

EARTH REALLY rocks



Earth Really Rocks is one of a series of online resources developed by the Canadian Centre for Energy Information (Centre for Energy) to accompany its print learning resources and make them more accessible to a variety of

learning communities. All of the elementary online resources, like this one, are introduced by Petro the parrot.

This activity, designed for grade three students studying rocks and minerals, is an extension of the Centre for Energy learning resource: *Earth Really Rocks*. The print resource offers a great variety of hands-on learning experiences that help students develop an understanding of rocks and their uses in our lives. This is a summary activity. **It is recommended that students work through some of the activities in the print resource before they try this online resource.**

This online activity uses graphics, sound, animation and real-world examples to encourage students to investigate where petroleum comes from, how rocks and petroleum are related, and how many useful products we get from rocks. Students can play alone or with a friend.



Canadian Centre for Energy Information

Your Resource Source

The Canadian Centre for Energy Information (Centre for Energy) is a non-profit organization created in 2002 to meet a growing demand for balanced, credible information about the Canadian energy sector. On January 1, 2003, the Petroleum Communication Foundation (PCF) became part of the Centre for Energy. Our educational materials will build on the excellent resources published by the PCF and, over time, cover all parts of the Canadian energy sector from oil, natural gas, coal, thermal and hydropower to nuclear, solar, wind, fuel cell and other alternative sources of energy.

The Centre for Energy does not take positions on issues. The Learning Resource Series was developed using a multi-stakeholder review process with the aim of creating fact-based, balanced documents. Educators helped ensure that the educational materials are interesting and applicable to students in schools across Canada.

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Curriculum Links and Learning Outcomes

The activities in *Earth Really Rocks* are designed to fit within these Alberta curriculum and learning outcomes:

SCIENCE 3: ROCKS AND MINERALS

- Demonstrate knowledge of materials that comprise Earth's crust, and demonstrate skill in classifying these materials.
- Describe some common uses of rocks and minerals, and identify examples of those uses within the school, home or local community.

INFORMATION AND COMMUNICATION TECHNOLOGY K TO 3

- Access, use and communicate information from a variety of technologies.
- Use technology to aid collaboration during inquiry.
- Use technology to investigate and/or solve problems.

Pan-Canadian Science Links

The activities in *Earth Really Rocks* fit within grade 1 to 3 general learning outcomes from the Pan-Canadian Common Framework for Science listed below:

- *#102*: Describe how science and technology affect their lives and those of the people and other living things in their community.
- *#200*: Ask questions about objects and events in their immediate environment and develop ideas about how those questions might be answered.
- *#201*: Observe and explore materials and events in their immediate environment and record the results.
- *#202*: Identify patterns and order in objects.
- *#203*: Work with others and share and communicate ideas about their explorations.

Glossary Terms

Throughout the resource, a number of important, and perhaps unfamiliar, terms are highlighted in red. When a player rolls the mouse over one of these words or phrases, a definition for the term appears. In this resource, the terms listed are (in order of appearance):

- **Oil** is a black liquid found under the ground that is made into things we use every day, like gasoline for a car, tires for a bike and tar for a roof.
- **Petroleum** is oil or gas that comes from under the ground. Petroleum is made into useful things like jet fuel, bike helmets and milk jugs.
- The province of **Alberta** is mostly covered in farmland today, so it is very funny to imagine it covered in water!
- A **fossil** is what's left after a dead plant or animal got trapped in layers of mud and then got baked hard as rock. A fossil could be a footprint, a leaf print or even a skeleton.

Activity Components

Earth Really Rocks has two components:

- **Millions of Years of Magic:** four animated illustrations accompanied by a simple story explaining the main stages of Earth's underground development, followed by a drag and drop game in which students must reorder each of the illustrations and text boxes
- **What Comes from Rocks?:** series of 15 Yes/No questions and illustrations, asking students to decide whether or not each item comes from rocks, using their newly-developed knowledge about rocks

Millions of Years of Magic

How To Play

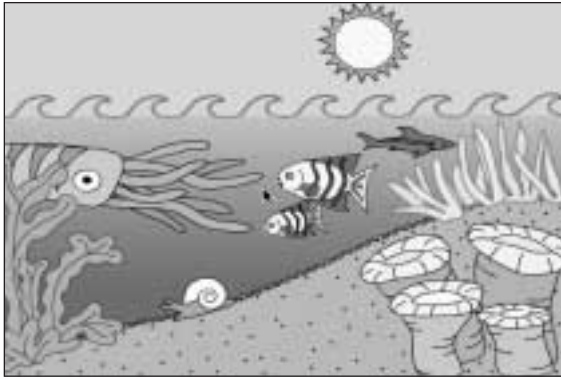
This game begins with an introduction of Petro the parrot. Petro first introduces players to three key concepts, using the following “Did you know...?” statements:

- rocks are a component of many items that we use every day
- oil also comes from rocks
- another word for oil is “petroleum,” which comes from two Greek words: “petro” meaning rock and “oleum” meaning oil

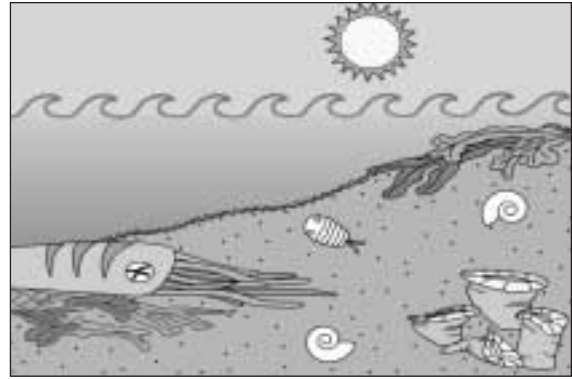
Then Petro tells players a story about how we get oil from rocks. The story is called “Millions of Years of Magic.” The story is told with text and animated illustrations of life in Alberta undersea and underground. Each of the four stages of the story appear one at a time, along with some simple text to help players understand each illustration. As they finish looking at each illustration and reading the accompanying text, players click NEXT until all four stages have appeared.

Then a big wind blows the four illustrations and text boxes around the screen. They land at the bottom of the screen all mixed up. Players are asked to help rearrange the story into its original order. They click on and drag each illustration and text box to drop them in the correct order. Correct responses are reinforced with cheering. Incorrect responses are indicated by a funny noise. If players try to move an illustration or text box into an incorrect location, that illustration or text box will move immediately back to the beginning position. In other words, players are not able to leave an illustration or text box in an incorrect location.

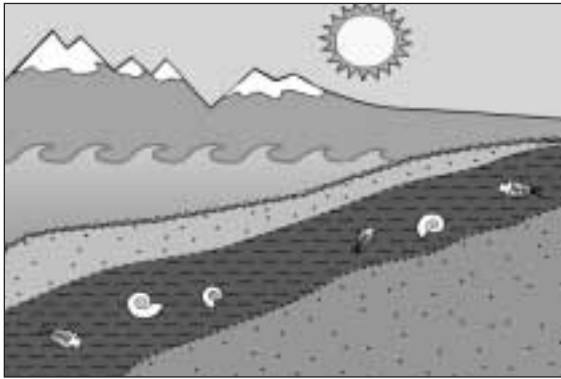
Answer Key



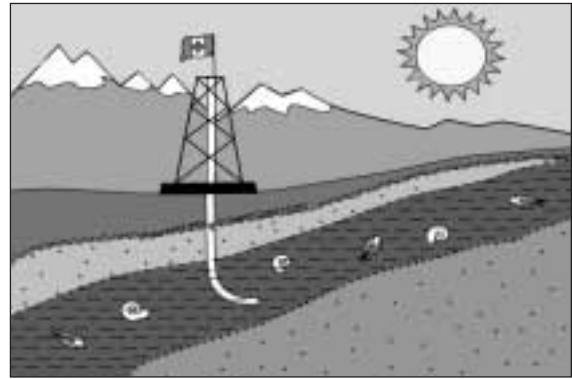
1. 300 million years ago, Alberta was under water! Lots of plants, fish and animals lived in the sea.



2. Over a long time, the plants and animals died and piled up on the sea floor. The piles got bigger and heavier. It got very squishy at the bottom!



3. Very slowly, the water went away. The dead plants and animals got trapped in the mud. The heat from the sun baked the mud, plants and animals like they were in an oven.



4. It became so hot the mud turned to rock. Most of the plants and animals trapped in the rock melted and turned into petroleum. That's why we find petroleum trapped in rocks today.

What Comes From Rocks?

How To Play

After a short introduction, players are shown 15 items, one at a time, and asked to determine whether or not each of the items comes from rocks. They must apply what they know about rocks to help them decide. They click on either YES or NO. Players are shown two examples first.

Correct responses are reinforced with cheering. Incorrect responses are indicated by a funny sound. In either case, the correct answer is immediately reinforced with explanatory text and visuals.

Answer Key

The items we get from rocks are:

- Gravel
- Terra cotta plant pot
- Sand
- Chalk
- Paved road
- Brick building
- Diamond
- Oil

The items we don't get from rocks are:

- Toilet paper
- Parrot
- Bread
- Book
- Pie
- Tree house
- Cloud