

ENVIRONMENT ASSESSEMENT

Year 12	BIOLOGY
Name	

Work in small groups to conduct an environment assessment for the area surrounding the Daintree Rainforest Observatory

You will:

- ☐ develop a plan to measure key factors required for an Environment Assessment
- ☐ collect data
- ☐ make inferences and conclusions
- ☐ present your findings.

Each group member MUST present their own individual report

Due date: _____

TASK OVERVIEW

You have been employed by the Happy Holidays Company to compile a preliminary Environment Assessment on the potential impact of an eco-friendly resort at the Daintree Rainforest Observatory site. Under the *Environment Protection and Biodiversity Conservation Act 1999*, environment assessments are undertaken to enable environment and heritage protection and biodiversity conservation. You will need to design and carry out a series of procedures to assess the potential impact, and report back to the company with your findings and recommendations.

The task will consist of several parts:

A Land Use Survey: Using topographic maps and directories, prepare a land use map, comparing present and past land uses within the Daintree catchment

B Generate Hypotheses and Method of Study:

Generate a set of hypotheses that link changes in the ecosystems and land use. Develop suitable methods (using information provided and limitations) to test these hypotheses.

C Field Study:

Conduct field studies to collect data from the Daintree Rainforest Observatory sites.

D Report:

This is to be written in the form of a scientific report to Happy Holidays Company, and the Wet Tropics Management Authority, outlining the real and potential problems caused by development. It is to include;

- hypotheses
- method (rewritten after doing the study)
- results (including clear diagrams, graphs and/or tables)
- discussion (verbalise the trends, relate back to the hypotheses, explain and link to natural and/or human causes, discuss overall changes to ecology, and further studies that could be done)
- conclusion and recommendations

Reference to other studies that have been done on the Daintree would be appropriate (properly referenced). Include a thorough evaluation of the overall ecological quality of the Daintree, including an outline of possible causes of reduced ecological value.

The concluding section of your report is to be a list of recommendations (with justification) regarding future management of the Daintree Rainforest Observatory ecosystem. Particularly note any controls which should be placed on developments.

USEFUL LINKS

Daintree Research Observatory

- <http://www.jcu.edu.au/canopycrane/>

Wet Tropics Management Authority

- <http://www.wettropics.gov.au/home>
- <http://www.wettropics.gov.au/maps>

EIS – What is Environmental Assessment?

- <http://www.environment.gov.au/protection/environment-assessments>

Measuring Biodiversity – from Berkely.edu

- http://gk12calbio.berkeley.edu/lessons/less_measbiodiv.html

Techniques for measuring stand height

- <http://www.epa.nsw.gov.au/resources/pnf/standheight07392.pdf>

Understanding Soil pH

- http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0003/167187/soil-ph.pdf

Measuring Soil Quality

- http://wwf.panda.org/about_our_earth/teacher_resources/project_ideas/soil_quality/

STUDENT PLANNING SHEET

GROUP MEMBERS: _____

What abiotic and biotic factors may be affected by land use:

HYPOTHESES (developed from above):

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

STUDY METHOD (what will be done to test the hypotheses):

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

What will you need to carry out each activity? LIST EQUIPMENT REQUIRED

How will you record your results ? Table, graph, other. **Show your formats.** Attach these to your planning sheet.

How will you present the data in your report?

Who will be responsible for each task ?

Name	Task

TEACHER APPROVAL _____ DATE _____

CRITERIA SHEET: Senior Biology - Daintree Environmental Impact Study - AUSTRALIAN CURRICULUM

	A	B	C	D	E
UNDERSTANDING BIOLOGY	The student communicates their understanding by:				
	<p>Making links between related ideas to reveal meaningful interrelationships between physical and biological factors (including biodiversity) in ecosystems.</p> <p>Evaluates potential impacts to ecosystems by using accurate models, and identifying key aspects of ecosystem dynamics including keystone species, and carrying capacity</p>	<p>Explains how patterns and trends in the physical factors affect interrelationships between them and the biological factors.</p> <p>Identifies potential impacts to ecosystems by using accurate models, and identifying key aspects of ecosystem dynamics including keystone species, and carrying capacity</p>	<p>Describing ideas of how patterns and trends in the physical factors affect the interrelationships between them and the biological factors.</p> <p>Identifies potential impacts to ecosystems</p>	<p>Stating ideas and using terminology to recall the data collected.</p> <p>Identifies some relevant impacts to ecosystems</p>	<p>States terminology and ideas relevant to concepts.</p>
INVESTIGATING BIOLOGY	The student communicates investigative processes by:				
	<p>Formulating researchable questions by considering a wide range of physical and biological factors.</p> <p>Designing, modifying and implementing investigations to present a logical, efficient method which enables the focus questions to be comprehensively researched.</p> <p>Collecting and organizing data into accurate diagrams, tables and graphs to identify trends and interrelationships.</p> <p>Interpreting and critically analyzing results with links to theoretical concepts to draw conclusions relating to the questions(s)</p> <p>Evaluating the design of the investigation and reflecting on the adequacy of the data collected and proposing refinements.</p>	<p>Formulating researchable questions by considering a range of physical and biological factors.</p> <p>Selecting, modifying and implementing investigations to present a method which enables the focus questions to be effectively researched.</p> <p>Collecting and organizing data into diagrams, tables and graphs (with minor errors) to identify trends.</p> <p>Interpreting results and drawing conclusions relating to the questions(s)</p> <p>Evaluating the design of the investigation and the adequacy of the data collected.</p>	<p>Identifying researchable questions by considering a range of physical factors.</p> <p>Selecting and implementing investigations to present a method which enables the focus question to be answered.</p> <p>Collecting and organizing data using diagrams, tables or graphs.</p> <p>Discussing results and drawing conclusions.</p>	<p>Following instructions to collect and organize data. Evidence of a suitable method</p> <p>Collects data, some of which links to the focus question.</p> <p>Uses tables or graphs</p>	<p>Following instructions to collect and organize data.</p> <p>Collects data</p>

Student booklet

SCIENCE AS A HUMAN ENDEAVOUR	Uses scientific knowledge to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability	Uses scientific knowledge to discuss projected economic, social and environmental impacts	Uses some scientific knowledge to describe projected economic, social and environmental impacts	Describe some projected economic, social and environmental impacts	
Teacher Comments					