EXPLORATION 1

HANDS-ON ACTIVITY

Exploring a Change

Activity Guide, pages 86–88

TIME ESTIMATE

day 1	day 2	day 3	day 4	day 5
20 min	5 min	5 min	5 min	15 min

SHORT ON TIME?

Have different group members or pairs of students conduct different steps of the activity. They should share their observations with the entire group.

POSSIBLE MATERIALS

- ☐ safety goggles
- ☐ non-latex gloves
- ☐ seeds
- ☐ plastic cup
- ☐ permanent marker
- ☐ soil
- ☐ water
- ☐ graduated cylinder
- ☐ ruler

PREPARATION

This activity spans several weeks, with a few minutes spent each week on making observations and taking measurements of plant growth. You may want to use sunflower seeds, or any other quickly sprouting seed. You may want to fill the cups with soil ahead of time to avoid a mess.

INVESTIGATIVE PHENOMENON

Organisms change throughout their lives.

Phenomenon Explained Students explore the **investigative phenomenon** by planting a seed and then measuring and recording changes during part of the plant's life. Students analyze their data to identify patterns of change.

Form a Question After they think about how organisms change as they get older, students should form a question about how seeds change over time. Help students who may struggle to form a question by showing them photos of seeds and corresponding adult plants. **Sample answer:** How long does it take for the seed to sprout and come above ground?

STEPS 1 and 2 Students should label their containers, add soil, and plant their seeds. They should record their plant's height and other observations each week. Make sure students wear their gloves while handling the seeds and soil. Have them add water to the cup every few days, using the same amount of water each time.

STEP 3 Students should make a table to record their data. Note that the seed should sprout in approximately 7–10 days. Each week after that, students should see their plants grow taller and leaves form.

HMH

STEP 4 Student groups compare data and describe any patterns they observe. **Sample answer:** Each week the plant grew taller.

- **Make a Claim** Claims should predict what would happen if students planted a different type of seed, such as that a different seed will sprout and grow, but it may take longer to sprout than their seeds did.
- **Evidence** Students should cite as evidence the data from the activity.
- **Reasoning** Students should explain their reasoning that a different seed will grow taller each week like their seeds did but the seed may sprout at a different time and grow at a different rate.

FORMATIVE ASSESSMENT

MAKING SENSE OF PHENOMENA

Students gain understanding that organisms change throughout their lives as they explore the **investigative phenomenon.** They should connect this to the **anchoring phenomenon** that the plant and turtle will also go through changes. Students should understand that, as young organisms get older, they grow and develop into adult organisms, and will eventually become an adult plant.

REMEDIATION If students struggle to connect the **investigative phenomenon** back to the **anchoring phenomenon,** have them compare and contrast the plant they grew with the other plant and turtle.

MAKING SENSE OF PHENOMENA IDEA ORGANIZER

After completing Exploration 1, students can fill in the **Idea Organizer** to summarize the connection between organisms changing throughout their lives and the anchoring phenomenon that the plant and turtle will also go through changes.

Activity Outcome

Students should plant a seed, measure the plant's height, and record their observations in order to observe that a plant changes and grows taller over time.

Performance Indicators	
	measure and record data about a plant
	make a claim that different types of seeds grow and change differently
	support the claim using collected data as evidence

SOCIAL EMOTIONAL LEARNING

Suggest that neighbors begin their discussion by answering the question: How can we work together as a team? After they come up with some strategies, encourage them to apply those strategies during this and other discussions.