

MYSTERY #3 THE SECRET OF SOIL

MYSTERIOUS VOCABULARY WORDS Weathering Decomposition Nutrients Drainage Compact Decomposed Fertilization

> Is all soil the same? Do all soils contain everything a plant needs to survive? Does soil affect how well a plant grows? In this edition, learn the mystery of soil.

Mystery of Corn Grades 2-5 Reader | Mystery #3

KANSA

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Top Secret Report from Agent X We have uncovered stunning evidence that not all soil is the same. Through our investigations, we've learned there are several kinds of soil in Kansas. What is the connection between soil and corn? What kinds of soil does corn need?

EVIDENCE

FOUND FARMERS LOOKING AT SOIL WHY DO THEY CARE?

DETAILS

We all know the Kansas State Flower is the sunflower, and the Kansas State Bird is the meadowlark. But did you know that Kansas has a State Soil? Harney Silt Loam is the official Kansas State Soil.

HOW IS SOIL MADE? Watch this video to find out:



What Is Soil?

Soil is created by the **weathering**, or breaking down of rocks, and **decomposition**, or break down of living matter. Not all soil is the same, in fact, soil varies depending on where you live. A Kansas farmer will want the best soil to grow their crops and needs to know what types of soils are in their fields. How do they know what type of soil they have?

SOIL SECRET

Loam contains humus. Humus is dead plants, bugs and animals that have **decomposed** in the soil. When the living matter has decomposed, it provides the soil with rich **nutrients** and provides **fertilization** to the ground. Farmers leave their corn stalks on the ground after harvesting to increase the humus in the soil.





Too soft! Some fields contain a lot of sand. Sandy soil has small rock particles that do not stick together. Imagine the texture of the particles in a sandbox. Does the sand fall through your hands as you hold it? When farmers have fields that have a lot of sand, their soil does not stick together. Soil with too much sand is not ideal for a corn farmer because their fields will not hold water, nutrients, or food for the plant. Corn plants may not be able to stand up in soil that is too sandy.



Too slimy! Another type of soil is called silt. Silt is typically found along the banks of a river. Silt contains fine rock particles allowing the soil to hold water. Think about walking close to a riverbank with bare feet. The silt squishes through your toes and feels slippery. Soil with too much silt is not ideal for a corn farmer. If the soil has too much silt, it may hold too much water for the corn plant and will not have enough drainage.

Too hard! Clay is very small rock particles that stick together. When wet, the clay is silky and smooth to the touch. It will hold water very well. Because the particles stick together, clay becomes hard as it dries. Think about clay used in art class. Water makes the clay soft, but when the clay dries out it becomes hard. Soil with too much clay is not ideal for a corn farmer. The ground can become too hard for a plant to emerge from the soil, especially when it is dry.



Just right! Soil that is called loam contains a combination of sand, silt, and clay. Loam is great for a corn farmer because the sand makes the soil easy for the farmer to plant their corn, the silt makes it so water can be held in the soil for growth and the clay helps the soil stay **compact** to keep the corn's roots in the ground. When all three soils work together, a farmer has the best soil! Kansas corn farmers are not the only ones that love loam. Gardeners use loam for flowers and vegetables.

MATALYN STARK SOIL SCIENTIST

CAREERS IN CORN

Matalyn Stark works as an Area Resource Soil Scientist for the USDA-Natural Resource Conservation Service in Hays. She provides assistance with soils to 27 counties in Western Kansas. A Resource Soil Scientist uses soil survey information to help farmers make informed decisions about their land. A soil scientist can determine the sand, silt and clay content on the farm and suggest conservation practices that helps to prevent soil erosion, ways to improve soil health, or if a site would be suitable for a pond.

Can Farmers Improve Soil?

Farmers can't control the weather or the type of soil their farm has. The types of soils in Kansas were determined by many factors over millions of years. Watch this video to learn more and learn how farmers can improve their soil.



CORN SCIENCE INVESTIGATION

The Mystery of Corn reader series is provided by:



Soil Investigation!

Materials Needed

- Clear or plastic jar with lids (one for every group of 3 to 4 students)
- Dry soil from outside of the school (enough to fill each group's container half-full)

Directions

- Fill the container half-full with soil.
- Pour in water until container is 3/4 full.
- Screw the lid on tightly.
- Shake the container until the soil is mixed up.
- Once it is mixed up, let container sit so the soil can settle.
- Make observations.

