



MYSTERY #3 THE SECRET OF SOIL

K-1 Teacher Guide

KANSAS CORN STEM

This teacher guide is broken into the different sections with suggestions of how to use the reader in the classroom and provide ideas on how to extend learning for your students. A PDF version of this teacher guide with active links can be found at kansascornstem.com under Mystery Corn Reader.

Grades K-1

This reader can be used in small groups or a whole group for reading or science.

Depending on your readers, this magazine would be more appropriate to be read aloud to your students.

Outcome

- Students will have knowledge of the targeted vocabulary words.
- Students will be able to identify what soil is made up of.
- Students will be able to explain what weathering and organic matter is.

Vocabulary Words

- Nutrients: a substance that provides nourishment needed to grow
- Weathering: process that slowly breaks down or changes rocks
- Organic Matter: matter that has come from recently living things

Activity

Introduce these words before you begin reading. Ask students if they have heard or recognize the words. Then, read the definitions and talk about them as a class. Do more of the students recognize the words now? See if students can use the vocabulary words in sentences. Pictures from the reader or a Google search can be used to help explain these words as well.

Front Cover

Read the question at the bottom. Give time for students to brainstorm and share these ideas. These ideas can be written down so they can be discussed again at the end of the lesson.

Inside

- When you come to a vocabulary word, take the time to stop and redefine the words.

Observe and Share

- An anchor chart can be made to record the students' answers.
- Go over the questions and have students share their answers.
- Can students compare this type of soil to soil they have seen in their own lives?
- Give the students time to share their ideas.
- Do any of their ideas match up with what they brainstormed from the front cover?

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Farmers Love Soil!

- After reading this section, go over the vocabulary word, nutrients. It says that the corn plant gets its food and nutrients from the soil... so what are nutrients?
- Have students think about the food they eat. The food we eat helps our bodies in different ways. Students may know that milk helps their bones, carrots help their eyes and fruits and vegetables keep their bodies healthy.
- The same is true with soil. The soil that corn is planted in has to have enough food and nutrients to keep the plant healthy.
- The type of nutrients a corn plant needs is different from what we need as humans.
- Keep reading!

Let's Make Soil!

Weathered Rocks

- Digging deeper, here is how to explain weathering rocks! Let's think about the ways a big rock can turn into a smaller rock.
- Water freezes between the cracks and roots of plants grow between the cracks causing the rock to split and break.
- Wind or rain hits the rock causing small bits to fly off.
- Animals and humans break down rocks when they hit them together or walk on them.
- Can you think of more examples?

Organic Matter

Digging deeper, here is how to explain organic matter. Let's think about some ways organic matter can become soil.

- Corn stalks are left on the ground at harvest and break into small pieces.
- An apple core is thrown on the ground, and breaks into small pieces.
- When your parents mow the lawn, grass clippings break into small pieces.
- Leaves fall from the tree and break into small pieces.
- Can you think of more examples? (students may have knowledge about compost piles)

Weathered Rock + Organic Matter

After explaining what makes up soil, explain that organic matter and weathered rocks all mix together with water and air to make good soil. The nutrients come from the organic matter. Remember organic matter is the breakdown of dead plants, rotting food and the decomposing (or rotting) of animals that have died.

Back Cover

Do You Remember: What Makes Good Soil?

- Circle the items that make good soil.
- Put an X over the items that do not help the soil.

Do You Remember

Students have several options on what to draw in this space.

- Students can draw a picture to show how rocks are weathered. Example: students can draw a picture of rocks getting stepped on by animals or humans. Or they can draw a picture of rocks getting hit by waves.
- Students can draw a picture to show how organic matter breaks down. Example: students can draw a picture of an apple core rotting. Or they can draw a picture of a compost pile with egg shells and old bread in it.

Additional Kansas Corn STEM Resources

This reader can be used as a stand-alone activity, or you can pair it with other Kansas Corn STEM offerings.

- **Free Education Kit and Lesson** – The best resource to pair with this reader is one of our corn lessons that comes with a free education kit. The kit contains all the supplies needed to conduct a series of lessons that meet NGSS, are inquiry-based and hands-on. No training or prior knowledge about corn is needed to teach these lessons. Request your free kits a <https://kscorn.com/request-materials/>