



FROM SEED TO PLANT

by Gail Gibbons

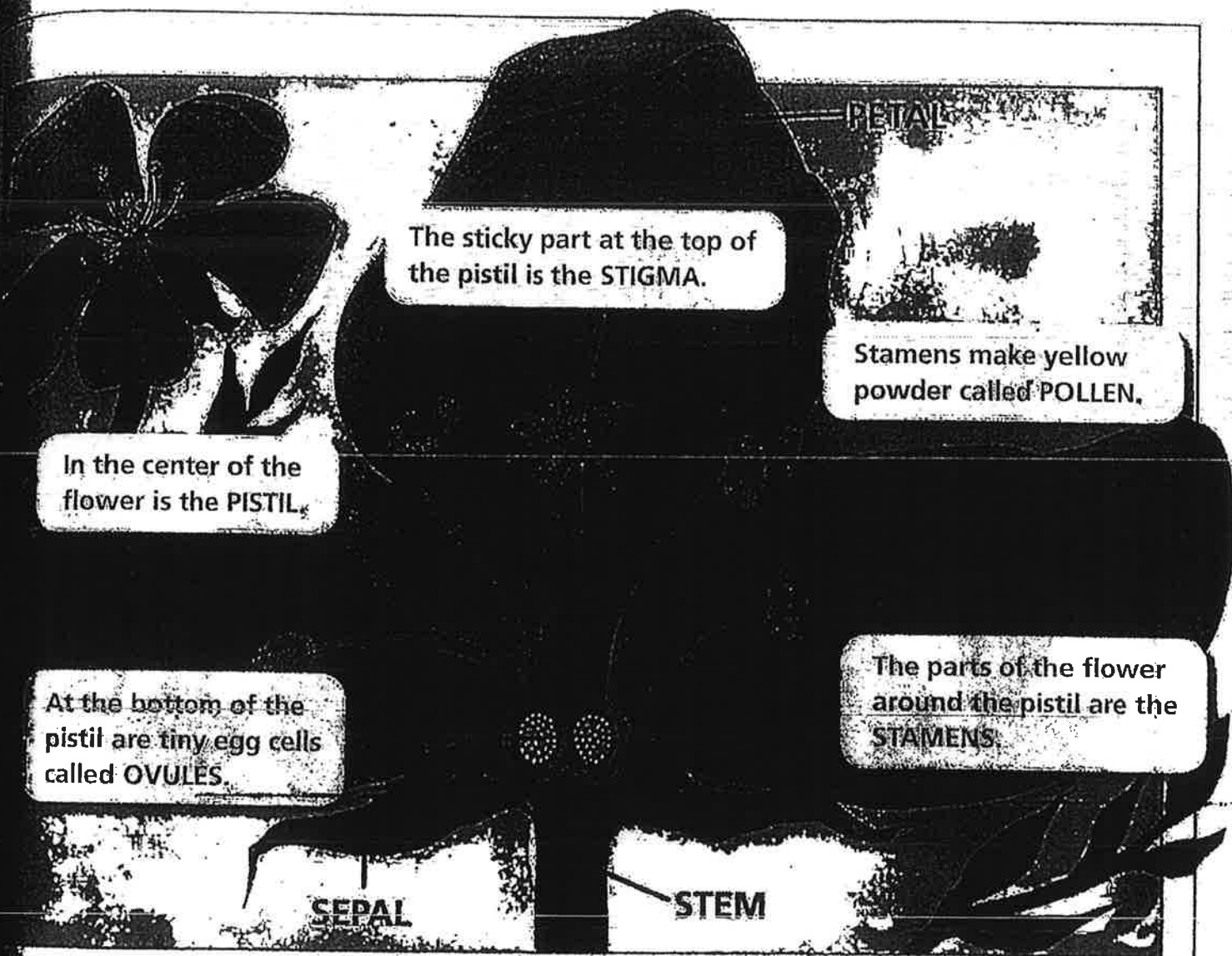
ESSENTIAL QUESTION

How do plants grow
and change?



Most plants make seeds. A seed contains the beginning of a new plant. Seeds are different shapes, sizes and colors. All seeds grow into the same kind of plant that made them.

Many plants grow flowers. Flowers are where most seeds begin.



In the center of the flower is the PISTIL.

The sticky part at the top of the pistil is the STIGMA.

PETAL

Stamens make yellow powder called POLLEN.

At the bottom of the pistil are tiny egg cells called OVULES.

The parts of the flower around the pistil are the STAMENS.

SEPAL

STEM

A flower is made up of many parts.

ANALYZE THE TEXT

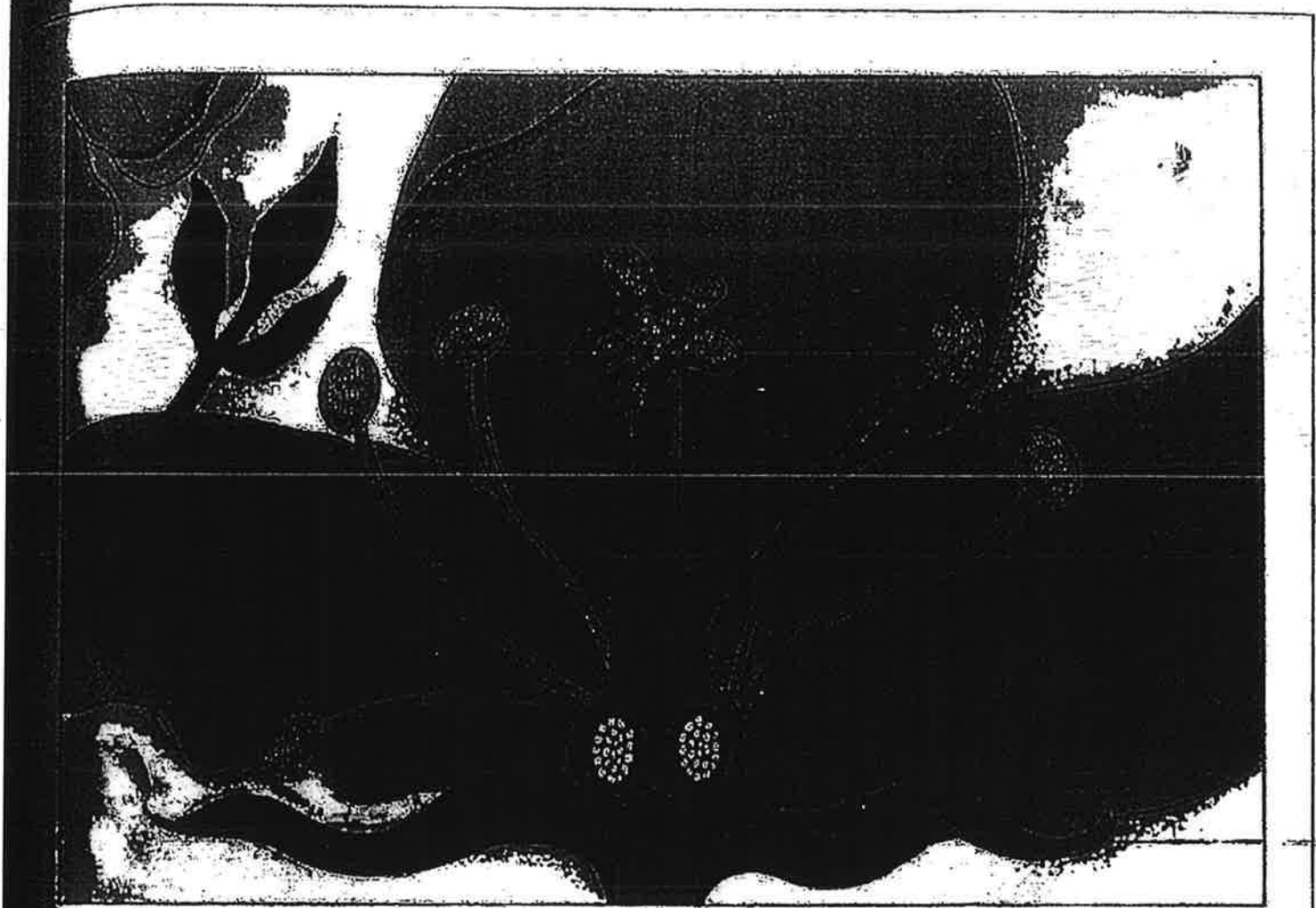
Text and Graphic Features How does the diagram of the flower help you better understand the information on this page?



Before a seed can begin to grow, a grain of pollen from the stamen must land on the stigma at the top of the pistil of a flower like itself. This is called pollination.

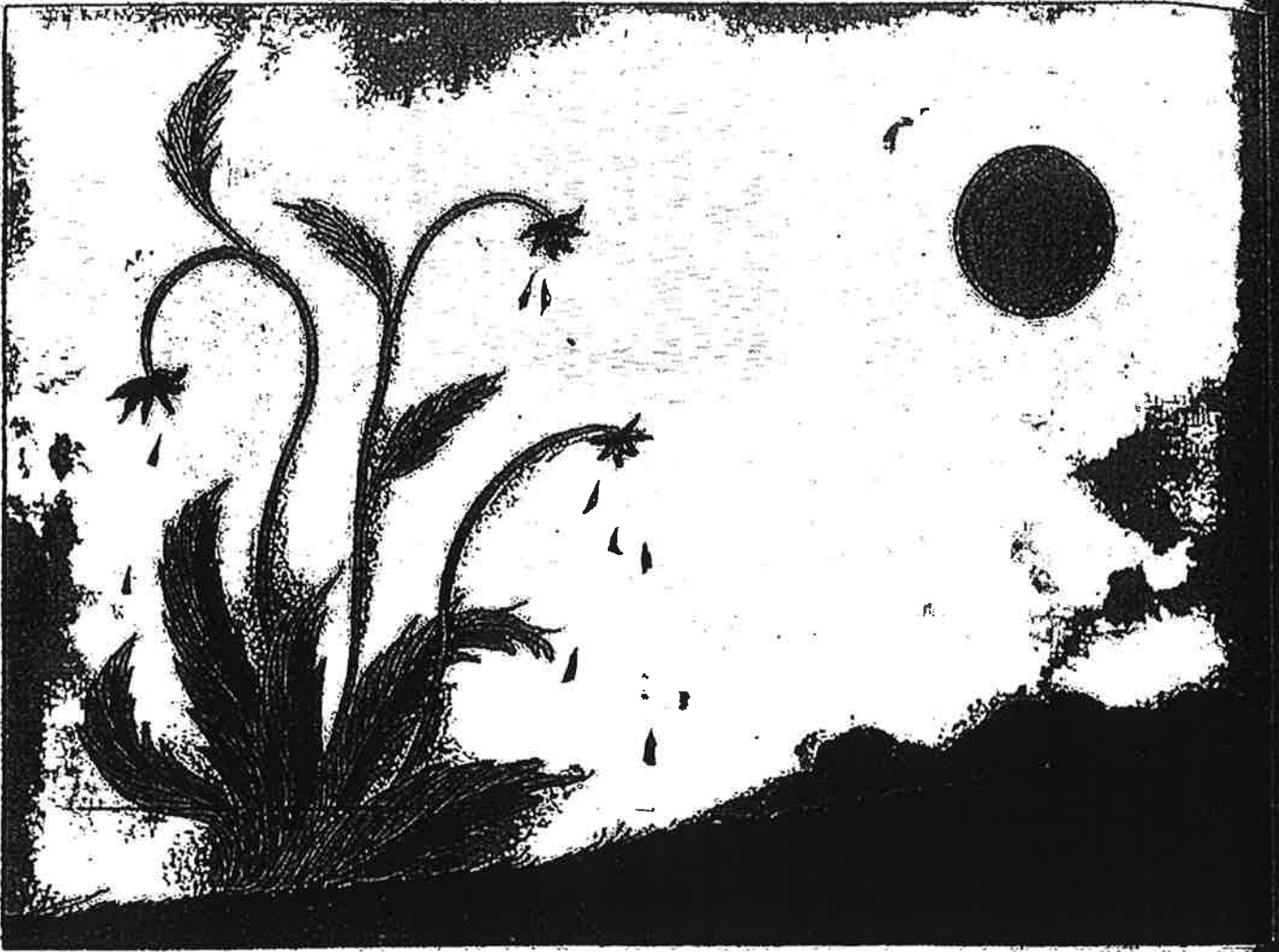
Pollination happens in different ways. Often, wind blows pollen from flower to flower.

Bees, other insects and hummingbirds help pollinate, too. While they visit flowers for their sweet juice, called nectar, pollen rubs onto their bodies. Then they carry the pollen to another flower where it comes off onto its pistil.



If a pollen grain from a flower lands on the pistil of the same kind of flower, it grows a long tube through the pistil into an ovule. This is the beginning of a seed.

The seeds grow inside the flower, even as the flower begins to die. As the seeds become bigger, a fruit or pod grows around them. The fruit or pod protects the seeds.

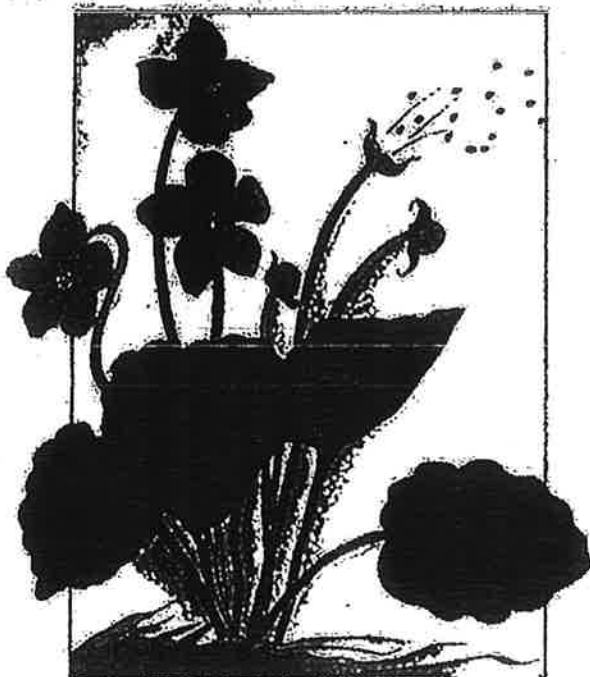


When the fruit or pod ripens, it breaks open.
The seeds are ready to become new plants.

Some seeds fall to the ground around the base
of the plant where they will grow. Some pods or
fruits open and the seeds pop out. Sometimes,
when birds eat berries, they drop the seeds.



Other seeds fall into streams, ponds, rivers or the ocean. There, they travel on the water until they stick to dirt along a shore.



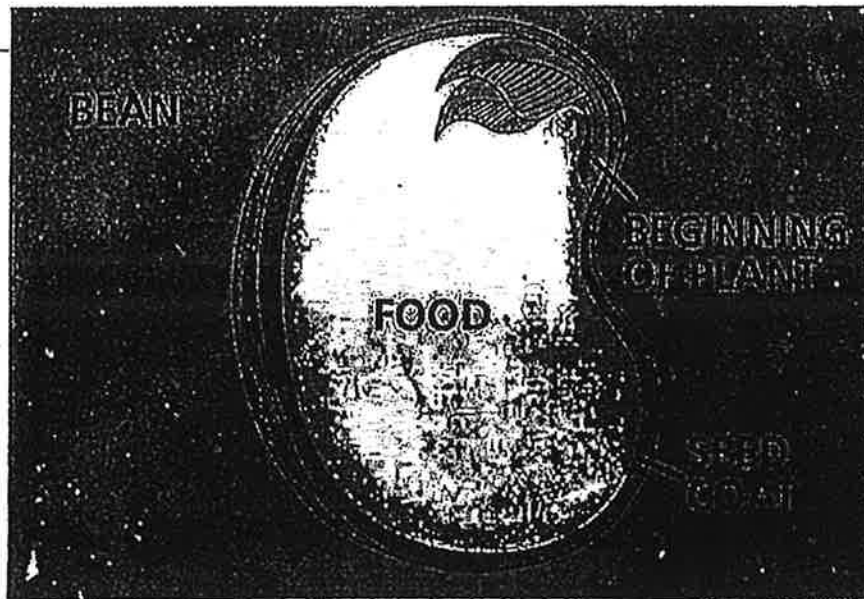
The wind scatters seeds. Some seeds have fluff on them that lets them float to the ground like tiny parachutes. Others have wings that spin as they fall.



Animals help scatter seeds, too. They hide acorns and nuts in the ground. Some seeds have hooks that stick to the fur of animals or people's clothes. Later, they drop off onto the ground.



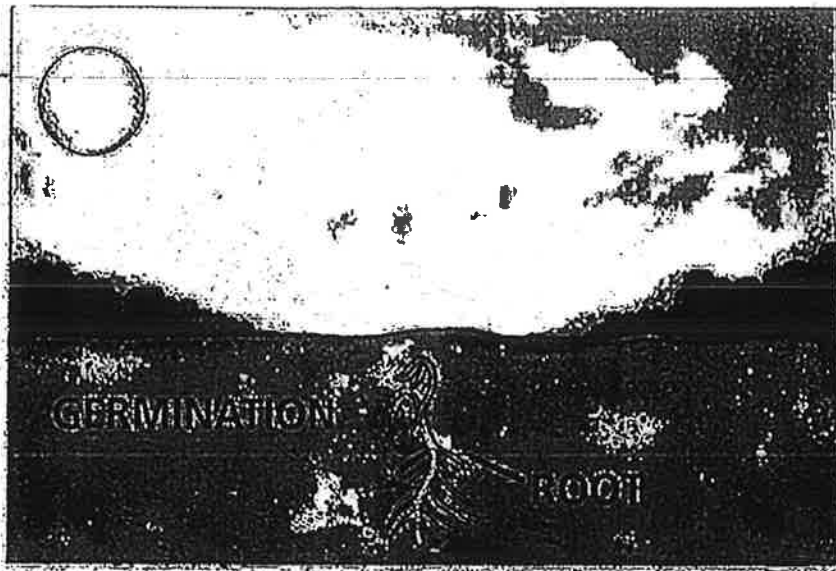
A flower bed or vegetable garden is beautiful!
Seeds are planted to grow in the gardens. The seeds
come in small envelopes or boxes. Directions explain
how to plant the seeds and care for the plants.



The beginning of a plant is curled up inside each seed. Food is stored inside the seed, too. The seed has a seed coat on the outside to protect it.



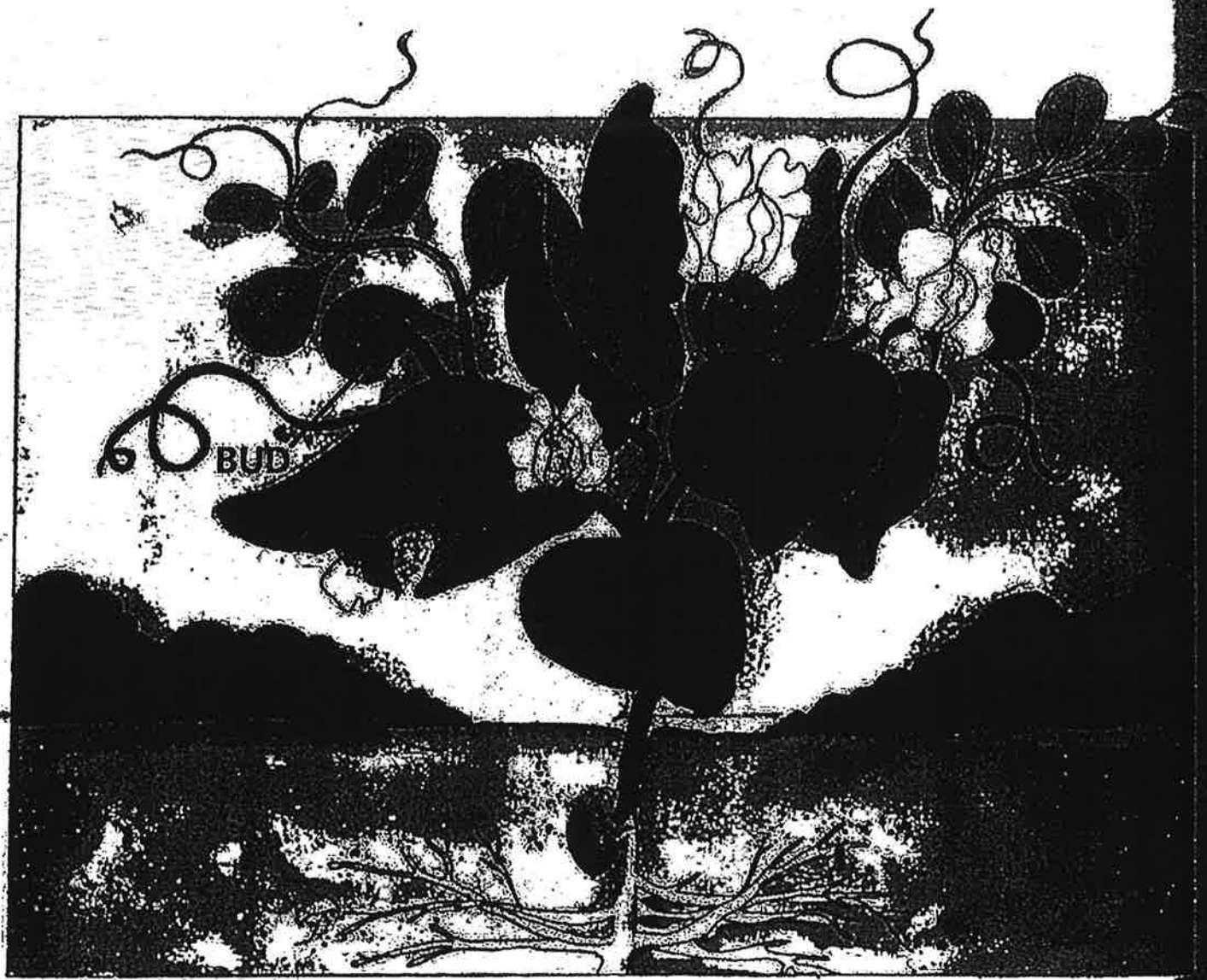
A seed will not sprout until certain things happen. First it must be on or in the soil. Then it needs rain to soak the seed and soften its seed coat.



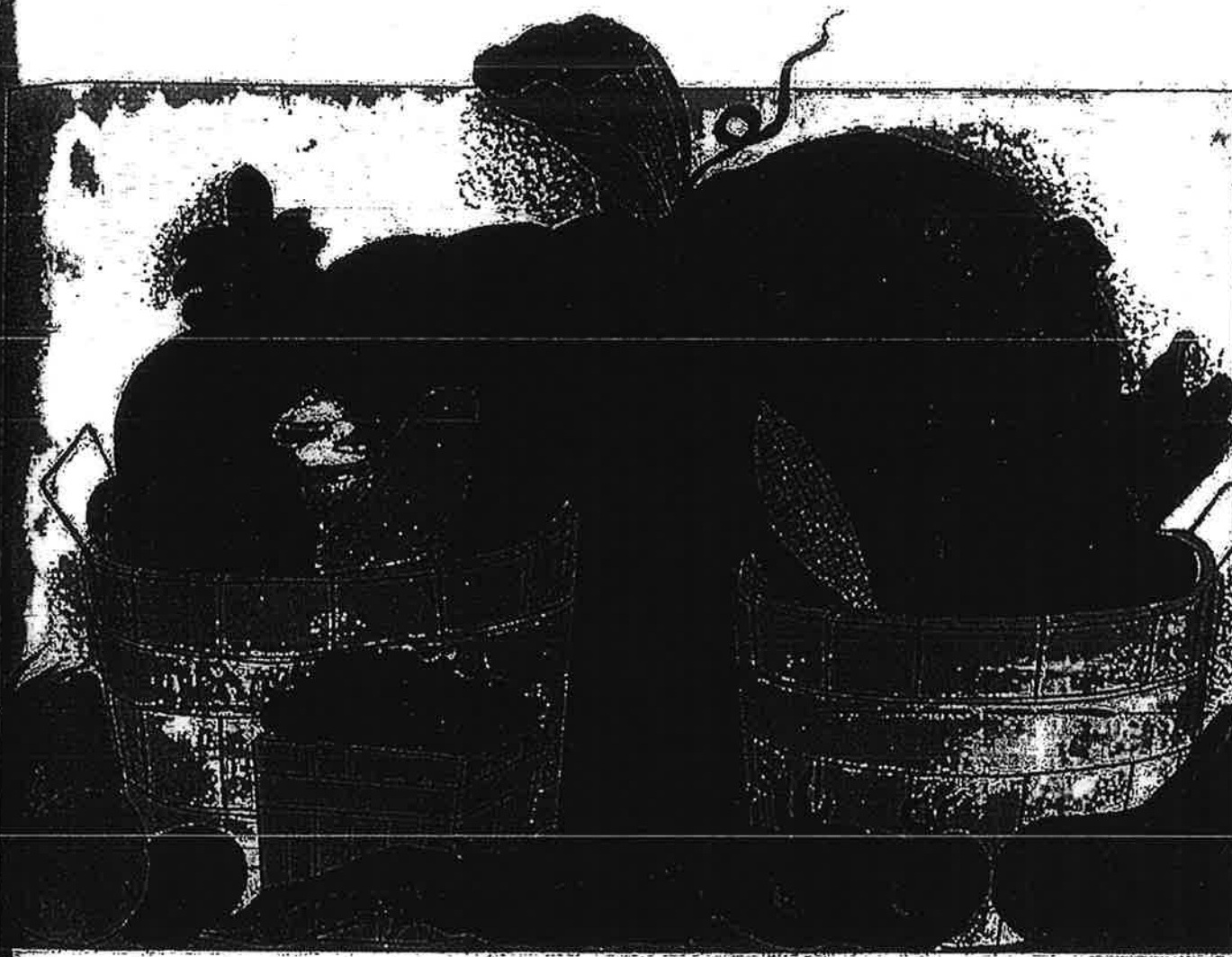
When the sun shines and warms the ground, the seed coat breaks open and the seed begins to grow. This is called germination. A root grows down into the soil. The root takes in water and minerals from the soil for food.



Up grows a shoot. Green leaves grow up from the shoot toward the sun. The plant grows bigger and bigger. The leaves make food for the plant from the water and minerals in the soil, the sunlight, and the air all around the plant.



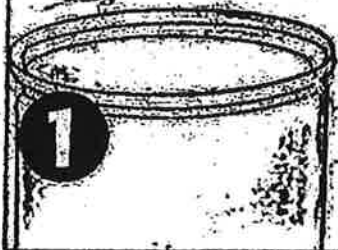
Finally, the plant is full-grown. Buds on the plant open into flowers where new seeds will grow.



Many of the foods people eat are seeds, fruits and pods. They are full of nutrition, vitamins and minerals and . . . they are tasty, too!

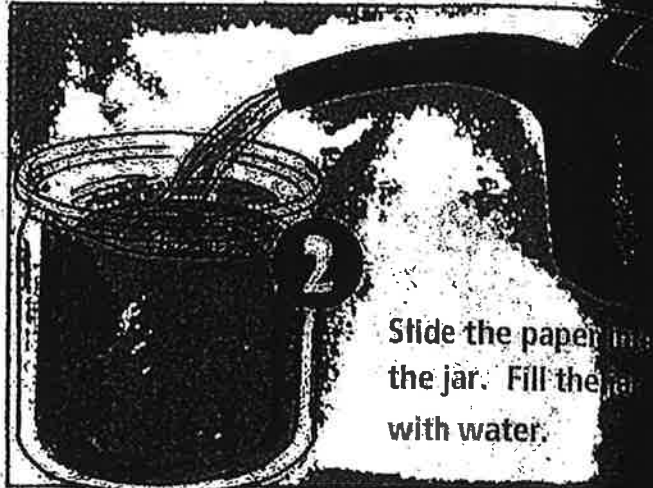
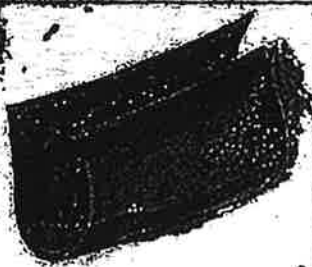
A "FROM SEED TO PLANT" PROJECT

HOW TO RAISE BEAN PLANTS



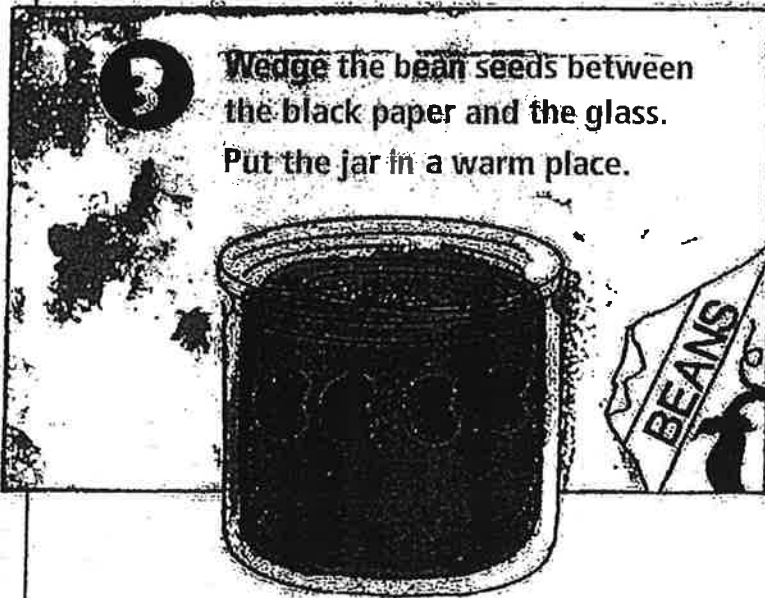
1

Find a clean glass jar. Take a piece of black construction paper and roll it up.



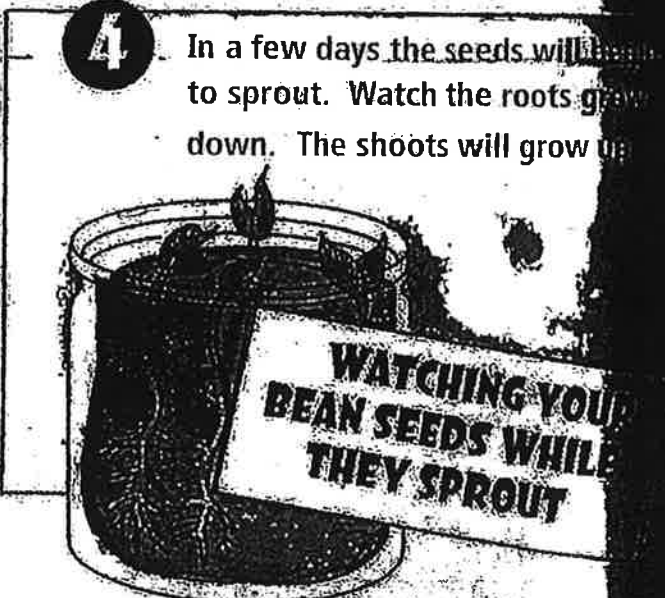
2

Slide the paper into the jar. Fill the jar with water.



3

Wedge the bean seeds between the black paper and the glass. Put the jar in a warm place.



4

In a few days the seeds will begin to sprout. Watch the roots grow down. The shoots will grow up.

WATCHING YOUR BEAN SEEDS WHILE THEY SPROUT

ANALYZE THE TEXT

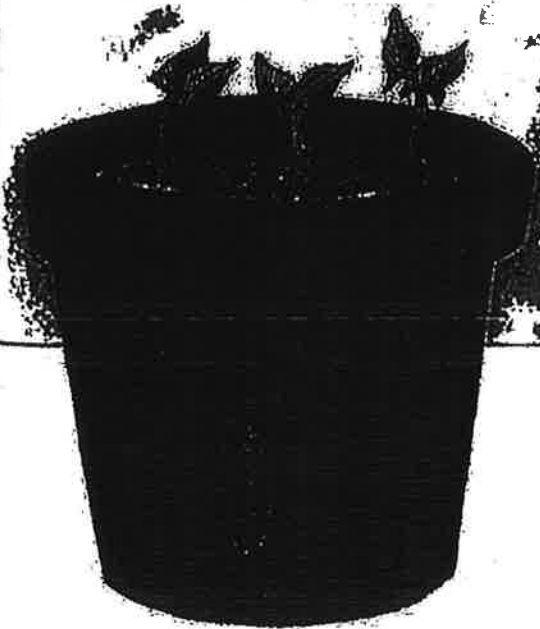
Cause and Effect What causes the beans to sprout in the glass container?

PREPARING FOR YOUR BEAN PLANTS

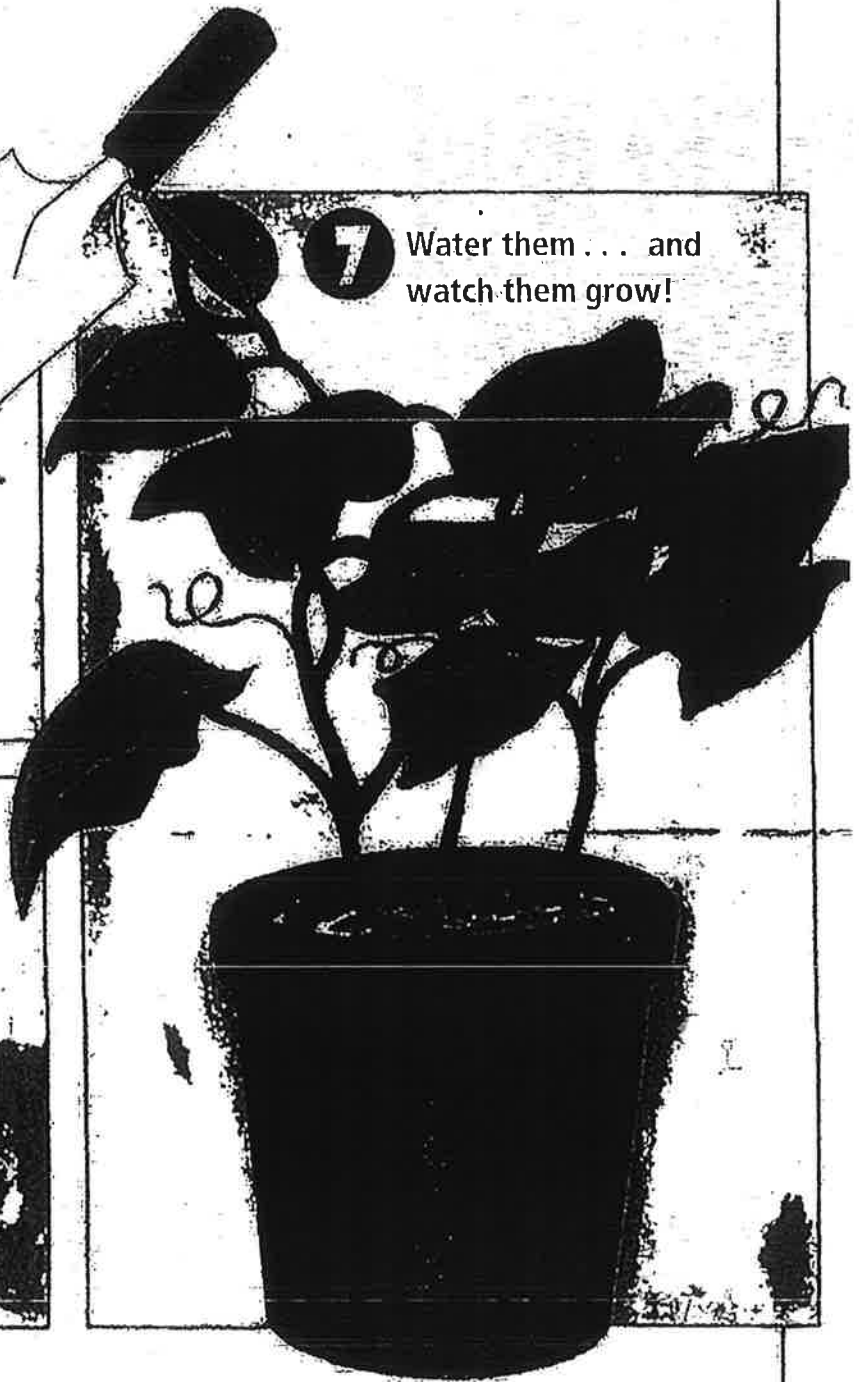
- 5** Put dirt into a big clay pot.

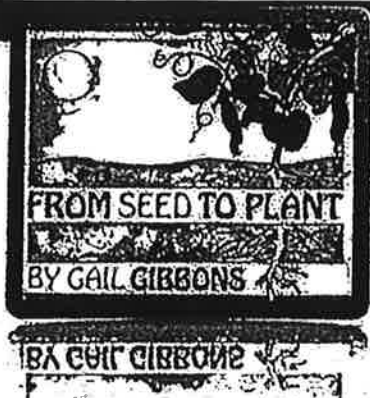


- 6** Carefully remove the small plants from the glass jar. Place them in the soil, covering them up to the base of their shoots.



- 7** Water them . . . and watch them grow!





Dig Deeper

How to Analyze the Text

Use these pages to learn about **Text** and **Graphic Features** and **Cause and Effect**. Then read *From Seed to Plant* again. Use what you learn to understand it better.

Text and Graphic Features

In *From Seed to Plant*, you read about how plants grow. The selection has text and graphic features that can help you understand more about the text. The pictures and diagrams are **graphic features** that help you better understand the topic. The labels on the diagrams are **text features** that show different parts of the diagram.

As you read, use a chart to list text and graphic features. Then list how each makes the text clear.

Text or Graphic Feature	Page Number	Purpose



RI.2.3 describe the connection between a series of historical events/scientific ideas/steps in technical procedures; **RI.2.5** know and use text features to locate facts or information; **RI.2.7** explain how images contribute to and clarify text



Cause and Effect

Sometimes one event makes another happen. For example, sunlight and water fall on a young plant. As a result, it grows. The plant getting sun and water is the **cause**. The plant growing is the **effect**. As you read, think about how one event causes another to happen as a plant grows. Think about why the events must happen in order.

Your Turn



RETURN TO THE ESSENTIAL QUESTION



How do plants grow and change? Share your ideas with a partner. Talk about evidence from the text and pictures in *From Seed to Plant*. Think about what the labels and pictures help you understand. Use complete sentences.



Classroom Conversation

Now talk about these questions with the class.

- 1 What information is found only in the pictures?
- 2 How are the plants that grow in a garden different from the plants that grow in nature?
Use text evidence in your answer.
- 3 What are some ways that animals help new plants grow?

WRITE ABOUT READING

Response Think about what a seed needs to grow. How do the soil, water, and sun work together to help the seed begin to grow? Write a few sentences to explain. Include text evidence from the selection's words and pictures in your sentences.



Writing Tip

Make sure the verbs in your sentences tell about the same time.

Go
Digital

COMMON
CORE

RI.2.1 ask and answer questions to demonstrate understanding of key details; **RI.2.3** describe the connection between a series of historical events/scientific ideas/steps in technical procedures; **RI.2.5** know and use text features to locate facts or information; **RI.2.7** explain how images contribute to and clarify text; **W.2.2** write informative/explanatory texts; **SL.2.6** produce complete sentences to provide detail or clarification