QER for Schools

QER Science lesson – Year 3
Fossils in oil shale deposits

Fossils are the remains of animals from long ago. The QER shale oil mine near Gladstone is the source of fossils up to forty million years old!

In this lesson, students will:

- learn the skills of a palaeontologist by participating in a simulated fossil dig activity

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LESSON-LEVEL CONTENT DESCRIPTIONS

The Australian Curriculum: Year 3

Biological sciences: Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044).

Elaborations:

- sorting living and non-living things based on characteristics
- exploring differences between living, once living and products of living things

Year 3 achievement standard

By the end of Year 3 students describe how they can use science investigations to respond to questions and identify where people use science knowledge in their lives. They collect and present data in a way that helps to answer their questions and use their experiences to make predictions. Students describe features common to living things. They use their knowledge of the movement of the Earth, materials and the behaviour of heat to suggest explanations for everyday observations.

LESSON OUTCOMES

The assessment focus of this lesson is formative: The classroom activities provide an opportunity for students to generate evidence with which the teacher can establish the student's progress towards understanding the concepts that are being developed in this lesson.

Science Outcomes	Literacy Outcomes	Numeracy Outcomes
Students may/should be able to:		
• use vocabulary specific to fossils • explain the process of collecting fossils	• listen • view • speak • discuss scientific phenomena	• collect data

BACKGROUND INFORMATION

The Stuart oil shale deposit contains numerous fossils. These include a 40 million-year-old fossilised turtle shell named Touché. Touché and other fossils can be viewed in the Visitor Centre at the site. Crocodile teeth, crocodile scutes (dung) and shells are also commonly found in the site.

PREPARATION LIST

- PowerPoint Presentation: Formation of Oil Shale – Part 2
- The Choc Chip Cookie Fossil Dig
- equipment for activity
- packet of chocolate chip cookies
- large tub of sand
- small shovels
- paintbrushes
- toothpicks
- napkins

ACTIVITY SEQUENCE

1. Introduce the lesson by asking students if they have ever seen a fossil. What was it? How old was it? What do they know about fossils.

2. Introduce Touché and other fossils from the QER site from the background information above and the pictures in the PowerPoint Presentation: Formation of Oil Shale – Part 2.

3. Use the vocabulary: fossil, palaeontologist, true fossils, cast fossils and mould.

4. Complete the activity: Chocolate Chip Cookie Fossil Dig! See resource The Choc Chip Cookie Fossil Dig.

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OPPORTUNITIES FOR CONDUCTING FORMATIVE ASSESSMENT

- evaluate student responses in class discussions

LINKS TO OTHER LEARNING AREAS

The following suggested activities may be used to provide a link between the content of this unit and that of other learning areas, in particular those related to Mathematics, English and ICT.

- literacy links with specific vocabulary: fossil, palaeontologist, true fossils, cast fossils, mould

ADDITIONAL RESOURCES

- www.qervisitorcentre.com.au – Extensive overview of QER New Fuels Development Centre, including video snippets, animations, graphs, maps and explanations relating to:
  - Australia's fuel challenge
  - QER and sustainability
  - benefits for Australians
  - turning oil shale into fuel