

Grade 3
Earth and
Space Systems

Soils in the Environment

The Task

Students were told that the Kindergarten class was planning to plant a flower garden and needed help in deciding if the soil they had chosen would be useful for growing plants in a garden. Students were given a soil sample and asked to separate the soil sample into piles, develop experiments, and make recommendations. Specifically, they were to:

- separate the soil sample into piles for experimenting;
- list the experiments they would use to learn more about the soil sample;
- explain why they chose those particular experiments;
- complete the experiments;
- record their observations;
- report on what they learned.

Expectations

This task gave students the opportunity to demonstrate achievement of all or part of each of the following selected overall and specific expectations from the strand Earth and Space Systems: Grade 3 – Soils in the Environment. (The codes that follow the expectations are from the Ministry of Education’s *Curriculum Unit Planner*.)

Students will:

1. demonstrate an understanding of the similarities and differences between various soils and the effects of moving water on soils (3s96);
2. investigate the components of various soils, and describe the effects of moving water on these soils (3s97);
3. recognize the dependence of humans and other living things on soil and recognize its importance as a source of materials for making useful objects (3s98);
4. describe through experimentation how soil can be separated into its different components (3s104);
5. ask questions about organisms and events in the outdoor environment and identify needs of organisms that arise from these events, and explore possible answers to these questions and ways of meeting these needs (3s105);
6. plan investigations to answer some of these questions or find ways of meeting these needs, and explain the steps involved (3s106);
7. use appropriate vocabulary in describing their investigations, explorations, and observations (3s107);
8. record relevant observations, findings, and measurements, using written language, charts, and drawings (3s108);

9. communicate the procedures and results of investigations for specific purposes and to specific audiences, using drawings, demonstrations, simple media works, and oral and written descriptions (3s109);
10. demonstrate awareness of the importance of recycling organic materials in soils (3s111);
11. recognize the importance of understanding different types of soil and their characteristics (3s112).

Prior Knowledge and Skills

To complete this task, students were expected to have some knowledge or skills related to the following:

- the topics “Soils in the Environment” from the strand Earth and Space Systems and “Plants” from the strand Life Systems
- separating soils and analysing the soil components by carefully examining the characteristics of each component
- using a variety of experiments to examine the characteristics of each component

For information on the process used to prepare students for the exemplar task and on the materials and equipment required, see the Teacher Package reproduced on pages 57–63 of this document.

Task Rubric – Grade 3: Soils in the Environment

Expectations*	Level 1	Level 2	Level 3	Level 4
Understanding of Basic Concepts				
The student:				
1, 4	– demonstrates limited understanding of the characteristics of soil	– demonstrates some understanding of the characteristics of soil	– demonstrates general understanding of the characteristics of soil	– demonstrates thorough understanding of the characteristics of soil
Inquiry Skills				
The student:				
– initiating and planning 5, 6	– provides minimally accurate reasons for selecting soil test experiments – lists a few of the necessary steps and materials	– provides somewhat accurate reasons for selecting soil test experiments – lists some of the necessary steps and materials	– provides accurate reasons for selecting soil test experiments – lists most of the necessary steps and materials	– provides detailed and accurate reasons for selecting soil test experiments – lists all or almost all of the necessary steps and materials
– performing and recording 8	– constructs diagrams that have a few correct labels – records observations with little detail	– constructs diagrams that have some correct labels – records observations with some detail	– constructs diagrams that are correctly labelled – records detailed observations	– constructs highly detailed and precisely labelled diagrams – records highly developed observations
– analysing and interpreting 2, 3	– makes minimally logical connections between the experiments and the usefulness of the soil for a garden	– makes somewhat logical connections between the experiments and the usefulness of the soil for a garden	– makes logical connections between the experiments and the usefulness of the soil for a garden	– makes logical and insightful connections between the experiments and the usefulness of the soil for a garden
Communication of Required Knowledge				
The student:				
7, 9	– describes plans, decisions, and recommendations with limited accuracy and limited detail – makes limited use of appropriate science and technology vocabulary	– describes plans, decisions, and recommendations with some accuracy and some detail – makes some use of appropriate science and technology vocabulary	– describes plans, decisions, and recommendations with general accuracy and good detail – makes general use of appropriate science and technology vocabulary	– describes plans, decisions, and recommendations accurately, precisely, and with extensive detail – makes extensive use of appropriate science and technology vocabulary

Expectations*	Level 1	Level 2	Level 3	Level 4
Relating of Science and Technology to Each Other and to the World Outside the School				
The student:				
3, 10, 11	<ul style="list-style-type: none"> – demonstrates limited understanding of how the characteristics of soils affect plant growth – provides limited explanations of how to improve the soil in a garden 	<ul style="list-style-type: none"> – demonstrates some understanding of how the characteristics of soils affect plant growth – provides some accurate explanations of how to improve the soil in a garden 	<ul style="list-style-type: none"> – demonstrates general understanding of how the characteristics of soils affect plant growth – provides generally accurate explanations of how to improve the soil in a garden 	<ul style="list-style-type: none"> – demonstrates thorough understanding of how the characteristics of soils affect plant growth – provides detailed and accurate explanations of how to improve the soil in a garden

*The expectations that correspond to the numbers given in this chart are listed on pages 12–13.

Note: This rubric does not include criteria for assessing student performance that falls below level 1.