EXPLORATION 1 HANDS-ON ACTIVITY

Flower Power

Activity Guide, pages 28–31

TIME ESTIMATE

50 min

SHORT ON TIME?

This activity can be done as a whole class activity to save time.

POSSIBLE MATERIALS

- ☐ flowers on a stem
- ☐ newspaper or paper plates
- ☐ scissors
- ☐ tweezers
- ☐ gloves
- ☐ hand lens

Materials Alert Ask students about any plant allergies before conducting this activity. Tulips or lilies work best for dissection.

PREPARATION

Review safety precautions with students before they begin. Remind them to wear gloves when handling the flowers and to be careful with sharp objects such as scissors and tweezers.

INVESTIGATIVE PHENOMENON

Flowers have different structures involved in reproduction.

Phenomenon Explained Students explore the **investigative phenomenon** by observing and recording the structures found in flowers. Students use their observations to support a claim about how the flower structures work together as a system.

Form a Question After they learn about pollination, students should form a question about the structures that make up a flower. If students struggle to form a question, have a class brainstorming session. **Sample answers:** What are the different parts that make up a flower? What are their functions? How does a flower help a plant reproduce?

Parts of a Flower

Students choose words from a diagram of flower structures to complete sentences. sepals; anther; ovule.

STEP 1 Students observe a flower and identify its parts.

STEP 2 Students use the recording space to draw the flower structures they identified. Student drawings should show and properly identify sepals, petals, stamen, anther, pistil, and ovule.

Student groups share and explain differences or similarities among the data. **Sample answers:** Although we identified the same structures in each of our flowers, some of them looked different depending on what type of flower we had.

- **Make a Claim** Claims should indicate that a flower is made up of many different parts that protect it or help the plant to reproduce.
- **Evidence** Students should cite their observations from the activity as evidence, such as identifying male and female flower parts.
- **Reasoning** Students should explain that identifying male and female parts indicates that their function is to help the plant to reproduce.

FORMATIVE ASSESSMENT

MAKING SENSE OF PHENOMENA

Students gain understanding that flowers have different structures involved in reproduction as they explore the **investigative phenomenon.** They should connect this to the **anchoring phenomenon** that plants have various parts that work together in a system. Students should understand that, before a tree makes fruit, it makes flowers that attract insects that help it to reproduce.

REMEDIATION If students struggle to connect the **investigative phenomenon** back to the **anchoring phenomenon,** ask them if they have ever seen flowers on trees and how they think they might compare to the flowers they observed in this activity.

MAKING SENSE OF PHENOMENA IDEA ORGANIZER

After completing Exploration 1, students can fill in the **Idea Organizer** to summarize the connection between flowers having different structures involved in reproduction and the anchoring phenomenon that plants have various parts.

Activity Outcome

Students should record observations about the structures in flowers in order to observe that flowers have different structures involved in reproduction.

Performance Indicators	
	record observations about the structures in flowers
	make a claim that flowers have different structures involved in reproduction that work together as a system
	support the claim using observations as evidence

HANDS-ON ACTIVITY

Flower Power

The flowers on an apple tree attract bees and other insects. The bees feed on the nectar made by the flowers. When a bee lands on a flower, pollen sticks on its legs and body. The bee flies from one tree to another, and pollen falls off into other flowers. The trees need this pollen to make new fruit. The process is called *pollination*. Pollination occurs as the result of the bee, flower and pollen working as a system.

Did you know?

It takes an apple tree four to five years to produce its first fruit.

Form a question Ask a question about the different parts that make up a flower.

Possible questions: What are the different parts that make up a flower? What are their functions? How does a flower help a plant reproduce?

Parts of a Flower

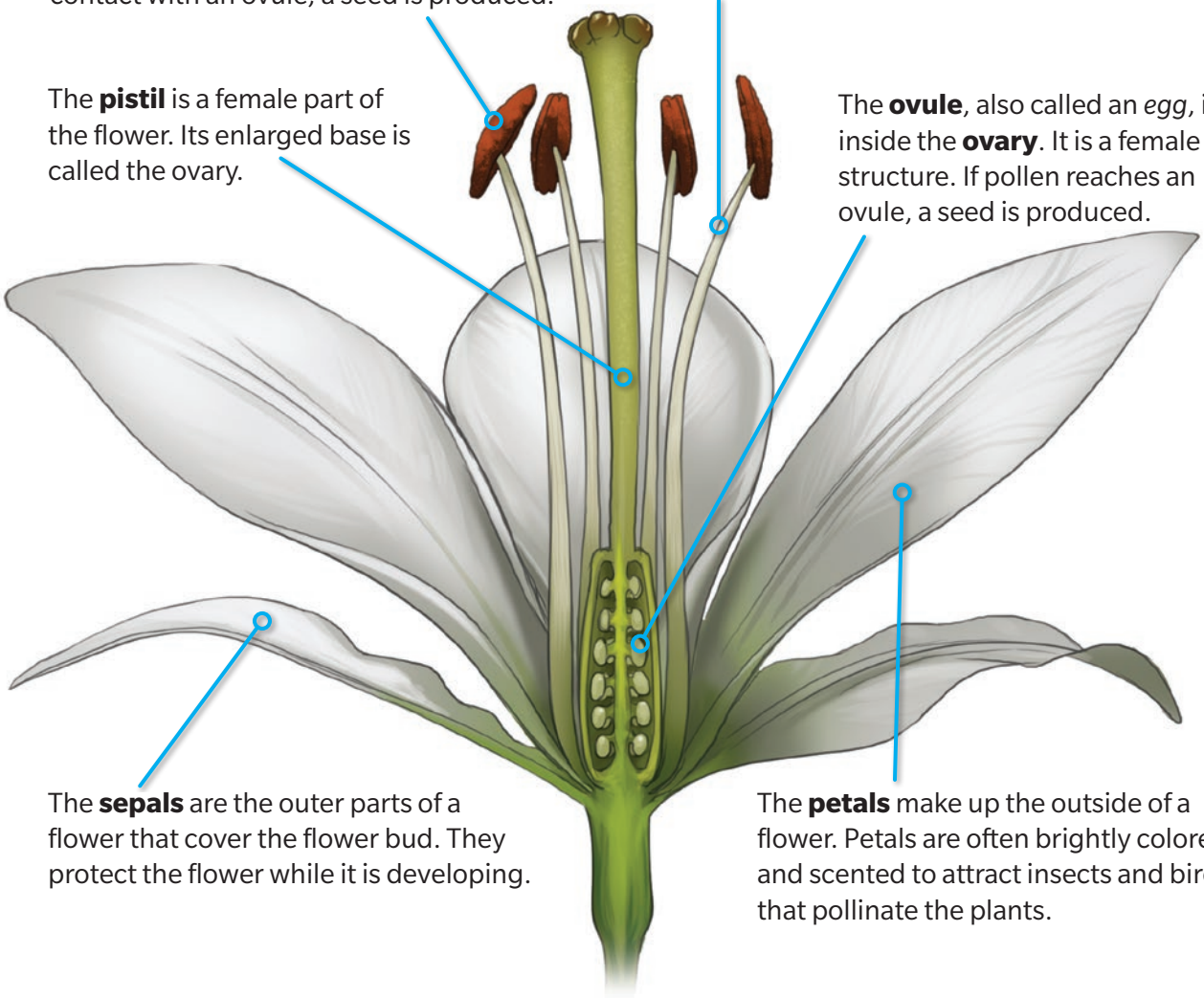
The diagram of a flower below shows the parts of a flower. These parts work together as a system to ensure the plant can reproduce. Explore each part to understand their function.

The **anther** is part of the stamen. This male structure sits on top of a long **filament** and produces pollen. When pollen comes into contact with an ovule, a seed is produced.

The **stamen** is a male part of a flower that contains the anther and filament.

The **pistil** is a female part of the flower. Its enlarged base is called the ovary.

The **ovule**, also called an *egg*, is inside the **ovary**. It is a female structure. If pollen reaches an ovule, a seed is produced.



The **sepals** are the outer parts of a flower that cover the flower bud. They protect the flower while it is developing.

The **petals** make up the outside of a flower. Petals are often brightly colored and scented to attract insects and birds that pollinate the plants.

Describe Choose the correct words from the diagram that complete the sentences below.

The sepals are plant parts that cover and protect the flower bud. The function of the anther is to make pollen. If pollen comes into contact with an ovule, a seed is produced.

POSSIBLE MATERIALS

- ☐ flower on a stem
- ☐ scissors
- ☐ gloves
- ☐ newspaper
- ☐ tweezers
- ☐ hand lens

STEP 1 **Investigate your question** The sepal, petal, stamen (including the anther) and pistil (including the ovule) create a system. Identify those parts on your flower.

STEP 2 **Organize your data** Use this space below to draw a model of your flower. Include all of the parts you've identified.

Student drawings should show and properly identify sepals, petals, a stamen, an anther, a pistil, and an ovule.

Communicate Share your model with other groups. Explain differences or similarities among the group's model.

Possible answer: Although we identified the same parts in each of our flowers, some of the parts looked different because we had different kinds of flowers.

Draw conclusions Make a **claim** about how the parts of a flower create a system. Support your claim with **evidence** from your investigation and explain your **reasoning**.

Possible answer: A flower is made up of many different parts. These parts have specific functions that work together to help the flower reproduce. In our investigation, we identified the male and female parts of the flower.

Making Sense

How does your claim or the evidence you gathered in this investigation help you begin to explain why trees produce fruit?

Possible answer: In this investigation, we identified the parts of a flower. These parts help protect the flower and help the plant to reproduce. Before a tree makes fruit, it makes flowers that attract animals that help the tree to reproduce.