



# YSISTE

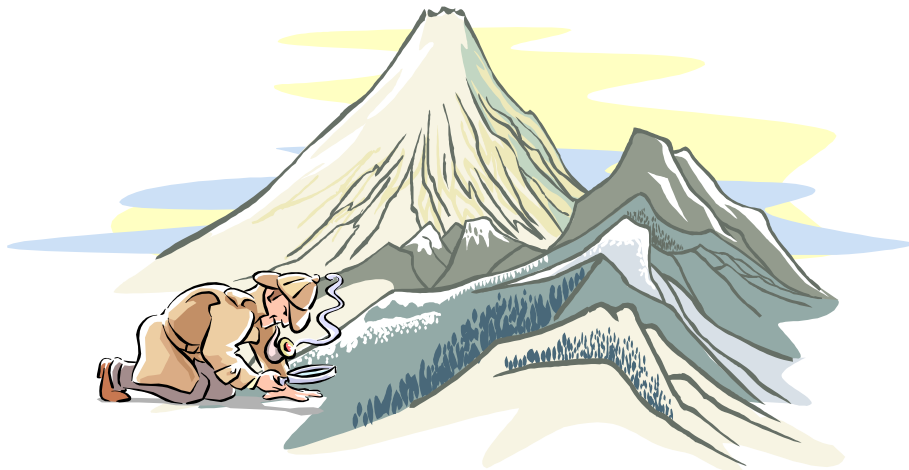
## ASSESSMENT OF SCIENCE AND TECHNOLOGY ACHIEVEMENT PROJECT (ASAP)

### Science and Technology Exemplars

### Grade 7: Earth and Space Systems – The Earth's Crust

Exemplar Task (7ESPT03/Aug 2000)

## Investigating Rocks



***Preface***

This task is one of a series developed by the Assessment of Science and Technology Achievement Project (ASAP) which is being used for the ASAP Science and Technology Exemplars Project.

This task is organised in three parts:

- A. Task Overview
- B. Student task sheet – designed to be photocopied for the students
- C. Teacher Information – providing essential information relating specifically to this task

For further information, contact the ASAP office at 416-736-5269 or email: [asap@edu.yorku.ca](mailto:asap@edu.yorku.ca)

*Grade 7: Investigating Rocks*

## Task Overview

### Description of the Task:



***This is a culminating activity designed to assess a cluster of expectations for this grade and strand. Students should have been taught the concepts and skills required to perform this task prior to attempting it.***

***Students are required to classify, analyze the composition and investigate the origins of a locally occurring rock, a rock from another area and a mineral.***



### Materials and Equipment Required:

Selection of rocks  
Magnifying glasses  
Nails to perform scratch test if required



### Suggested Timeline:

3 x 45 minutes



### Suggested Grouping:

Pair/share or groups of 4



### Safety Considerations:

Care if heating rocks, breaking rocks and scratching rocks

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## **Science and Technology Exemplars Project**

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Exemplar Task (7ESPT03/Aug 2000)

**Investigating Rocks**

## **Student Task Sheets**

# Investigating Rocks

You are the famous rock scientist Iggy S. Metamorfski. You have been hired to determine the origin and history of a rock that has been found near a crime scene.

Using one of the rocks you have been looking at, plan and carry out an investigation to find out what affect different kinds of weather would have on the rock.

What have you been asked to investigate?

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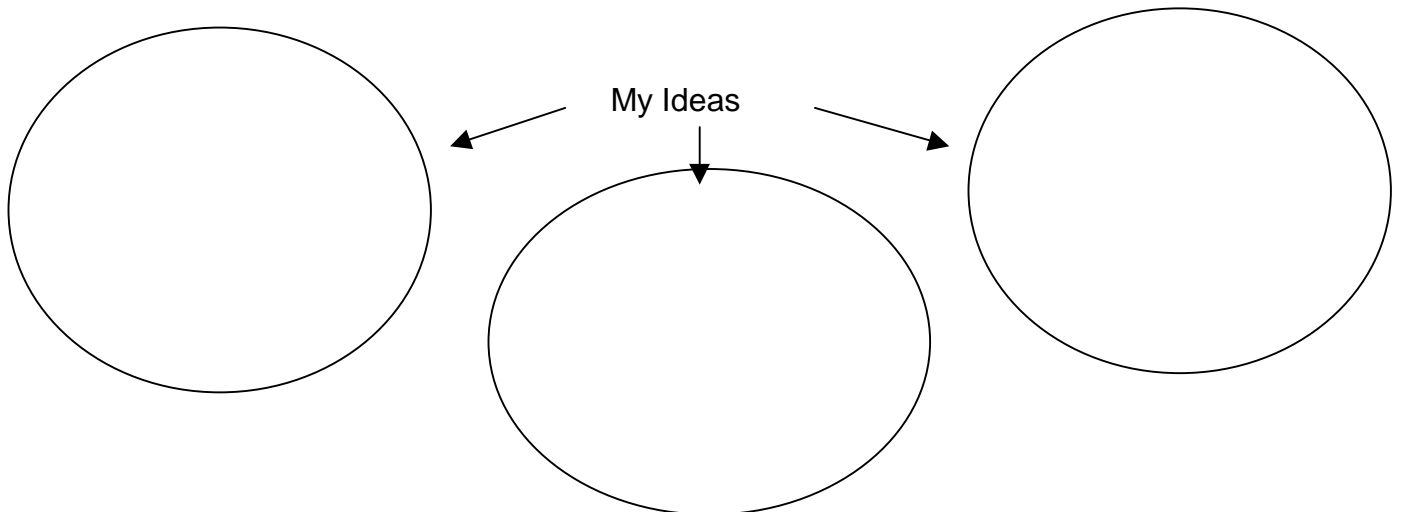
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What different kinds of weather can you investigate and how do you think it will affect the rock?



How will you carry out your test?

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How will you make your test fair?

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Record the results of your test here:

*Grade 7: Investigating Rocks*

Explain what your tests have shown you about the effect of weather on rocks. (Use the rock cycle to explain your answer)

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# **ASSESSMENT OF SCIENCE AND TECHNOLOGY ACHIEVEMENT PROJECT (ASAP)**

## **Science and Technology Exemplars Project**

### **Grade 7: Earth and Space Systems – The Earth's Crust**

Exemplar Task (7ESPT03/Aug 2000)

**Investigating Rocks**

## **Teacher Information Sheets**



This task addresses the following cluster of expectations. Expectations assessed by the rubric are highlighted in bold.

### ***Understanding Basic Concepts***

- describe the composition of the earth's crust
- explain the rock cycle (e.g., formation, weathering, sedimentation, and reformation)



### ***Developing Skills of Inquiry, Design and Communication***

- **investigate the effect of weathering on rocks and minerals**
- **plan investigations for some of these answers and solutions, identifying variable that needs to be held constant to ensure a fair test and identifying criteria for assessing solutions**
- **use appropriate vocabulary, including correct science technology terminology, to communicate ideas, procedures, and results (e.g., use terms such as *magma*, *crystallization*, *igneous rock*, *weathering*, *transportation*, *sediments*, and *sedimentary rock* when describing the rock cycle)**
- **compile qualitative and quantitative data gathered through investigation in order to record and present results, using diagrams, flow charts, frequency tables, bar graphs, line graphs, and stem-and-leaf plots produced by hand or with computer (e.g., collect data on the change in turbidity of a river after a rainfall)**
- **communicate the procedures and results of investigations for specific purposes and to specific audiences, using media works, written notes and descriptions, charts, graphs, drawings, and oral presentations (e.g., prepare a model demonstrating volcanic activity; develop a chronological model or time scale of major events in the formation of the earth; design and build models to illustrate different mining techniques)**



**Prior Knowledge Required:**

Before attempting this task students should have been taught the following:

- the rock cycle
- about the affects of weathering on rocks



Students should be familiar with the following science and technology terminology:

Weathering, transportation, erosion, sediments



**Prior Skills Required:**

Before attempting this task students should have experience of the following:

- planning and carrying out investigations
- working effectively in groups



**Suggested Introductory Activities:**

The following activities are suggested to introduce this task to the students:

- brainstorm possible affects as a class
- brainstorm possible plans for investigation as a class
- recap basic concepts of weathering and rock cycle



### **Cross-strand Links:**

Every strand in the Science and Technology document has common set of expectations clustered under the title ***Developing Skills of Inquiry, Design and Communication***. This task is therefore appropriate to assess and evaluate these skills for every Grade 1 strand.



### **Cross-curricular Links:**

Links can be made to *The Ontario Curriculum Grades 1-8 Grade 7: Language Oral and Visual Communication*. The expectations that can be addressed are;

- regularly incorporate new vocabulary into discussions and presentations
- rehearse and revise the material before making a presentation
- use eye contact, variations in pace, appropriate gestures, and such devices as the "pause for effect" in presentations



### **Considerations for Split/Grade Classes:**

Appropriate strategies are as follows:

- Teach one grade while the other grade completes the task which does not require active teacher guidance
- Create separate learning centers for student investigation specific to each grade topic and strand. The methods of science and technology (inquiry and communication) would provide the whole class focus
- Introduce self-directed student activities connected to specific expectations
- Reorganize students into grade groupings for the purposes of teaching a given topic
- Teach specific grade expectations when part of the class is working with another teacher
- Make thematic connections by clustering the overall expectations around a unifying organizer such as "Form and Function".





## DRAFT RUBRIC FOR GRADE 7: Investigating Rocks

Knowledge/Skills		Level 1	Level 2	Level 3	Level 4
<b>Understanding of Basic Concepts</b> <ul style="list-style-type: none"> <li>explain the rock cycle</li> </ul>		<b>The Student:</b> <ul style="list-style-type: none"> <li>gives simple explanation that shows limited understanding</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>gives partial explanation that shows some understanding</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>gives nearly complete explanation that shows good understanding</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>gives complete explanation that shows detailed understanding</li> </ul>
<b>S K I L L S</b>	<b>a) Design Skills</b>				
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">or</div>	<b>The Student:</b> <ul style="list-style-type: none"> <li>develops and follows a limited plan</li> <li>needs frequent reminders about safety</li> <li>tests appropriately only with assistance</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>develops and follows an adequate plan</li> <li>needs some reminders about safety</li> <li>tests appropriately with some assistance</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>develops and follows an appropriate plan</li> <li>needs few reminders about safety</li> <li>tests appropriately with little assistance</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>develops and follows an appropriate, detailed plan</li> <li>needs no reminders about safety</li> <li>tests appropriately with no assistance</li> </ul>
<b>Communication of Required Knowledge</b> <ul style="list-style-type: none"> <li>clarity and precision of work</li> <li>use of appropriate science and technology terminology</li> </ul>		<b>The Student:</b> <ul style="list-style-type: none"> <li>presents a limited number of ideas and details with little clarity</li> <li>includes few appropriate terminology</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>presents some ideas and details with some clarity</li> <li>includes some appropriate terminology</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>presents most of the main ideas and details clearly</li> <li>includes mostly appropriate terminology</li> </ul>	<b>The Student:</b> <ul style="list-style-type: none"> <li>presents all of the main ideas clearly precisely</li> <li>includes all appropriate terminology</li> </ul>
<b>Relating Science and Technology to each other and the World Outside the School</b>					





