A young boy with dark hair, wearing a white t-shirt and red shorts, is captured mid-jump in a field of tall, golden-brown grass. His arms are raised high, and he has a wide, joyful expression with his tongue sticking out. In the background, another child in a yellow shirt is also jumping, though slightly out of focus. The sky is a clear, bright blue. The overall mood is one of pure happiness and outdoor activity.

UNDER YOUR FEET

Exploring Soil Science

Grades 1 to 2

carrot



banana



broccoli

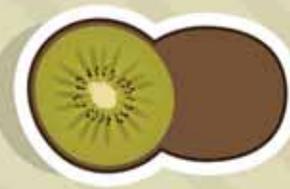


What do you notice about these pictures?

corn



kiwi



pumpkin



Circle the fruits. Draw a square around the vegetables.

pear



pepper

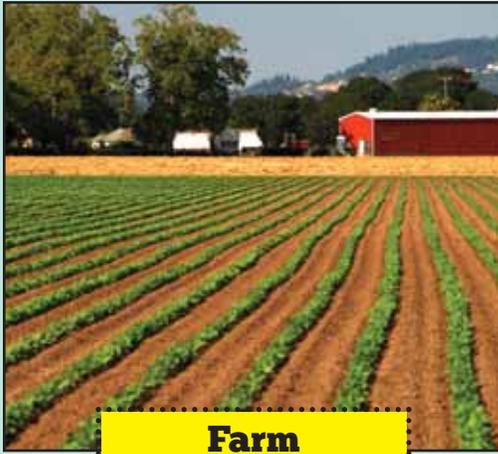


orange

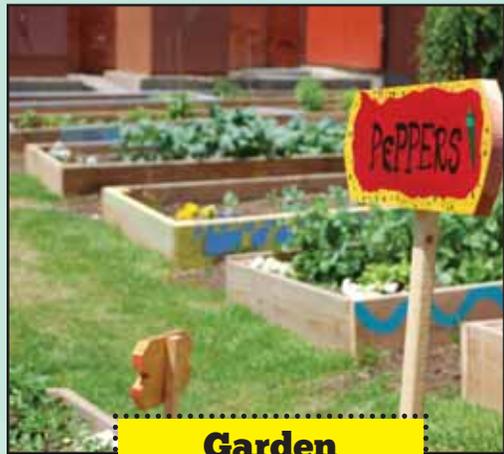


watermelon





Farm



Garden



Greenhouse



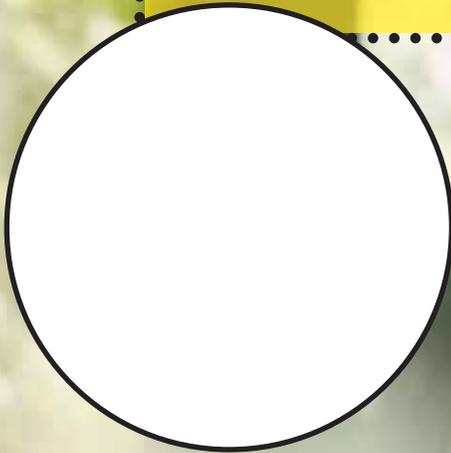
Where do fruits and vegetables come from?

Fruits and vegetables come from plants. These plants can grow in many places.

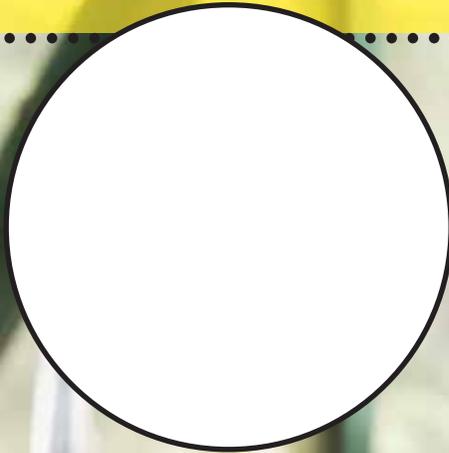
Something to try

Grow your own vegetable! What does your plant need to grow?

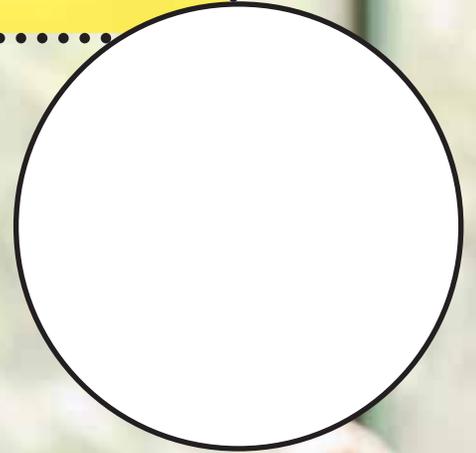
Draw each material:



**Vegetable seeds,
like peas, radishes,
or carrots**

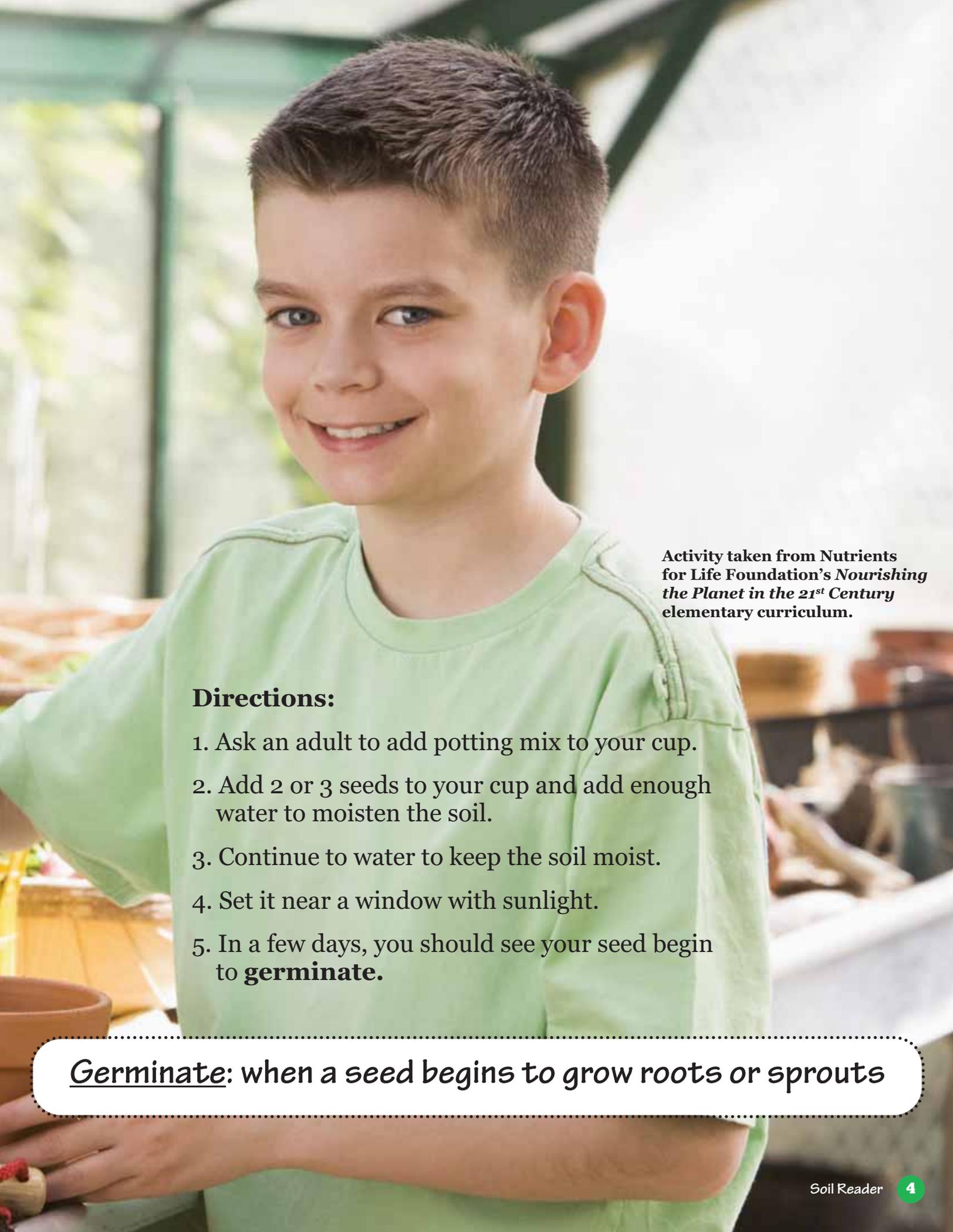


Cup or Pot



Potting Mix (Soil)





Activity taken from Nutrients for Life Foundation's *Nourishing the Planet in the 21st Century* elementary curriculum.

Directions:

1. Ask an adult to add potting mix to your cup.
2. Add 2 or 3 seeds to your cup and add enough water to moisten the soil.
3. Continue to water to keep the soil moist.
4. Set it near a window with sunlight.
5. In a few days, you should see your seed begin to **germinate**.

Germinate: when a seed begins to grow roots or sprouts

Important words!

Plant nutrients are important for plants to grow.
Nutrients are found in the soil.

Dear Farmer Melissa,

Why is soil important to grow fruits and vegetables?
How do fruits and vegetables get to the grocery store?

Sincerely,
Jake

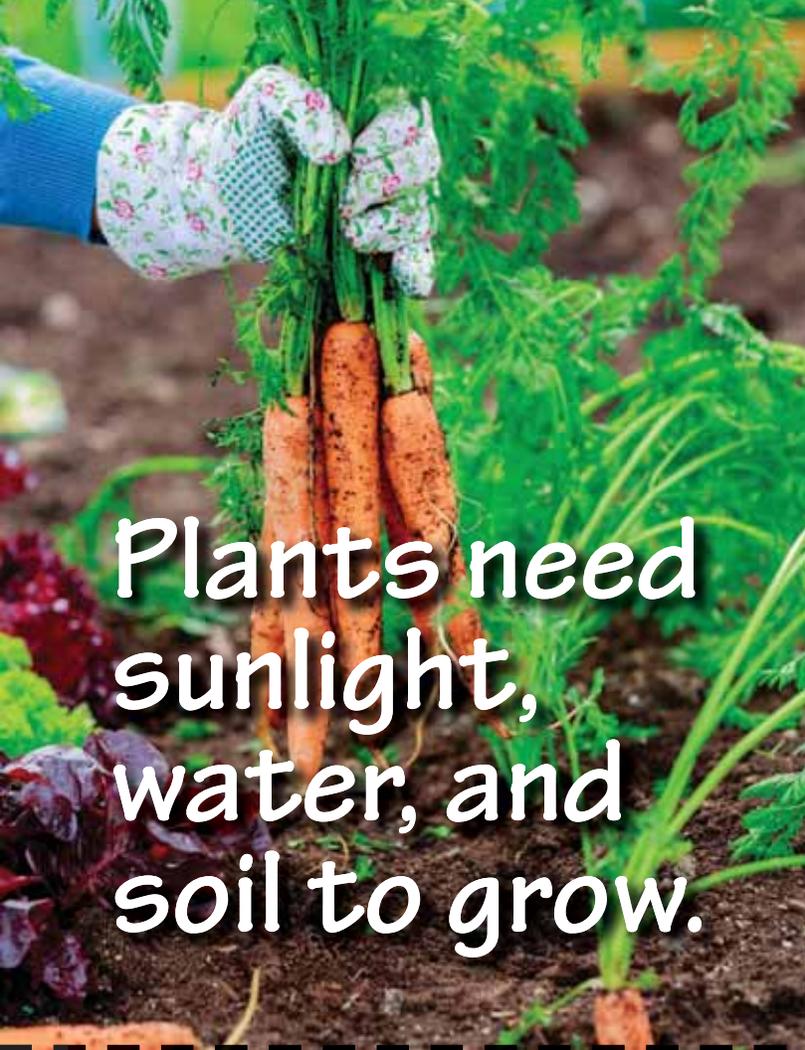
Dear Jake,

Most of the food you eat comes from farms. The farmers work hard to grow healthy plants. They sell the fruits or vegetables from the plants to grocery stores. Most fruits only grow in the warm months of spring and summer.

Soil gives plants the nutrients that they need to grow. Just like you need to eat healthy to grow, nutrients help plants grow.

Soil also helps the roots hold up the plant.

Sincerely,
Farmer Melissa



Plants need
sunlight,
water, and
soil to grow.

- Hold soil in your hands. What does the soil feel like? Soil provides nutrients for plants.



- Draw a picture of a raindrop.

- Stand in the sun. Does this make you feel warm or cold?





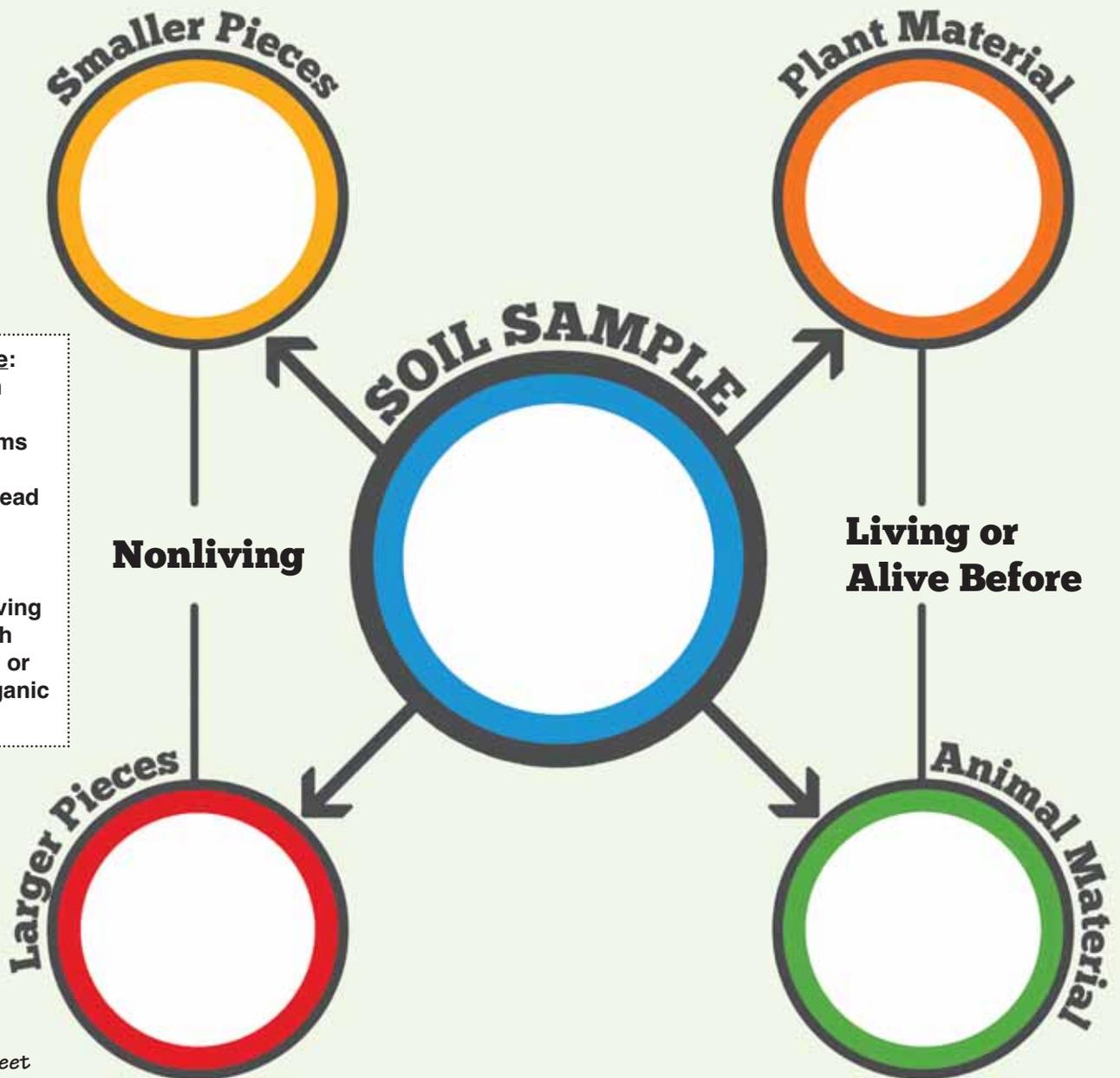
Be a Soil Detective

Not all soil is the same. It can look different and have different nutrients.

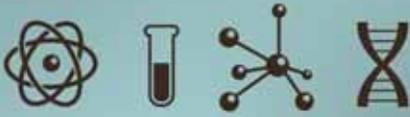
Try this: Use a magnifying glass to look at different types of soil.

Does soil from a lawn look different than the soil from a garden?

Put a spoonful of soil in the middle circle. Use a magnifying glass to sort the parts of soil into different piles.



Teacher's Note: Materials from living or once living organisms can be called organic, like dead plant material, worms, and decomposing insects. Nonliving materials, such as clay, rocks, or sand are inorganic materials.



Experiment

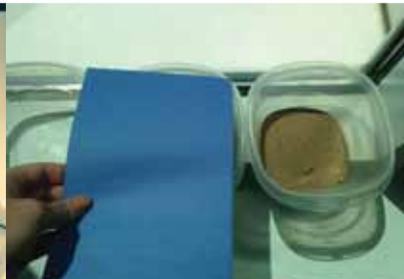
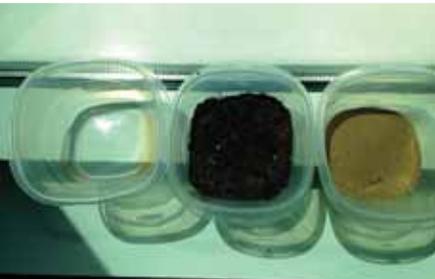
Does Soil Contain Water?

- 1** Line up three small buckets or coffee cans.
- 2** Leave the first can dry and empty.
- 3** Fill one with gardening soil and the other with sand.
- 4** Cover each can with a piece of construction paper.
- 5** Set the cans in a sunny window for a couple of hours.
- 6** Make a guess about which pieces of construction paper will be wet.
- 7** Observe which construction paper pieces look wet or dry.

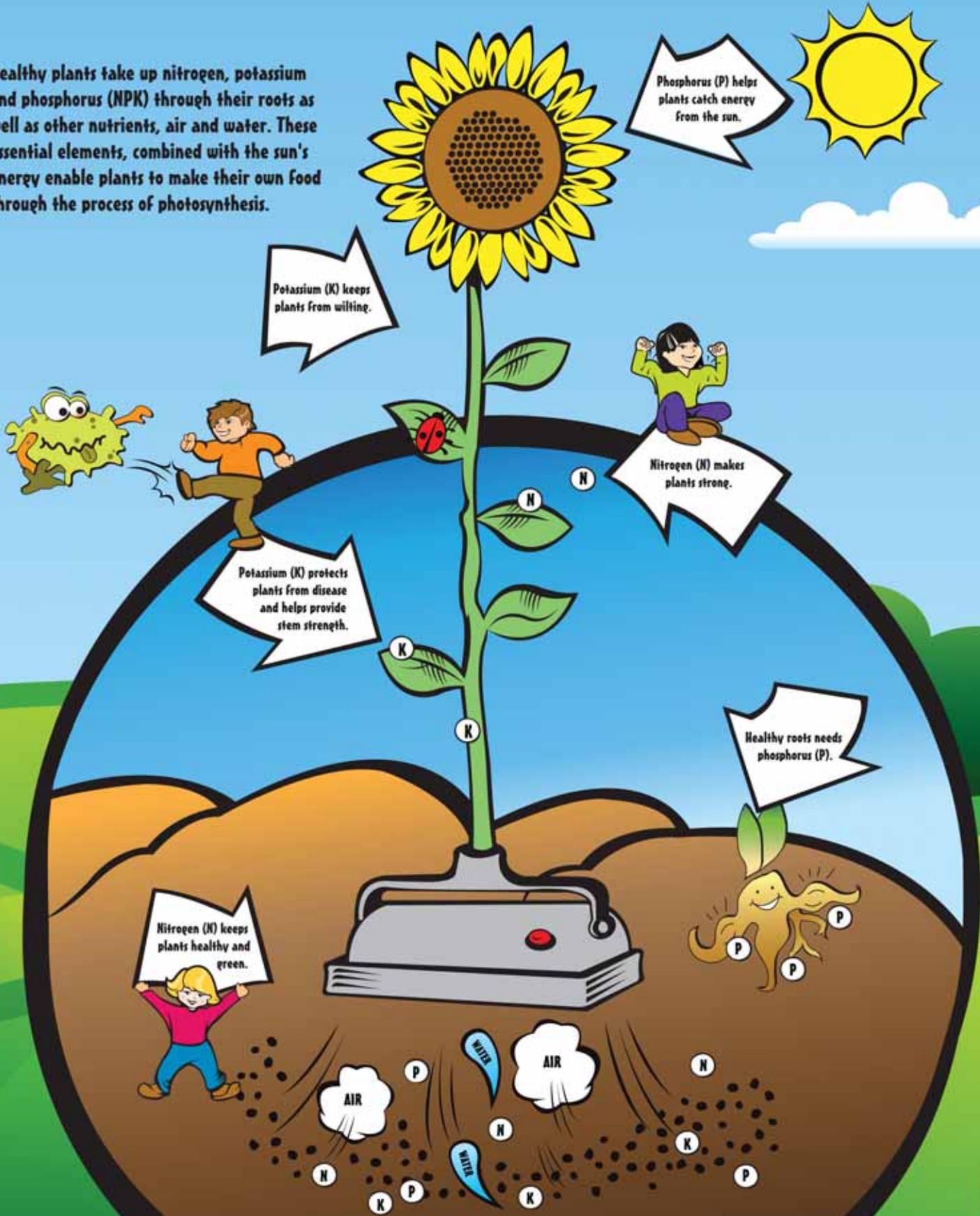
• Was your guess correct?

• Which paper had the largest wet mark? What did the paper placed over no soil look like?

• Why is water important in soil?



Healthy plants take up nitrogen, potassium and phosphorus (NPK) through their roots as well as other nutrients, air and water. These essential elements, combined with the sun's energy enable plants to make their own food through the process of photosynthesis.



How Plants Grow

In your own words!

Why is soil important?



For more soil science and crop nutrient resources:



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