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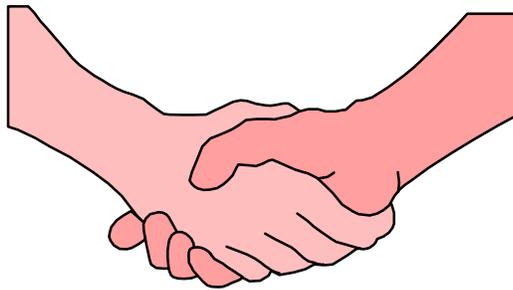
ASSESSMENT OF SCIENCE AND TECHNOLOGY ACHIEVEMENT PROJECT (ASAP)

Science and Technology Exemplars

Grade 4: Life Systems – Habitats and Communities

Exemplar Task (4LSPT03/Aug 2000)

Thank You for Your Help



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

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 create a habitat.



Materials and Equipment Required:

Bristol board, construction paper, scissors, plastecine, coloured card, string, other materials as required



Suggested Timeline:

3 x 65 minutes



Suggested Grouping:

Pair/share



Safety Considerations:

Care with scissors and fasteners

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Student Task Sheets

Thank you for your help!

Create a habitat with the four major factors that every living thing needs. Create one plant and three animals that fit at different levels of a food chain.

- attach these together in a food chain using string showing where energy originates and then to where it flows.
- label where humans would fit into this food chain

You may create your habitat as a poster; diorama; 3D model mobile or your own choice.

Describe the specific adaptations each plant or animal has and how it helps the individual survive.

Plant: _____

Animal 1 _____

Animal 2: _____

Animal 3: _____

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Teacher Information Sheets

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



Understanding Basic Concepts

- **identify through observation, various factors that affects plants and animals in a specific habitat (e.g., availability of water, food sources, light; round features; weather conditions)**
- **recognise that animals and plants live in specific habitats and have adapted to them (e.g., ducks live in marshes because they need marsh plants for food and shelter and water for movement)**



Developing Skills of Inquiry, Design and Communication

- **formulate questions about and identify the needs of animals and plants in a particular habitat, and explore possible answers to these questions and ways of meeting these needs (e.g., predict the structural adaptations, such as webbed feet, that help aquatic animals live in water)**
- **use appropriate vocabulary, including correct science and technology terminology, in describing their investigations, explorations, and observations (e.g., *habitat, population, ecological niche, community, food chain*)**
- communicate the procedures and results of investigations for specific purposes and to specific audiences, using media works, oral presentations, written notes and descriptions, drawings, and charts (e.g., prepare a poster illustrating the component of a local habitat; trace a food chain in an illustrated chart, using the sun as the starting point)



Relating Science and Technology to the World Outside the School

- describe ways in which humans can affect the natural world (e.g., urban development forces some species to go elsewhere and enables other species to multiply too rapidly; conservation areas can be established to protect specific habitats)
- **construct food chains that include different plant and animal species and humans (e.g., **grass→cattle→humans**)**
- show the effects on plants and animals of the loss of their natural habitat (e.g., nesting sites of ducks may be destroyed when a dam is built)
- investigate ways in which the extinction of a plant or animal species affects the rest of the natural community and humans (e.g., chart the distribution of wolves on a world map and predict the effect if wolves were to become extinct; use software program that simulates a specific environment to track the effects of the loss of a plant species)



Prior Knowledge Required:

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

- the various factors that affect plants and animals
- about a variety of habitats and the organisms that live in them
- about adaptations of plants and animals for particular habitats



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

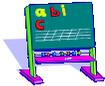
habitat, ecology, ecosystem, adaptation, population, ecological niche, community, food chain, species



Prior Skills Required:

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

- creating their own models/posters etc...
- working in pairs



Suggested Introductory Activities:

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

- read the task aloud to the class
- brainstorm possible choices of habitats and animals and plants
- brainstorm how they could create their habitats e.g., 3D model etc.
- recap adaptation features on chart paper as a class
- recap food chain on chart paper as a class



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 4 strand



Cross-curricular Links:

This activity provides an opportunity for students to be assessed and evaluated on their ability to work cooperatively as part of a group. Students should be made aware that this will be an integral part of the evaluation and should have prior experience of working with a group before being assessed. This provides a cross-curricular link with *The Ontario Curriculum Grades 1-8 Language, Grade 4: Oral and Visual Communication - Group Skills*.

Links can also be made to *The Ontario Curriculum, Social Studies, Grade 4: "Developing Map and Globe Skills"* expectations:

- use number and letter grids to locate places on base maps and road maps and in atlases
- use pictorial symbols to represent natural resources on a map
- utilize special purpose maps
- create sketch maps of familiar places, using symbols for places and routes

Links can be made to *The Ontario Curriculum, Grades 1-8: The Arts, Grade 4: "Visual Arts"* expectation:

- produce two- and three- dimensional works of art that communicate thoughts, feelings, and ideas for specific purposes and to specific audiences

Links can be made to *The Ontario Curriculum, Grades 1 to 8; Mathematics, Grade 4: Geometry and Spatial Sense* expectations:

- solve problems using geometric models
- investigate the attributes of three-dimensional figures and two-dimensional shapes using concrete materials and drawings
- draw and build three-dimensional objects and models



Reading and Writing Skills:

This task has been constructed to take into account the possible limited reading and writing skills of some students at this grade level. At the end of Grade 4 students are expected to be able to write a sentence (See MET Writing Exemplars 1999). Depending on the achievement level of the children in the class and the time in the school year that this task is administered, teachers will need to take into account the diverse abilities in their classes. The task could be presented orally and evaluated through teacher/student conferences. Teachers could use the questions on the student task sheet to guide their conferences. Students could make oral presentations about their investigation to the class. Their presentation could be based on the questions outlined in the student task sheet. Grade 5/6 students could act as reading/writing buddies to read out questions. A peer buddy system could be introduced.



Considerations for Combined 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 4: Thank You for Your Help

Knowledge/Skills		Level 1	Level 2	Level 3	Level 4
Understanding of Basic Concepts <ul style="list-style-type: none"> identify various factors that affect plants and animals recognize adaptations 		The Student: <ul style="list-style-type: none"> gives simple explanations that show limited understanding 	The Student: <ul style="list-style-type: none"> gives partial explanations that show some understanding 	The Student: <ul style="list-style-type: none"> gives nearly complete explanations that show good understanding 	The Student: <ul style="list-style-type: none"> gives complete explanations that show detailed understanding
S K I L L S	a) Inquiry Skills <ul style="list-style-type: none"> identifies and describes the needs of animals and plant 	The Student: <ul style="list-style-type: none"> provides simple description 	The Student: <ul style="list-style-type: none"> provides partially detailed description 	The Student: <ul style="list-style-type: none"> provides detailed description 	The Student: <ul style="list-style-type: none"> provides complex description
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">or</div>				
b) Design Skills					
Communication of Required Knowledge <ul style="list-style-type: none"> clarity and precision of work use of appropriate science and technology terminology 		The Student: <ul style="list-style-type: none"> presents a limited number of ideas and details with little clarity includes few appropriate terminology 	The Student: <ul style="list-style-type: none"> presents some ideas and details with some clarity includes some appropriate terminology 	The Student: <ul style="list-style-type: none"> presents most of the main ideas and details clearly includes mostly appropriate terminology 	The Student: <ul style="list-style-type: none"> presents all of the main ideas clearly and precisely includes all appropriate terminology
Relating Science and Technology to each other and the World Outside the School <ul style="list-style-type: none"> constructs food chain 		The Student: <ul style="list-style-type: none"> constructs simple food chain 	The Student: <ul style="list-style-type: none"> constructs partially detailed food chain 	The Student: <ul style="list-style-type: none"> constructs detailed food chain 	The student: <ul style="list-style-type: none"> construct complex food chain

