 116 — Lesson prompts • Workbook p. 189 — All About Matter • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Mystery Matter Bag: Students feel a sealed bag, describe what space the contents occupy, and compare its mass with a second bag.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment Advanced	(Science inquiry skills: comparing, analyzing, communicating) Students find a pair showing that bigger does not always mean more mass and explain the balance evidence.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement Struggling	(Science inquiry skills: observing, classifying, communicating) Begin with three clear examples: block, water bottle, and inflated bag. Rehearse "takes up space" before adding mass comparison.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

7.2 Properties of Matter

Lesson 7.2 | Duration: 3 periods

Learning objectives

- Describe objects using observable physical properties: color, shape, size, hardness, and texture.
- Compare objects using precise property words and recognize that one object can have several properties.
- Classify the same collection in different ways and explain a grouping rule based on property or function.

Science Inquiry Skills

Observing, communicating, classifying, comparing, using equipment, generating possibilities, analyzing, evaluating

Vocabulary

physical property, describe, color, shape, size, hardness, texture, hard, soft, rough, smooth, group, classify, same, different, function, rule

Science and pedagogy note

A physical property can be observed or measured without changing what the material is. Hardness and softness are not the same as solid and liquid: many solids are soft or flexible. Texture investigations should use clean, non-sharp samples; students should not smell or taste unknown materials.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Describe matter with precise, observable property words. Background: Students know matter is all around. This lesson introduces properties and multiple valid grouping rules. Display Student Book p. 117. Compare the lion/cat and tree/apple pictures using size and other visible clues. Pass a safe hard sample and soft sample; ask which evidence supports each word. What's in this lesson? What will I learn? I can describe objects with several properties. I can group the same objects in different ways. UDL Strategies Use property icons, touch-safe objects, word banks, and two-choice prompts.	Student Book pp. 117–118 Property picture cards Safe hard, soft, rough, and smooth samples
Explore (45 min)	(Science inquiry skills: observing, classifying, comparing, using equipment, communicating) Activity 1: Property stations At color, shape, size, hardness, and texture stations, students describe safe objects. Record two or more properties for the same object. Activity 2: Guess my object One student gives three observable clues; partners identify the object and cite the clue used. Activity 3: Sort and re-sort Sort a common set by one property, then regroup it by a second property or function. Compare which items changed groups and explain why. UDL Strategies Use tactile symbols, smaller sets, partner talk, and preprinted clue frames.	Property station objects Hand lenses, optional Two sorting mats Property and function labels
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, classifying, communicating) Guide students through Student Book pp. 117–121. Physical properties describe matter: color, shape, size, hardness, and texture. Hard/soft describe resistance or feel; rough/smooth describe texture. Objects can be grouped by a shared property or by function. A collection can be classified in more than one correct way when the rule is clear and consistent. Language frames "The _____ is _____, _____, and _____." "I grouped these objects by _____." UDL Strategies Keep an illustrated property word wall and model a complete rule statement.	Student Book pp. 117–121 — Properties and grouping Property word wall Physical Properties of Materials | Kids Academy Categorizing and Sorting Objects | Twinkl USA

7.2 Properties of Matter (Continued)

5E	Lesson	Resource(s)
Elaborate (25 min)	(Science inquiry skills: classifying, comparing, generating possibilities, communicating) Two-Way Sorting Challenge Groups receive six objects and create two different valid classifications. They photograph or draw each arrangement and write or dictate the rule. Another group tests whether every item follows the stated rule. UDL Strategies Offer category labels, fewer objects, partner roles, or oral recording.	Six-object sorting sets Category labels Recording sheet Camera or drawing materials
Evaluate (20 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book p. 119: Describe each object with five words. Student Book pp. 122–123: Describe and classify classroom objects twice. Workbook pp. 190–191: Complete Activities 3–7. Exit ticket: Give three properties and one grouping rule. Formative checklist Uses accurate property vocabulary. Identifies a shared property. Reclassifies objects with a second consistent rule. UDL Strategies Accept sorting, pointing, matching, drawing, or oral explanation.	Student Book pp. 119 and 122–123 — Evaluation activities Workbook pp. 190–191 — Properties of Matter Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Property Detective: Students find an object matching three clues, then add a fourth clue that makes the identification more precise.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students create a Venn-style overlap with one hard-and-smooth object, one hard-and-rough object, and one object that does not fit either pair.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Teach contrasting pairs with real objects: hard/soft and rough/smooth. Add color, shape, and size after students distinguish texture and hardness.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

7.3 States of Matter

Lesson 7.3 | Duration: 3 periods

Learning objectives

- Identify solids as matter that keeps its own shape, including hard, soft, rigid, and flexible examples.
- Identify liquids as matter that flows and takes the shape of its container.
- Identify gases as matter that spreads to fill available space and classify familiar examples as solid, liquid, or gas.

Science Inquiry Skills

Observing, communicating, classifying, comparing, modeling, predicting, analyzing, evaluating

Vocabulary

state of matter, solid, liquid, gas, shape, space, flow, pour, container, spread, air, oxygen, water, steam, tea, visible, invisible

Science and pedagogy note

Use shape and space—not hardness alone—to define states. Solids can be soft or flexible; liquids have a definite amount but take the container's shape; gases spread to fill available space. Water vapor is an invisible gas. The visible white cloud called "steam" in everyday speech is mostly tiny liquid droplets; retain the book's label while noting the distinction for the teacher.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Classify states of matter using how a sample keeps shape and occupies space. Background: Students can describe properties. This lesson focuses on the behaviors that distinguish solids, liquids, and gases. Show a block, water in a sealed clear container, and an inflated balloon. Ask what happens to shape when each is moved or gently pressed. What's in this lesson? What will I learn? I can distinguish solids, liquids, and gases. I can classify matter and explain my evidence. UDL Strategies Use three icons, gestures for keep/flow/spread, and real safe examples.	Solid object Sealed clear container of colored water Inflated balloon State icons
Explore (45 min)	(Science inquiry skills: observing, classifying, comparing, modeling, predicting, communicating) Activity 1: Solid shape test Move hard, soft, and flexible solids between containers. Observe that each sample keeps its own basic shape. Activity 2: Liquid container test An adult pours equal colored water between clear containers. Students trace the changed shape and unchanged amount. Activity 3: Gas takes space Compare balloons of different shapes and sealed syringes without needles. Observe that air fills the available space. Sort familiar pictures under SOLID, LIQUID, and GAS. UDL Strategies Use one state at a time, tactile samples, and reduced sorting sets.	Hard, soft, and flexible solids Clear containers and colored water Balloons / sealed needleless syringes State sorting cards
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) Guide students through Student Book pp. 124–128. A solid keeps its own shape; it may be hard, soft, rigid, or flexible. A liquid flows and takes the shape of its container while keeping the same amount in a closed transfer. A gas has no fixed shape or volume and spreads to fill available space. Air and oxygen are gases. Water and tea are liquids. Wood, metal, rock, and plastic objects are solids. The named material determines the label when a picture contains several states. Language frames "_____ is a solid/liquid/gas because _____." "When moved to a new container, it _____." UDL Strategies Keep a Keep Shape / Flow / Fill Space comparison chart visible.	Student Book pp. 124–128 — States of Matter Three-state comparison chart States of Matter for Kids | Kids Academy Solids, Liquids, and Gases | Science for Kids

7.3 States of Matter (Continued)

5E	Lesson	Resource(s)
Elaborate (25 min)	(Science inquiry skills: classifying, modeling, generating possibilities, communicating) State-of-Matter Museum Groups create one display for a solid, liquid, or gas using an object, sealed sample, picture, or model. Visitors read the evidence card and decide whether the classification is supported. UDL Strategies Allow tactile labels, drawings, photographs, movement models, or partner explanations.	State museum cards Safe objects and sealed samples Evidence labels Drawing materials
Evaluate (20 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Student Book pp. 125–127: Circle solids, liquids, and gases. Student Book p. 128: Label nine examples S, L, or G. Workbook p. 192: Complete Activity 8. Exit ticket: Classify one unfamiliar sample and give one behavioral clue. Formative checklist Uses keep shape for solids. Uses flow/takes container shape for liquids. Uses spreads/fills space for gases. UDL Strategies Accept sorting, object demonstration, drawing, or oral explanation.	Student Book pp. 125–128 — Evaluation activities Workbook p. 192 — States of Matter Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Container Prediction: Before a safe transfer or balloon change, students predict the new shape and justify the prediction with a state property.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students analyze a picture containing a cup, liquid, and air and label the solid container, liquid contents, and gas above it.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use one direct example per state: block, water, air-filled balloon. Rehearse keep, flow, and fill before adding mixed pictures.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

7.4 Changing Matter

Lesson 7.4 **Duration: 2 periods**

Learning objectives

• Explain that heating or cooling can change the state of some matter.
• Identify melting, freezing, evaporation, and condensation from before-and-after evidence.
• Apply changes of state to familiar situations such as ice cream, chocolate, steam, and droplets on a cold drink.

Science Inquiry Skills

Observing, communicating, comparing, sequencing, predicting, inferring, analyzing, evaluating

Vocabulary

heating, cooling, change of state, melting, freezing, evaporation, boiling, condensation, solid, liquid, gas, water vapor, droplet, temperature

Science and pedagogy note

Teach state changes with safe water examples and pictures. Evaporation can occur below boiling; boiling is rapid vaporization throughout a liquid. Droplets on a cold glass come from water vapor in the surrounding air, not from liquid leaking through the glass. Do not let students handle hot water, steam, melted chocolate, freezers, or heating devices.

5E	Lesson	Resource(s)
Engage (10 min)	(Science inquiry skills: observing, comparing, communicating) Primary science emphasis: Use before-and-after evidence to identify changes caused by heating or cooling. Background: Students can classify states. This lesson names transitions among solid, liquid, and gas. • Display ice, water, and condensation photographs. Ask what changed and whether heating or cooling occurred. • Invite students to predict what will happen to an ice cube left at room temperature. What's in this lesson? What will I learn? • I can identify four changes of state. • I can explain a familiar heating or cooling example. UDL Strategies • Use color-coded arrows, before/after pairs, gestures, and repeated word frames.	• Student Book pp. 129–130 • State-change photograph pairs • Solid / liquid / gas cards
Explore (40 min)	(Science inquiry skills: observing, sequencing, predicting, recording, communicating) Activity 1: Melting observation • Observe a teacher-prepared ice cube on a tray at room temperature. Predict, draw, and record the change without tasting. Activity 2: Condensation evidence • Observe the outside of a sealed cold bottle. Compare it with a room-temperature bottle and locate the new droplets. Activity 3: Four-change sequence • Order picture pairs for melting, freezing, evaporation, and condensation and add heating/cooling arrows. UDL Strategies • Use large photo pairs, tactile arrows, partner recording, and two-choice questions.	• Ice cube and tray • Sealed cold and room-temperature bottles • Four state-change card pairs • Heating / cooling arrows
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 129–130. • Melting: heating changes a solid to a liquid. Freezing: cooling changes a liquid to a solid. • Evaporation: liquid changes to gas; heating usually speeds it up. Boiling is rapid vaporization. • Condensation: cooling changes water vapor in the air into liquid droplets. • The droplets outside a cold glass came from the air.	• Student Book pp. 129–130 — Changing Matter • Four-change arrow diagram

7.4 Changing Matter (Continued)

5E	Lesson	Resource(s)
Explain (continued)	Language frames • "_____ changes from _____ to _____." • "This is melting/freezing/evaporation/condensation because _____." UDL Strategies • Keep a four-arrow state-change diagram visible and rehearse one pair at a time.	• Change of Phase | Melting, Freezing, Vaporization, and Condensation • Evaporation & Condensation for Kids
Elaborate (25 min)	(Science inquiry skills: predicting, inferring, generating possibilities, communicating) State-Change Problem Solvers • Pairs solve ice-cream and chocolate scenarios from p. 131 using keep cool, melt, pour, and cool again. • Students create one new safe scenario and identify the state change and evidence. UDL Strategies • Offer picture sequences, word banks, partner scribing, or oral recording.	• Student Book p. 131 — Application questions • Scenario cards • State-change word bank • Sequence arrows
Evaluate (15 min)	(Science inquiry skills: sequencing, analyzing, evaluating, communicating) • Student Book p. 130: Match four pictures to changes of state. • Student Book p. 131: Answer the ice-cream and chocolate questions. • Workbook p. 193: Complete Activities 9–10. • Unit Review Quiz p. 207: Complete Parts 1–3. Formative checklist • Identifies melting and freezing. • Identifies evaporation and condensation. • Explains one familiar change using heating or cooling. UDL Strategies • Accept matching, arrow sequences, drawing, or oral explanation.	• Student Book pp. 130–131 — Evaluation activities • Workbook p. 193 — Changing Matter • Unit Review Quiz p. 207 • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Change-of-State Charades: Students use cards and gestures to model solid-to-liquid, liquid-to-solid, liquid-to-gas, or gas-to-liquid without hot materials.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students explain why water appears outside a sealed cold bottle and use evidence to rule out leaking.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Teach opposite pairs first: melting/freezing, then evaporation/condensation. Use arrows and state labels before asking for the process names.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

MAKERSPACE · RAISINS DANCE

Suggested time: 1 period (40 minutes). Students place raisins in clear carbonated soda, observe a repeating sink-and-rise pattern, and use evidence to explain how gas bubbles affect the solid raisins in the liquid.

Safety note

Use a clean clear plastic cup instead of glass when school procedures require it. Check raisin/grape allergies and treat raisins as a choking hazard. Open carbonated soda slowly over a tray and keep it away from faces and eyes. Students must not eat the raisins or drink the soda used in the investigation. Wipe spills immediately and wash hands after the activity.

Stage	Lesson Notes	Resources
Engage	(Science inquiry skills: observing, predicting, communicating) Display Student Book p. 132 and the materials. Ask: “Which item is a solid, which is a liquid, and where is the gas?” Students predict whether raisins will sink, float, or move repeatedly.	Student Book p. 132 — Project page Raisins and sealed clear soda Prediction cards
Explore	(Science inquiry skills: observing, using equipment, recording, identifying patterns) Over a tray, fill the clear cup about three-fourths with room-temperature carbonated soda and add a few raisins. Observe what happens first and next. Record each sink–rise–sink cycle with arrows or tally marks without tasting.	Clear plastic cup Clear carbonated soda Raisins Tray, towels, timer
Explain	(Science inquiry skills: communicating, analyzing, inferring) The raisin is a solid, the soda is a liquid, and carbon dioxide is a gas. Bubbles attach to the raisin’s rough surface and increase upward buoyant force, lifting it. At the surface bubbles pop or detach; the raisin becomes less buoyant and sinks. The cycle may repeat while enough bubbles form.	Teacher diagram: raisin + bubbles Solid / Liquid / Gas labels Activity Challenge I Dancing Raisins I PBS KIDS

MAKERSPACE · RAISINS DANCE

5E Instructional Model (continued)

Stage	Lesson Notes	Resources
Elaborate	(Science inquiry skills: predicting, generating possibilities, recording, communicating) Compare two teacher-approved conditions, such as more/fewer raisins or fresh/less fizzy soda. Change only one condition. Students predict, observe, and compare the number or speed of cycles, then propose a reason.	Two labeled cups Comparison sheet Timer Fresh and less-fizzy soda, optional
Evaluate	(Science inquiry skills: analyzing, evaluating, communicating) Students identify the solid, liquid, and gas; sequence sink—bubbles attach—rise—bubbles detach—sink; and use one observation as evidence. Use the checklist below to assess safe participation, recording, explanation, and evaluation.	Project checklist Student observation sheet Oral or drawn reflection

Project evaluation checklist

Criteria	Outstanding	Very Good	Keep Practicing
The student follows the Raisins Dance procedure and all food, cup, and spill-safety rules.	☐	☐	☐
The student identifies the raisin as solid, soda as liquid, and bubbles as gas.	☐	☐	☐
The student records the repeating sink–rise–sink pattern with words, pictures, arrows, or tallies.	☐	☐	☐
The student explains that attached bubbles help lift the raisin and detached bubbles let it sink.	☐	☐	☐
The student compares one changed condition or suggests an evidence-based improvement.	☐	☐	☐

Answers to Student Book Questions

Student Book pp. 115–132 · Answer key and teacher notes

Unit opener, p. 115	Answers will vary. Classroom matter includes desks, chairs, books, pencils, people, plants, water, and air. In the outdoor picture, accept water, rocks, soil, trees, air, clothing, and the person.
Student Book p. 116	Matter is anything that has mass and takes up space. Examples and descriptions will vary. The pumpkin has more mass than the tomatoes in the balance picture.
Student Book pp. 117–118	Properties may include color, shape, size, hardness, and texture. Rock—hard/rough; teddy bear—soft; pineapple—rough; balloon—smooth, round, and flexible. Accept accurate observable words for the other objects.
Student Book p. 119	Answers vary. Sample descriptions: doll—colorful, small, smooth, soft, light; marbles—small, round, smooth, hard, shiny; feather—light, soft, smooth, long, colorful.
Student Book p. 120	First group: red color. Second group: round/circular shape.
Student Book p. 121	Suggested sorting by body part or function: head—b, g; hands—c; feet—a, d, e, f, h. Accept another consistent rule if every item is placed and explained.
Student Book pp. 122–123	Answers and drawings will vary. Students should use observable evidence and state a clear rule. The same objects may be regrouped by a different valid property.
Student Book pp. 124–125	Solids keep their own shape. On p. 125, circle the coat, oven/stove, plant, and pancakes. Do not circle the orange drink or water drop. Clarify that a solid may be soft or flexible, not only hard.
Student Book pp. 126–127	Water takes the shape of its cup. On p. 126, circle milk and honey as liquids. On p. 127, circle the cloud/air picture and steam above the cup as the book's gas examples. Blown air is moving gas that can be felt.
Student Book p. 128	Hot-air balloon—G; wood—S; plastic—S; metal—S; oxygen—G; rock—S; water—L; steam—G; tea—L. The labels refer to the named material, not every part of the pictured object.
Student Book pp. 129–130	Snowman—melting; boiling kettle—evaporation; freezer—freezing; droplets on bottle—condensation. Water on the outside of a cold drink comes from water vapor in the air condensing into droplets.
Student Book p. 131	1. Keep the ice cream cold in a freezer, cooler, or insulated container and out of heat. 2. With adult help, gently heat the chocolate until it melts, pour it into molds, then cool it until solid. Makerspace p. 132: raisins usually sink first, rise with attached bubbles, lose bubbles at the surface, and sink again.

Answers to Workbook Questions

Workbook pp. 189–193 · Activities 1–10

Workbook p. 189, Activity 1	a) True b) False—mass is the amount of matter, not the space it takes up c) True.
Workbook p. 189, Activity 2	Answers vary. Examples include desks, chairs, books, paper, pencils, people, plants, water, and air.
Workbook p. 190, Activities 3–4	3. Circle the red bird. 4. Circle the smooth, black, round stone/ball.
Workbook p. 191, Activities 5–7	5. Ice cube 6. Hot chocolate 7. Rock. For the coloring extension, accept evidence-based choices; distinguish the material or contents from its container.
Workbook p. 192, Activity 8	Mirror S; steam G; applesauce/jam L; ball S; book S; pink vapor/cloud G; milk L; oil L; honey L; drink L; vehicle exhaust G; game controller S.
Workbook p. 193, Activity 9	Ice cubes left out—melting. Juice placed in a freezer—freezing.
Workbook p. 193, Activity 10	Freezing: liquid-water drop → ice cubes. Melting: ice cubes → liquid-water drop. Evaporating: liquid-water drop → water vapor. Condensing: water vapor/cloud → liquid-water drop.
Workbook pp. 189–193	Accept equivalent evidence-based descriptions, classifications, drawings, models, or oral explanations.

Unit Review Quiz: Answer Key

Unit Review Quiz · Student Book p. 207

Part 1

Multiple choice	1. b) Anything that takes up space
Multiple choice	2. b) Shape
Multiple choice	3. c) Solid
Multiple choice	4. a) It turns to water.

Part 2

Fill in the blanks	1. solid
Fill in the blanks	2. liquid
Fill in the blanks	3. gas
Fill in the blanks	4. color
Fill in the blanks	5. changes

Part 3

Question 1	The three states of matter are solid, liquid, and gas.
Question 2	Accept one observable property such as color, shape, size, hardness, or texture, stated in a complete idea.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or “Open video”.

Topic	Resource	Teacher use	Direct video link
Matter	**What Is Matter? I Fun Science for Kids**	Use selected examples to reinforce that solids, liquids, gases, living things, and air are matter.	Open video
Mass comparison	**Measuring and Comparing Masses Using a Simple Balance**	Pause at each comparison and ask which side shows more, less, or equal mass.	Open video
Physical properties	**Physical Properties of Materials I Kids Academy**	Use familiar objects to practice color, shape, size, hardness, and texture vocabulary.	Open video
Sorting	**Categorizing and Sorting Objects I Twinkl USA**	Ask students to state the rule, test every item, and suggest a second valid classification.	Open video
States of matter	**States of Matter for Kids I Kids Academy**	Pause to compare whether solids keep shape, liquids flow, and gases fill available space.	Open video

Resource Bank (Continued)

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or “Open video”.

Topic	Resource	Teacher use	Direct video link
State comparison	**Solids, Liquids, and Gases I Science for Kids**	Use teacher-selected examples to classify materials and explain evidence instead of relying on appearance.	Open video
Changes of state	**Change of Phase I Melting, Freezing, Vaporization, and Condensation**	Use the animations to connect heating/cooling arrows with before-and-after states.	Open video
Evaporation and condensation	**Evaporation & Condensation for Kids**	Pause to distinguish invisible water vapor from liquid droplets on cool surfaces.	Open video
Makerspace	**Activity Challenge I Dancing Raisins I PBS KIDS**	Preview the raisin–bubble interaction, then compare the video pattern with students’ observations.	Open video

LIVING SCIENCE 1
Teacher's Guide

UNIT 8 · FORCES AND MOTION



Unit Focus

Students locate objects, describe motion, investigate pushes and pulls, relate gravity and friction to everyday movement, explain several effects of force, and test magnetic attraction and repulsion. They use precise language, fair comparisons, evidence-based classification, drawing, discussion, and the Push & Pull Painting Makerspace project.

Suggested pacing: 10 periods of approximately 40 minutes, plus an optional Makerspace period.

Student Book pp. 133–150 · Workbook pp. 195–199 · Unit Review Quiz p. 208

Contents

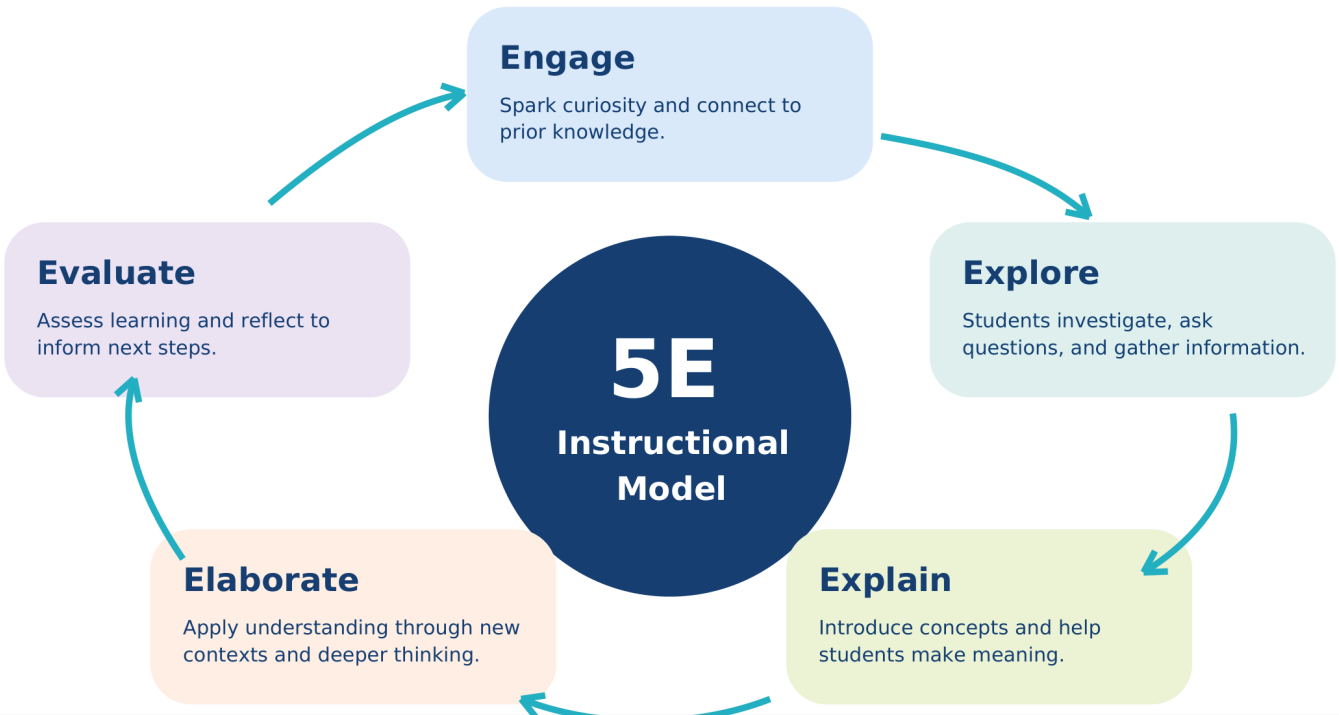
Section	Content
Teaching framework	5E Instructional Model and Science Inquiry Skills
Unit overview	Objectives, pacing, vocabulary, and lesson sequence
Lesson 8.1	Describing How Something Moves
Lesson 8.2	What Makes Things Move?
Lesson 8.3	Effects of Force
Lesson 8.4	What Are Magnets?
Makerspace	Push & Pull Painting
Answer key	Student Book, Workbook, and Unit Review Quiz
Resource bank	Book-based and teacher-prepared resources

How to use this guide

Each lesson is organized with the 5E model. The detailed tables show suggested timings, teacher moves, science inquiry skills, resources, differentiation, and assessment. Adjust pacing to class needs, school schedules, and student readiness.

5E Instructional Model

The 5E model organizes science learning around curiosity, investigation, concept development, application, and ongoing assessment. In Grade 1, each phase should be concrete, visual, interactive, and language-supported.



Phase	Teacher focus in Grade 1
Engage	Capture interest, activate prior knowledge, and invite students to notice, wonder, predict, or move.
Explore	Let students handle safe materials, sort pictures, compare examples, test ideas, and record observations before receiving a full explanation.
Explain	Introduce accurate science vocabulary and ideas using the students' observations, diagrams, demonstrations, and short texts.
Elaborate	Apply the new learning in another context through stations, role-play, model building, problem solving, or a real-life task.
Evaluate	Gather evidence of learning through talk, pointing, sorting, drawing, acting, matching, brief writing, and student self-reflection.

Science Inquiry Skills

The unit develops foundational science practices through observation, position description, movement modeling, force testing, comparison, prediction, classification, picture analysis, drawing, and oral language. The examples below are written for Unit 8.

Science Inquiry Skill	Definition	Example of a Facilitating Question
Observing	Using the senses safely to collect information.	Where is the object compared with the chair?
Communicating	Sharing information through words, drawings, labels, gestures, or models.	Show two different ways this toy can move.
Classifying	Sorting objects or pictures by a shared characteristic.	Which object moved faster? What did you observe?
Comparing	Recognizing similarities and differences.	Is this action a push or a pull? How do you know?
Inferring	Using observations and prior knowledge to suggest an explanation.	What do you predict will happen on the rough surface?
Predicting	Anticipating what may happen based on evidence.	How did the stronger force change the car's motion?
Using apparatus and equipment	Using simple tools and materials safely.	How can we keep the ramp and magnet tests fair and safe?
Analyzing	Looking closely at information to identify relationships.	What pattern do you notice when the swing moves?
Evaluating	Making a judgment based on criteria or evidence.	Is this object magnetic? What is your evidence?
Generating possibilities	Thinking of more than one possible idea or solution.	What are different ways a force can change motion?
Formulating a simple hypothesis	Stating an expected result before a test.	I predict _____ because _____.

Unit 8 Overview: Forces and Motion

Unit learning objectives

- Describe the position of an object in relation to another object using precise location words.
- Identify motion as a change in position and describe speed and common movement patterns.
- Recognize pushes and pulls as forces and explain gravity and friction using familiar evidence.
- Explain that force can start, stop, speed up, slow down, or change the direction of motion and can create tension or restoring force.
- Identify magnetic and nonmagnetic objects and model attraction and repulsion between magnet poles.
- Plan, create, observe, and explain a Push & Pull Painting using evidence from the motion of a cardboard tool.

Primary science emphasis

Students learn through visible changes: an object changes position, a push or pull changes motion, rougher contact increases friction, and a tested object is or is not attracted to a magnet. Use child-safe demonstrations and fair comparisons. Position statements must name a reference object; magnet classifications must be based on evidence, not simply on whether an object looks metallic.

Overview of lessons

Lesson	Learning Objectives	Periods
8.1	Describing How Something Moves • Describe relative position and motion. • Compare speed and identify movement patterns.	3
8.2	What Makes Things Move? • Classify pushes and pulls. • Explain gravity and friction with evidence.	3
8.3	Effects of Force • Explain changes in speed, direction, starting, and stopping. • Recognize tension and restoring force.	2
8.4	What Are Magnets? • Test magnetic attraction. • Model attraction and repulsion between poles.	2

Unit vocabulary

position, on, under, above, below, next to, in front of, behind, inside, outside, between, motion, speed, fast, slow, direction, rolling, sliding, swinging, spinning, straight motion, force, push, pull, gravity, friction, accelerate, speed up, slow down, stop, change direction, tension, spring, restoring force, magnet, magnetic, nonmagnetic, metal, iron, nickel, pole, North pole, South pole, attract, repel, magnetism, predict, observe, compare

Teacher preparation

Prepare position cards, movable classroom objects, balls, toy cars, ramps, smooth and rough surfaces, push/pull picture cards, soft ropes, elastic bands or safe springs, bar magnets, labeled pole stickers, and mixed-material test objects. Inspect magnets for cracks, keep them away from mouths, electronics, magnetic cards, and medical devices, and supervise all spring and elastic demonstrations. For Makerspace, cover tables and prepare washable paint, trays, taped cardstock, cardboard rectangles, aprons, and cleanup materials.

Unit Overview and Pacing Guide

Lesson	Periods	Learning Objectives	Science Inquiry Skill(s)	Vocabulary	Resources and Materials
8.1	3	Describe position and motion; compare speed; classify movement patterns.	Observing, communicating, comparing, modeling, classifying	position, motion, speed, rolling, sliding, swinging, spinning, straight	Student Book pp. 133–139; Workbook pp. 195–196
8.2	3	Classify pushes/pulls; explain gravity and friction.	Observing, classifying, comparing, testing, predicting, inferring	force, push, pull, gravity, friction, surface, slow, stop	Student Book pp. 140–143; Workbook p. 197
8.3	2	Explain how force changes motion; recognize tension and restoring force.	Observing, comparing, testing, measuring, analyzing	speed up, slow down, direction, accelerate, tension, spring, restoring force	Student Book pp. 144–146; Workbook p. 198
8.4	2	Test magnetic materials; model attraction and repulsion.	Observing, classifying, testing, predicting, evaluating	magnet, magnetic, pole, attract, repel, iron, steel	Student Book pp. 147–149; Workbook p. 199; Quiz p. 208
Makerspace	1 optional	Create and explain artwork made with pushes and pulls.	Observing, predicting, using equipment, comparing, communicating	push, pull, force, direction, motion, trail	Student Book p. 150; cardstock, tray, cardboard, washable paint, tape

8.1 Describing How Something Moves

Lesson 8.1 Duration: 3 periods

Learning objectives

- Describe an object's position relative to another object using accurate spatial vocabulary.
- Explain that motion is a change in position and compare fast and slow movement.
- Identify and model rolling, sliding, swinging, spinning, and straight motion.

Science Inquiry Skills

Observing, communicating, comparing, modeling, classifying, predicting, analyzing, evaluating

Vocabulary

position, on, under, above, below, next to, in front of, behind, inside, outside, between, motion, speed, fast, slow, direction, rolling, sliding, swinging, spinning, straight

Science and pedagogy note

Position is relative: a complete statement names both the object and a reference point. Motion is a change in position over time; speed compares how fast or slow something moves. Straight motion describes the path, not necessarily a constant real-world speed. Use clear start and finish points and avoid unsafe running comparisons.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, communicating, comparing) Primary science emphasis: Describe what can be directly observed before introducing force explanations. Background: Students know everyday location words and can recognize that objects move. • What's in this lesson? What will I learn? • Display Student Book p. 133. Ask what makes the bicycle move and what may happen when pedaling stops. • Place a ball in several locations. Students describe each location relative to a chair. UDL Strategies • Use real objects, gestures, photo choices, and oral, pointing, or drawing responses.	• Student Book p. 133 — Unit opener • Ball and chair • Position word cards
Explore (45 min)	(Science inquiry skills: observing, modeling, comparing, classifying, recording) Activity stations • Position partner: one student places an object; the partner describes it using a reference object. • Motion stations: roll a ball, slide a block, swing a soft object, spin a top, and move a car along a straight path. • Release two identical balls on ramps with different slopes. Mark which reaches the finish first; keep ball and distance the same. UDL Strategies • Use floor arrows, one motion card per station, partner roles, and preprinted recording icons.	• Balls, blocks, spinning tops • Toy cars and safe ramps • Floor arrows and motion cards • Recording sheet
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 134–138. • Position tells where an object is compared with another object. • Motion is a change in position. Speed tells whether movement is fast or slow. • Define rolling, sliding, swinging, spinning, and straight motion with a demonstrated example. • Language frames: "The _____ is _____ the _____." "The _____ moves _____." UDL Strategies • Keep a Position Words chart and a Motion / Example chart visible.	• Student Book pp. 134–138 • Position and motion anchor charts • Force and Motion — Sesame Street educator guide • How Toys Move activity cards

5E	Lesson	Resource(s) and Material(s)
Elaborate (25 min)	(Science inquiry skills: modeling, classifying, generating possibilities, communicating) Motion Museum • Groups create a Motion Museum with one object or drawing for each movement type.	• Motion Museum labels • Safe toys • Start / finish markers

8.2 What Makes Things Move?

Lesson 8.2 Duration: 3 periods

Learning objectives

• Define force as a push or a pull and classify familiar actions as pushes or pulls.
• Explain gravity as a pull toward Earth and connect it to falling and returning to the ground.
• Explain friction as a force between touching surfaces that can slow or stop motion.

Science Inquiry Skills

Observing, communicating, classifying, comparing, testing, predicting, inferring, evaluating

Vocabulary

force, push, pull, away, toward, gravity, Earth, fall, friction, surface, rub, smooth, rough, slow, stop

Science and pedagogy note

A force is an interaction—a push or pull. Gravity pulls objects toward Earth. Friction acts between surfaces in contact and usually opposes relative motion. An object can continue moving after the original push ends, while friction gradually changes its motion. Avoid implying that motion always requires a continuing push.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, communicating, predicting) Primary science emphasis: Connect the direction of a force to an observable change in motion. Background: Students regularly push doors, pull drawers, and observe objects fall. • What's in this lesson? What will I learn? • Show a stationary toy car. Ask students to make it move without lifting it and name the action. • Display Student Book p. 140. Sort familiar actions into push, pull, or both. UDL Strategies • Use gestures, object demonstrations, picture choices, and repeated sentence frames.	• Student Book p. 140 • Toy car • Push / Pull sorting cards
Explore (45 min)	(Science inquiry skills: observing, testing, comparing, predicting, recording) Three force investigations • Push/pull test: move the same toy away and toward the student; label each action. • Gravity drop: release two safe objects from the same low height and observe their downward motion. • Friction test: give the same toy car a similar gentle push across smooth card and rough fabric. Compare stopping distance. UDL Strategies • Use arrows, tactile surfaces, partner roles, and picture-based recording sheets.	• Toy cars • Safe drop objects and tray • Smooth card and rough fabric • Measuring strips
Explain (35 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 140–143. • A force is a push or pull that can change motion. • A push moves an object away; a pull brings it toward the person or source. • Gravity pulls objects toward Earth. Friction between touching surfaces can slow or stop movement. • Language frames: "I _____ the object, so it moved _____." "It moved less on _____ because _____." UDL Strategies • Keep force arrows and a Push / Pull / Gravity / Friction chart visible.	• Student Book pp. 140–143 • Force-arrow anchor chart • Learn Pushes and Pulls at the Arcade • Defining Gravity: Crash Course Kids #4.1
Elaborate (25 min)	(Science inquiry skills: testing, comparing, generating possibilities, communicating) Force Route Challenge • Pairs design a short delivery route for a toy. The route must include one push, one pull, and one rough surface. • Students predict where the car will slow, test the route, and revise one part.	• Toy cars and trays • Route cards • Smooth and rough materials • Arrow stickers

8.2 What Makes Things Move?

Lesson 8.2 · Continued

5E	Lesson	Resource(s) and Material(s)
Elaborate (continued)	(Science inquiry skills: testing, comparing, generating possibilities, communicating) UDL Strategies • Provide prebuilt routes, arrow stickers, reduced choices, or a partner recorder.	• Toy cars and route materials
Evaluate (20 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Formative checklist • Student Book p. 141: Classify each action as push or pull. • Student Book p. 143: Draw classroom push and pull examples. • Workbook p. 197: Complete Activity 6. • Exit ticket: Explain one example of gravity or friction. UDL Strategies • Accept gesture, sorting, drawing, or oral explanation.	• Student Book pp. 141, 143 • Workbook p. 197 • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Friction Walk: Slide a felt square across three safe surfaces and rank them from easiest to hardest to move.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students explain why a bicycle coasts after pedaling stops and identify forces that change its motion.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Use a ribbon arrow to show away for push and toward for pull; rehearse with one object before sorting pictures.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

8.3 Effects of Force

Lesson 8.3 Duration: 2 periods

Learning objectives

• Explain that force can start or stop motion and change speed or direction.
• Relate a greater applied force to a greater change in motion in a fair comparison.
• Recognize tension in a pulled rope and restoring force in a stretched or compressed spring.

Science Inquiry Skills

Observing, communicating, comparing, testing, predicting, measuring, inferring, analyzing, evaluating

Vocabulary

effect, start moving, stop, speed up, slow down, direction, accelerate, greater force, tension, rope, string, cable, spring, stretch, compress, restoring force

Science and pedagogy note

Force can change an object's speed, direction, or state of motion. A stronger force often produces a larger change when other conditions are held constant. Tension is transmitted through a taut rope or string. Stretched or compressed springs exert restoring forces. Use only soft, low-force materials and never aim moving objects or elastic bands at people.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, communicating, predicting) Primary science emphasis: Describe the change in motion caused by a force. Background: Students can identify pushes, pulls, gravity, and friction. • What's in this lesson? What will I learn? • Roll a ball slowly, stop it, then redirect it. Ask what changed each time. • Show a loose and a taut rope. Ask which one can transmit a pull. UDL Strategies • Use arrows, before/after picture pairs, demonstrations, and oral or pointing responses.	• Student Book pp. 144–145 • Soft ball • Short soft rope
Explore (40 min)	(Science inquiry skills: observing, testing, measuring, comparing, recording) Effects-of-force stations • Toy-car comparison: apply a gentle and then a stronger push from the same start line. Measure approximate distance with floor tiles. • Direction station: roll a ball toward a safe barrier or partner paddle and trace the changed path. • Tension/restoring station: pull a soft rope taut and gently stretch a teacher-approved spring or elastic loop; observe the return when released without launching. UDL Strategies • Use picture directions, premarked start lines, partner roles, and large arrows.	• Toy cars and start line • Soft balls and foam paddles • Soft rope • Safe spring or elastic loop
Explain (30 min)	(Science inquiry skills: observing, analyzing, comparing, communicating) • Guide students through Student Book pp. 144–146. • Force can start or stop motion, speed an object up, slow it down, or change direction. • In a fair comparison, a greater applied force generally causes a greater change in motion. • Tension acts through a pulled-tight rope, string, or cable. • A restoring force helps a stretched or compressed spring return to its original shape. UDL Strategies • Keep a Force → Change chart with icons for start, stop, faster, slower, and turn.	• Student Book pp. 144–146 • Force → Change chart • Force and Motion — Sesame Street educator guide • Ramp It Up! classroom investigation
Elaborate (25 min)	(Science inquiry skills: planning, testing, measuring, evaluating, communicating) Target Zone • Groups choose a target zone for a toy car and decide whether a gentle or stronger push is needed. • Test, observe where the car stops, and revise the force while keeping the car and start line the same.	• Toy cars • Floor target zones • Start line • Trial record

8.3 Effects of Force

Lesson 8.3 · Continued

5E	Lesson	Resource(s) and Material(s)
Elaborate (continued)	(Science inquiry skills: planning, testing, measuring, evaluating, communicating) UDL Strategies • Use wide zones, color-coded force choices, peer coaching, and nonverbal recording.	• Toy cars and target-zone materials
Evaluate (15 min)	(Science inquiry skills: analyzing, evaluating, communicating) Formative checklist • Student Book p. 146: Identify pictures showing force and explain one choice. • Workbook p. 198: Complete Activities 7–10. • Exit ticket: Name two different ways a force can change motion. UDL Strategies • Accept arrows, sequencing cards, a demonstration, or oral explanation.	• Student Book p. 146 • Workbook p. 198 • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Force Freeze: The teacher names start, stop, faster, slower, or change direction; students move a toy to model the effect.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students identify variables that must stay the same when comparing a gentle and stronger push.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Pair each effect word with one arrow card and one direct demonstration before using mixed picture examples.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

8.4 What Are Magnets?

Lesson 8.4 Duration: 2 periods

Learning objectives

• Identify magnets as objects that attract certain metals, especially iron and steel.
• Classify objects as magnetic or nonmagnetic using test evidence rather than appearance alone.
• Model that unlike poles attract and like poles repel and identify everyday uses of magnets.

Science Inquiry Skills

Observing, communicating, classifying, testing, predicting, comparing, inferring, evaluating

Vocabulary

magnet, magnetism, magnetic, nonmagnetic, metal, iron, steel, nickel, pole, North, South, attract, repel, test, evidence

Science and pedagogy note

Magnets attract ferromagnetic materials such as iron and many steels; they do not attract every metal. Magnetic poles always occur in pairs. Unlike poles attract and like poles repel. Use intact classroom magnets, avoid pinching fingers, and keep magnets away from mouths, electronics, magnetic cards, and anyone with an implanted medical device.

5E	Lesson	Resource(s) and Material(s)
Engage (10 min)	(Science inquiry skills: observing, predicting, communicating) Primary science emphasis: Use controlled tests to distinguish magnetic from nonmagnetic objects. Background: Students know pushes and pulls. Magnetism adds a non-contact force. • What's in this lesson? What will I learn? • Reveal a magnet lifting paper clips without direct hand contact. Ask what evidence shows a pull. • Students predict which objects will be attracted and explain the basis for each prediction. UDL Strategies • Use real objects, enlarged pole labels, picture predictions, and partner talk.	• Student Book p. 147 • Bar magnet • Paper clips • Prediction cards
Explore (40 min)	(Science inquiry skills: observing, testing, classifying, comparing, recording) Magnet investigations • Object test: bring one pole near each item without touching first; record attracted or not attracted. • Pole test: compare N–S, N–N, and S–S using two labeled magnets. Describe pull together or push apart. • Search safely for one classroom use of a magnet without placing magnets near devices. UDL Strategies • Use two-bin sorting, color-coded poles, paired testing, and picture recording.	• Two bar magnets with pole labels • Mixed-material test objects • Magnetic / Nonmagnetic mats • Safety boundary tray
Explain (30 min)	(Science inquiry skills: observing, analyzing, classifying, communicating) • Guide students through Student Book pp. 147–148. • Magnets attract objects containing iron or steel; some nickel-containing materials are also magnetic. • Not all metals are magnetic, so test evidence matters. • Opposite poles attract. Like poles repel. • Language frames: "The _____ is/is not magnetic because _____." "The poles _____." UDL Strategies • Keep an Attract / Not Attract evidence chart and pole diagram visible.	• Student Book pp. 147–148 • Magnet evidence chart • Magnetism for Kids | Learn All About Magnets • How Do Magnets Work? | Science for Kids
Elaborate (25 min)	(Science inquiry skills: planning, testing, generating possibilities, communicating) Magnetic Rescue • Create a paper-clip rescue path. Move the clip under or over paper using a magnet without touching the clip directly. • Students redesign the path or magnet distance and explain what improved control. UDL Strategies • Offer wide paths, larger handles, peer roles, or teacher-controlled magnet movement.	• Bar magnets • Paper clips • Paper maze sheets • Plastic trays

8.4 What Are Magnets?

Lesson 8.4 · Continued

5E	Lesson	Resource(s) and Material(s)
Evaluate (15 min)	(Science inquiry skills: classifying, analyzing, evaluating, communicating) Formative checklist • Student Book p. 149: Classify pictured objects as magnetic or nonmagnetic. • Workbook p. 199: Complete Activity 11. • Unit Review Quiz p. 208: Complete Parts 1–3. • Exit ticket: Draw poles that attract and poles that repel. UDL Strategies • Accept object testing, sorting, pole models, drawing, or oral explanation.	• Student Book p. 149 • Workbook p. 199 • Unit Review Quiz p. 208 • Teacher observation checklist
Additional Activity	(Science inquiry skills: observing, communicating, analyzing) Mystery Material: Students predict, test, and justify the classification of three covered objects using only magnet evidence.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Enrichment for Advanced Learners	(Science inquiry skills: comparing, analyzing, communicating) Students explain why "made of metal" is not enough evidence and design a fair test for an unfamiliar object.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.
Reinforcement for Struggling Learners	(Science inquiry skills: observing, classifying, communicating) Begin with one steel paper clip and one wooden craft stick; repeat attracted/not attracted before adding pole language.	Teacher-prepared cards, classroom materials, or digital resources as appropriate.

MAKERSPACE · PUSH & PULL PAINTING

Suggested time: 1 period (40 minutes). Students use push and pull forces to move paint with cardboard tools, compare the marks produced, and explain how direction, force, and tool size affect the design.

Safety note

Use washable, nontoxic paint and blunt-edged cardboard rectangles. Cover work surfaces and provide aprons. Students should not taste paint or place tools near faces. Keep trays flat, wipe spills promptly, wash hands after the activity, and follow school procedures for allergies and paint ingredients.

Stage	Lesson Notes	Resources
Engage	(Science inquiry skills: observing, predicting, communicating) Display Student Book p. 150 and a sample trail. Students identify where a push moved the tool away and where a pull moved it toward the maker. Predict how a larger cardboard piece or stronger force might change the mark.	Student Book p. 150 — Project page Cardboard rectangles Prediction cards
Explore	(Science inquiry skills: using equipment, observing, comparing, recording) Tape cardstock inside a tray. Dip one short edge of cardboard lightly in washable paint. Push and pull it across the paper. Repeat with another size or color. Observe direction, length, width, and paint spread; keep the tray flat.	White cardstock Paper and tape Tray Cardboard rectangles Washable paint, aprons, towels
Explain	(Science inquiry skills: communicating, analyzing, inferring) A push moves the cardboard away; a pull moves it toward the student. Each force changes the tool's position and creates motion. Direction determines the trail's path. Tool size, paint amount, surface contact, and applied force can change the mark.	Push / Pull arrow cards Teacher model Force-and-mark vocabulary cards

MAKERSPACE · PUSH & PULL PAINTING

5E Instructional Model (continued)

Stage	Lesson Notes	Resources
Elaborate	(Science inquiry skills: planning, testing, generating possibilities, evaluating) Choose one variable—cardboard size, direction, or gentle/stronger force. Predict the result, make two controlled marks, compare them, and revise the design. Change only one feature in the comparison.	Two cardboard sizes Comparison strip Design-planning sheet Additional paint colors
Evaluate	(Science inquiry skills: analyzing, evaluating, communicating) Students point to one push mark and one pull mark, describe how each was produced, and use an observation to compare two marks. Assess safe tool use, force vocabulary, controlled comparison, and reflection.	Project checklist Student artwork Oral or drawn reflection

Project evaluation checklist

Criteria	Outstanding	Very Good	Keep Practicing
The student follows the Push & Pull Painting procedure and paint-safety rules.	☐	☐	☐
The student identifies and demonstrates a push and a pull with the cardboard tool.	☐	☐	☐
The student observes how force direction creates a path or trail in the paint.	☐	☐	☐
The student compares marks made with one deliberately changed variable.	☐	☐	☐
The student explains one result with words, pointing, drawing, or a recorded response.	☐	☐	☐

Answers to Student Book Questions

Student Book pp. 133–150

Unit opener · p. 133
Pedaling applies force through the bicycle system and helps the bike move forward. If the boy stops pedaling, the bike may keep moving briefly, then friction and other forces will slow it until it stops. Movement words may include forward, straight, fast, slow, rolling, and swinging.

Student Book · p. 134
Books: on the lower shelves/under the tabletop; accept accurate statements that name a reference object. Ways objects move include rolling, sliding, swinging, spinning, and moving straight.

Student Book · p. 135
1. on 2. between 3. behind 4. above. Drawings vary but must place sunglasses behind the sandcastle, a bird over the boy, a fish between the boy and girl, and ice cream in front of the girl with black hair.

Student Book · pp. 136–138
Motion is a change in position. Speed describes fast or slow movement. Rolling—turning over and over; sliding—moving across a surface without turning; swinging—moving back and forth in a curve; spinning—turning around; straight motion—following a straight path. A swing moves when a person or helper pushes or pulls it.

Student Book · p. 139
Feelings vary: moving forward/backward, air, excitement, or a change in speed. Faster ball: circle the ball on the steeper ramp. Straight motion: check the toy car, child on the slide, and arrow; do not check the circular ride.

Student Book · pp. 140–141
A force is a push or pull. Push moves an object away; pull brings it closer. Picture grid: loaded cart—push; wagon—pull; rope around the block—pull; block moved with hands—push.

Student Book · pp. 142–143
Gravity pulls objects toward the ground. Accept a valid pull example, such as opening a drawer or pulling a wagon. Sliding is easier on a smooth floor because it produces less friction than carpet. Push/pull classroom drawings vary.

Student Book · pp. 144–145
Force can start, stop, speed up, slow down, or redirect an object. Friction resists motion between touching surfaces. A greater force produces a greater change in motion in a comparable situation. Tension acts along a rope, string, or cable pulled tight.

Student Book · p. 146
A stretched or compressed spring exerts a restoring force toward its original shape. Gravity helps students come down a slide, land after jumping, and move downward on a swing. Check the slide, seesaw, and baseball hit as examples of force; do not check the stationary bus-stop scene.

Student Book · pp. 147–148
Magnets attract objects containing iron or steel; not every metal is magnetic. Opposite poles attract; like poles repel. Magnet examples and descriptions vary. Common uses include refrigerator seals, toys, clasps, speakers, and motors.

Student Book · p. 149
Magnetic: nail, keys, and scissors. Nonmagnetic: acorn, pencil, and orange juice. Base decisions on the pictured materials; when real materials differ, test them with a magnet and record the evidence.

Makerspace · p. 150
When cardboard is pushed, it moves away and spreads paint in that direction; when pulled, it moves toward the student and makes a return trail. Designs vary with direction, force, paint amount, and cardboard size.

Answers to Workbook Questions

Workbook pp. 195–199

Workbook p. 195 · Activities 1–3

1. b) position. 2. Teddy bear—above the bed; blue dinosaur—right of the yellow dinosaur; camera—left of the teddy and the ball. 3. a) motion.

Workbook p. 196 · Activities 4–5

4. b) speed. 5. Match: soccer ball—harder kick; spinning top—stronger twist; swing—harder push; bicycle—harder pedal; fishing line—stronger pull.

Workbook p. 197 · Activity 6

Push—circle the shopping-cart picture. Pull—circle the child pulling the handle. Gravity—circle the falling/skydiving child.

Workbook p. 198 · Activities 7–10

7. start moving 8. speed; slow 9. change 10. stop.

Workbook p. 199 · Activity 11

Expected magnetic objects include the iron/steel parts of the iron, stapler, keys, metal case, paper clip, pushpins, and metal-bar instrument. Nonmagnetic: tape, paper, cap, yarn, and apple. Accept classifications supported by a test because actual materials may vary.

Workbook pp. 195–199 · Teacher note

Accept equivalent position language, matching lines, cut-and-paste placements, drawings, or oral explanations that show the intended science idea.

Unit Review Quiz: Answer Key

Unit Review Quiz · p. 208

Part 1 · Multiple Choice

1. b) How fast or slow it goes
2. a) Force
3. b) Force
4. b) Metal objects

Part 2 · Complete the Statements

1. magnet; metals
2. pull
3. push
4. force

Part 3 · Drawing

Drawings vary. One picture must show and label something that moves fast; the other must show and label something that moves slowly.

Resource Bank

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or “Open resource”.

Topic	Resource	Teacher use	Direct video link
Force and motion	**Sesame Street Little Discoverers: Force and Motion**	Use the educator guide’s child-friendly definitions and investigation prompts.	Open resource
Movement patterns	**How Toys Move**	Use the roll, spin, and bounce investigation to expand students’ motion vocabulary.	Open resource
Ramp investigation	**Ramp It Up!**	Compare distances while keeping the toy car and measuring method consistent.	Open resource
Pushes and pulls	**Learn Pushes and Pulls at the Arcade**	Pause to classify each action and trace the force direction with an arrow.	Open resource
Gravity	**Defining Gravity: Crash Course Kids #4.1**	Use selected segments to reinforce gravity as a pull toward Earth.	Open resource

Resource Bank (Continued)

Preview every video before class, confirm pronunciation and accent, check captions and school access, and prepare an offline alternative. Click the video title or “Open resource”.

Topic	Resource	Teacher use	Direct video link
Friction	**Force and Motion educator activities**	Adapt the floor-surface comparisons and ask students to cite stopping-distance evidence.	Open resource
Magnets	**Magnetism for Kids l Learn All About Magnets**	Preview magnetic materials and pole behavior; verify claims with classroom tests.	Open resource
Magnetic attraction	**How Do Magnets Work? l Science for Kids**	Use selected examples to compare attraction, repulsion, and magnetic/nonmagnetic materials.	Open resource
Makerspace	**Push & Pull Painting — Student Book p. 150**	Use the project page as the main procedure; document force direction and changes in the paint trail.	Open resource

LIVING Science

Living Science is an engaging science series for Grades 1–6, designed for Latin American students. Through meaningful topics, colorful visuals, and real-world connections, students explore science while developing their English skills. Based on the 5E Methodology — Engage, Explore, Explain, Elaborate, and Evaluate — the series promotes active learning, inquiry, communication, and reflection. Each level also includes a hands-on Makerspace section, where students design, create, test, and improve simple projects, developing creativity, problem-solving, collaboration, and scientific thinking.

Highlights

- Clear, age-appropriate texts aligned with CEFR levels
- Colorful photos and illustrations to support understanding
- Hands-on Makerspace projects
- 5E-based lessons that promote active learning
- Language scaffolding to guide scientific communication
- Audio support to build reading and pronunciation skills

Components

- Textbook + Workbook (2-in-1)
- Teacher's Guide
- Audio resources
- Videos
- Unit tests
- Lesson plans
- LMS Platform
- App
- Homework Worksheets
- Digital Flashcards
- Extra Worksheets



Level 6						
Level 5						
Level 4						
Level 3						
Level 2						
Level 1						
CEFR	<A1	A1	A2	A2+	B1	B1+

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