

Ecosystems at Risk: Limestone caves

Name: _____

1. Introduction

1ai. Define the terms:

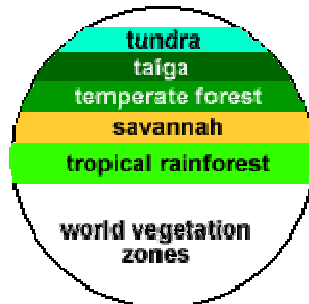
ecosystem: _____

troglobite: _____

speleothem: _____

1aii. Explain why caves are 'ecosystems at risk'.

2a. World Location



a. Vegetation forms general latitudinal bands around the world with tropical rainforests near the equator and tundra near the poles. However the location of limestone geology where limestone caves form does not follow a similar neat zonation. Describe limestone geology under the following headings:

2ai. latitude _____

2aii. continuity _____

2aiii. size and shape _____

2aiv. Describe the world location of limestone caves.

2av. List the countries with the 5 longest and 5 deepest cave systems.

Countries with the longest caves.	Countries with the deepest caves.

New South Wales, location

2avi. Name 5 towns located near limestone caves.

2avii. Describe the continuity of cave areas in New South Wales.

2b. Topographic Map

2bi. What features are located at the following grid references (GR):

i. GR345453	ii. GR343454	iii. GR351459

2bii. What are the approximate straight line distances of:

i. Radio Hut to Jersey Cave	ii. Thermal Pool to Jersey Cave	iii. Jersey Cave to Ranger Station

2biii. What is the altitude of the following features:

i. Radio Hut	ii. shed at GR 349449

2biv. North is to the top of the map. What is the direction of:

i. Ranger Station from Thermal Pool	ii. Thermal Pool from Glory Hole Cave

2bv. Landform

Describe the general landform using all of the information on the page.

3a. Climate

3ai. How does the climate inside caves differ to that outside? List 5 of the major differences.

3aii. Name the three main climatic zones in caves.

3aiii. Compare the seasonal temperature range inside caves to that outside in the Yarrangobilly area.

3aiv. In which months of the year is the temperature inside the caves warmer than the average daily temperature outside.

3b, c&d. Climate of the entrance, twilight and dark ecosystems

3bi. Fill in the following table after calculating the readings. Record the light and wind readings for 10 seconds then obtain the averages and record them.

climatic element	entrance	twilight	dark
air temperature (deg. C)			
relative humidity (%)			
light intensity (lux)			
wind speed (m/s)			

3bii. Describe how the following change as you go deeper into the cave:

a. air temperature

b. relative humidity

c. light intensity

4a. Landform: cave formation

4ai. What is the term which describes the breaking down of rock? _____

4aii. Which type of weathering, physical or chemical, is mainly responsible for cave formation? _____

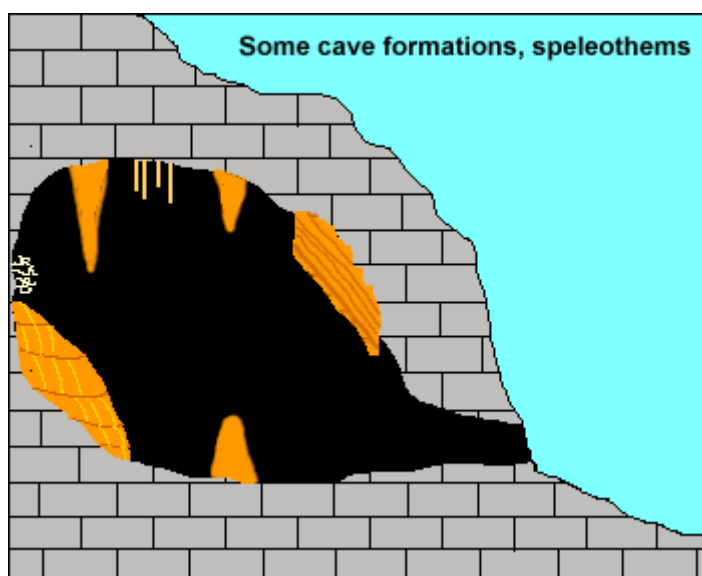
4aiii. Name the weak acid responsible for the dissolving of limestone and state where most of the carbon dioxide for its formation comes from.

4aiv. How did the limestone for these caves form and how long ago did this occur?

4av.. Soil forms from weathered rock. Soil acidity is an important soil characteristic. What is the approximate pH of the small soil sample tested? _____

4b. Landform: speleothem formation

4bi. Write the names of speleothems (cave decorations) on the diagram.

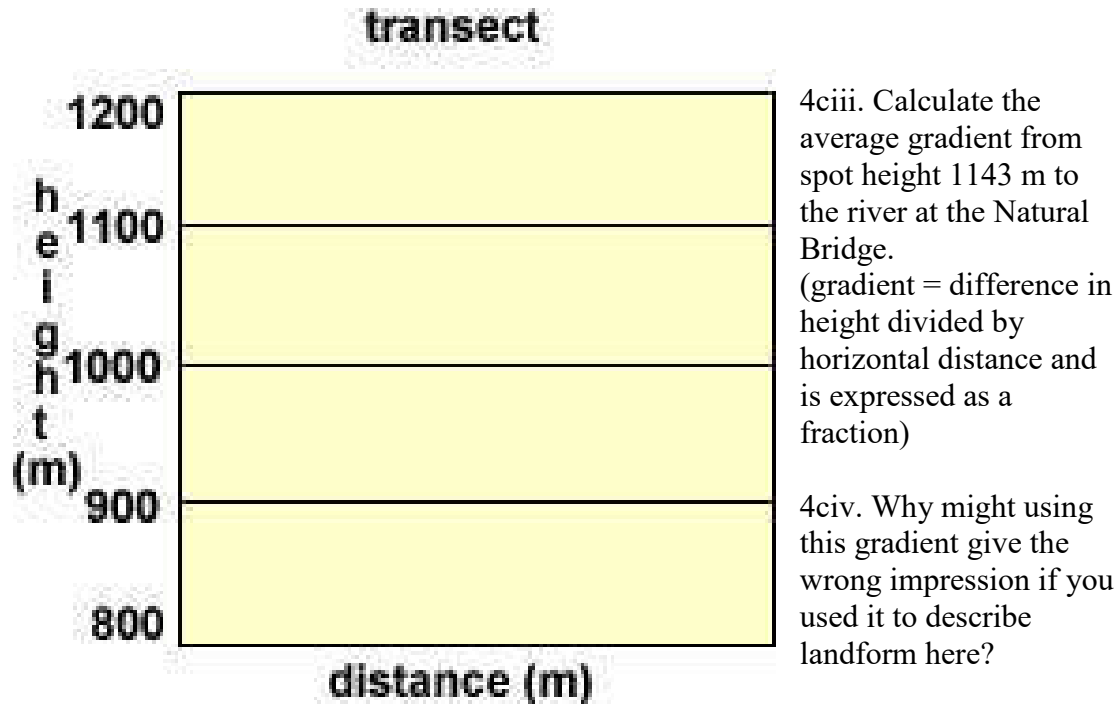


4bii. Explain how stalactites form.

4c. Landforms: catchments

4ci. What term is used to describe limestone areas and what are some of the major landform features found there?

4cii. Construct a transect from spot height 1143 m to the river at the Natural Bridge.



4cv. Explain why are limestone areas often dry on the surface?

5a. Ecology

5ai. What do food chains show?

5aai. Explain how are cave food chains different to typical forest food chains?

5b. Ecology: food chains

5bi. Describe how species diversity (the number of different types of plants and animals) and biomass (the weight of plant and animals in an area) vary as you move deeper into a cave from the entrance?

5bii. Compare the world averages for the biomass of tropical rainforest and dark cave ecosystems?

5biii. Describe cave floor and cave roof communities.

5c. Adjustments to Stress

a. Fill in the following table.

Features of the cave environment	Animal adaptations to the cave environment

6. Change

a. Explain why most cave animals are unable to survive minor changes to the cave environment.

7a. Human impact in catchments

Precis Map: human changes to Yarrangobilly area

7bi. List the different changes made to show caves to allow guided tours.

7bii. Describe some of the impacts people have on caves when they visit them.

8a. Catchment Management

8ai. Explain how the government has protected caves.

8aii. Why is catchment management important?

8aiii. Give three examples of catchment management in the Yarrangobilly and Cooleman Plain areas to protect the caves.

8b. Cave Management

8bi. Name the 6 categories of caves in the NPWS cave classification system used to assist cave management?

8bii. List 6 of the specific cave management methods used at Yarrangobilly.

8biii. Explain the dilemma for the NPWS when managing caves?
