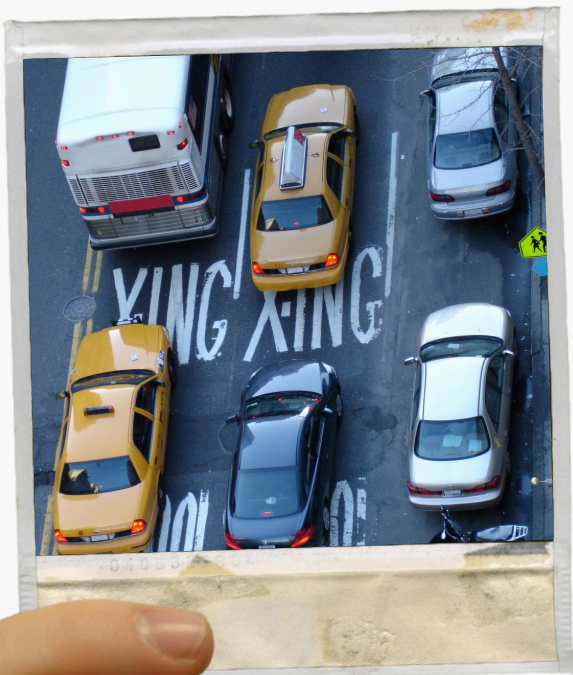


WHAT DO THESE HAVE IN COMMON?



GET 'THE DIRT' ON SOIL.

WORKSHEET - 1
STUDENT COPY

**YOU'VE PROBABLY
NEVER GIVEN
MUCH THOUGHT
TO THE EARTH
UNDER YOUR
FEET BUT
IT DESERVES
SOME CAREFUL
ATTENTION.**



Soil just might be the most important resource we have in Alberta, now and in the future. You may ask 'how could soil be a bigger focus than oil and gas or water?' Read on because we're going to give you the dirt on soil and then you can form your own opinion.

Soils are important to us. In fact, you probably can't go through the day without coming into contact with at least 10 things that either come from, or are dependant on soil. See for yourself. Check off all the soil connections you've had today:

FOOD:

- ☐ Had cereal with milk for breakfast
- ☐ Ate fruit, vegetables or meat today
- ☐ Had chips, popcorn, chocolate or soda pop



FIBRE:

- ☐ Used bed sheets or pajamas made from wool (cotton), flax or hemp fibers
- ☐ Put on a cotton t-shirt, woolen mittens or shoes
- ☐ Walked on carpet or sat on a couches with fibers that came animals like sheep or alpacas or from plants like flax or hemp

MEDICINES:

- ☐ Had a multi-vitamin containing ginseng or echinacea, commonly used to cure colds



PAPER AND INKS:

- ☐ Your house received a newspaper or magazine made from trees and often printed with environmentally-friendly inks using vegetable oils
- ☐ Have paper on your desk

RECREATION:

- ☐ Have a garden outside your house
- ☐ Played on grass today
- ☐ Used a leather soccer or base ball or used a mitt or bat

A FOUNDATION:

- ☐ Live in a house that is supported by the soil under it
- ☐ Drove on roads that use the soil as a foundation

PURIFIER/RECYCLER:

- ☐ Used a toilet today
- ☐ Threw something in the garbage that will go to a landfill to be mixed with soil and broken down

Are you surprised how many items you checked off? And that's only some of the uses! We are very dependant on soils, and especially good soils, to survive and be healthy. It is the natural place for food to grow but it is also the foundation for homes, roads and factories. The quality of the soil often tells us how long these structures will last.

You may be surprised to learn that soils are also used to absorb wastes from sewage systems and other municipal and industrial sources. They hold the pipes that carry water and energy to your home, and take wastes away. A person making a bridge would be sure to check the soil beneath before construction takes place. Soil is as important to city dwellers as it is to people who live on a farm.

SOIL HISTORY:

The benefits we gain from soil are not new, people have been benefiting from it for centuries. Some of the first known cities along the Nile were formed because of the fertile soil along its riverbanks. Frequent flooding kept the soil balanced so it was able to produce abundant harvests each year. As a result, the people who were considered nomadic (constantly moving from place to place) settled in the area and built stable communities.

SOIL-BASED INNOVATIONS:

Our soils also hold a promising future. Scientists are testing new forms of energy coming from our fields. These are called biofuels. It is estimated that vegetable-based biofuels can create a reduction of harmful emissions to the environment by a whopping 50%! There is big demand for this new form of energy but if we're to meet it we'll need grow a lot more crops. Researchers in the United States believe that if all corn and soybean harvests went to biofuel production we would still only meet 12% of the demand for gasoline and 6% for diesel. Because of our rich grassland soil Alberta has become a leader in biofuel research. To make it pay off we'll need to pay special attention to our soils.

THE SOIL EQUATION:

By now you may agree that soil is important in our lives but here's the problem. The world's growing population uses the soil for similar things – most importantly for growing healthy food and fibre for clothing. Every time we use the soil we alter its state making it less functional for the next time we use it. And every time we expand our cities we leave less soil to produce food and other things we need. So how do we address this growing equation? The answer can be found in the soil. We need to study the clues it holds to protect, replenish and support it in the future.

Stay turned for more information about the often overlooked but very essential soil!



SOIL EXERCISE

COMPLETE THESE SOIL DEPENDENCY CHAINS!

Fill in the blanks to complete the sentences about soil and its connection to other things. Choose from the words in the box below or use your own. In some cases, you might need two words to complete the picture.

Hint! There may also be more than correct answer. Choose the word(s) that fit best but be ready to explain your answers to your teacher.



NUTRIENTS

PRODUCTS

CONSUMER

MANURE

BREAD

CONSUMER

FERTILIZER

HEALTHY SOIL

GROWING

PRESERVES

CROPS

HEALTHY

OPERATION

DEVELOPMENT

DAIRY

FIELDS

BIOFUELS

BUSINESS

MORE

OIL

VEGETABLES

FIELD

PRODUCTS

LEVELS

RECREATION

GARDEN

NUTRIENT

FOOD

PLANTS

CANOLA

WHEAT

CORN

FEED

SOIL

MAKE MONEY

You add _____ to the soil to create a healthy growing environment for your _____. You and your family benefit from the _____ you grow, and the money you make, selling your _____ at the market.

A field with _____ allows farmers to produce more _____ on less land. This means they don't need to expand their _____ to produce more. This is important because farmers may be need to contribute to our energy reserves by growing _____ for _____. Because they can produce _____ with less farmers can meet the demand of a _____ population while leaving space for _____ and wildlife habitat.

Healthy soil allows farmers to produce _____ for cows and cattle. The livestock gives back by producing _____ that can be used to improve the _____ in soil. When the livestock reaches a certain age, they become useful to us for _____ and other _____ products. The money generated from this _____ allows its owners to _____.

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