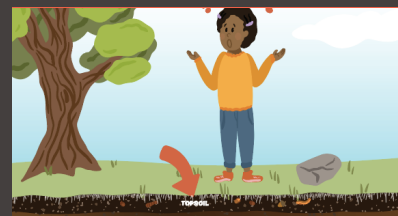
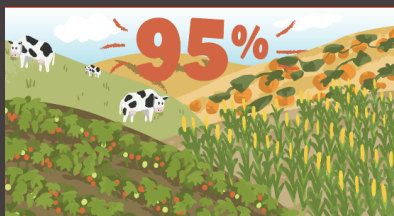
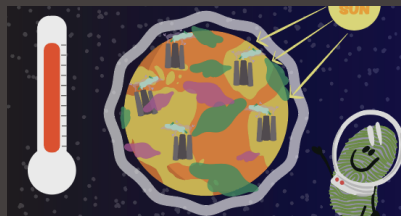


Lesson #6: Movie Moment

Down to Earth: Soil is a Solution



Watch the video at: <https://youtu.be/OttWoaGXphED>



Below your feet lies one of our biggest solutions to climate change. Soil provides nutrients and a foundation for most of the plants on earth, but its capabilities are more complex than that. This video outlines the use of soil for plant health and its ability to store carbon. It outlines the movement of carbon through plants and soil, emphasizing that protecting soil and limiting its disturbance will allow it to continue providing nutrients and carbon storage to keep our planet balanced.

Science Review

This video has a few science extensions that are worth noting and exploring further with some classrooms:

We are still learning so much about the complex relationships going on within our soil.

All soil consists of four primary things: minerals, air, water, and organic matter. The minerals include three things: clay, silt and sand. The balance between these different minerals allows a substance that is porous (space for water and air to pass through), but solid enough to remain stable and supportive. Within the soil lies a great deal of stored carbon from organic matter, from dead plants, animals, and other organisms. It is estimated that there is three times more carbon stored in the soil than in the atmosphere, and four times more than all living plants and animals. That's a lot of carbon!

For the purpose of explaining climate change, the carbon cycle is focused on in these lessons and videos. Carbon cycles through soil and into living things, as does other micronutrients (like nitrogen cycle, discussed in later grades).



The Dirt on Soil Classroom Poster

Humans get the vitamins and energy they need in part from the life-supporting properties of soil. Plants get their energy from the soil, but the energy comes from the sun. Without the right nutrients, they are unable to survive. The key three are nitrogen, phosphorous and potassium, though any gardener will tell you that there are many other micronutrients working within a healthy soil to support life.

While weather can impact the dryness or wetness of soil, human-caused disturbances are also a serious threat to soil health. Overtilling and other unsustainable agriculture practices can damage topsoil and the microorganisms

Movie Moment!

06

working within it to break down the soil. Increased urbanization into arable, nutrient-rich land is also a major challenge.

It's important to look for solutions to ensure we protect healthy soil so it can do its important job of storing carbon dioxide. As a best practice and learning opportunity, try composting! Composting is an excellent example of supporting the conversion of nutrient-rich organic matter into soil.

Indigenous Connections:

I understandings with suggested resources, stories, articles, and poems:

[https://www.spiritsd.ca/learningresources/FNM%20Resources/GR3%20Soil%20Integration,%20In16%20\(2\).pdf](https://www.spiritsd.ca/learningresources/FNM%20Resources/GR3%20Soil%20Integration,%20In16%20(2).pdf)

For more information on stories, resources, and other learnings, refer to our glossary of resources in the Teacher Guide.

Stop & Check!

Pause the video at this timestamp to check for your students' understanding.

- Just what is soil anyways? [00:50]
- What does soil look like where you live? [03:00]



Sight Words to look out for:

- Soil
- Minerals
- Organic Matter
- Nutrients
- Fossil Fuels
- Electricity
- Transportation
- Carbon Dioxide
- Greenhouse Gasses
- Atmosphere
- Temperature
- Carbon Sink
- Scientist
- Disturb



Relatives With Roots
by Leah Dorian

A Métis grandmother and granddaughter explore the Métis worldview through traditional medicines.



Agriculture in the Classroom Slideshow with Leah Dorian

<https://www.dropbox.com/s/0d3loadrk6224vo/The%20Earth%20on%20Turtle%E2%80%99s%20Back%20Slideshow.pptx?dl=0>