

Name of School

Subject

Natural Sciences and Technology

Examiner

Date

Total marks

30

Type

Practical Task Term 1

Duration

Grade

6

Moderator

Special Instructions/Equipment

This Practical Task aims to take learners out of the classroom. They need to engage with their environment and be aware of what is going on around them. The task also integrates the concepts of biodiversity within ecosystems. They must make clear decisions on selecting a plot; they must measure, observe, collect data, think out of the box and identify threats to their ecosystems. They need to suggest solutions on how to prevent threats or save their ecosystem. The task can be used as a formal assessment, but then learners must work alone. Use the memorandum to assess this task.

For additional resources on Biodiversity, access the following Biodiversity Network Focus Area resources on the [Sustainable Schools Hub](#) and make sure to read the [Biodiversity Network Guidebook](#).

CAPS Link

Ecosystems and Food web – Week 8 & 9 Term 1

Skills Developed

Accessing and recalling information, Observing, Measuring, Sorting and classifying, Investigating, Recording information, and Language Skills.

Specific Link and alignment with other Subject Assessments include:Creative Arts Term 1's Assessment (Week 1 to 4) – Making an animal out of clay (*This can be linked to the concepts of ecosystems and Biodiversity*)

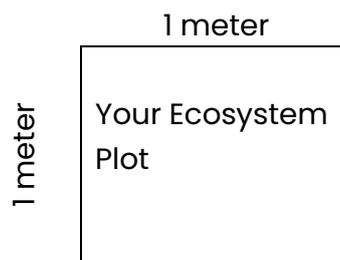
Home Language -Term 1 Prepared Reading Assessment Week 3

NATURAL SCIENCE AND TECHNOLOGY
FORMAL ASSESSMENT PRACTICAL TASK**GRADE 6****TERM 1**
MARKS (30)**Instructions:**

- Read the task carefully before you attempt to answer the questions.
- When collecting a leaf or flower specimen, two examples are enough.
- Do not touch or harm any animal, including insects, spiders and other living organisms in your study area.
- Look at the Appendixes for more information on different ecosystems.
- Complete all the answers and submit your answers as a report with a cover page to your teacher for marking.
- Write in blue or black ink.

Activity 1: Investigate an ecosystem in your school grounds or your garden

- Choose an ecosystem on your school grounds or in your garden. It can even be a fishpond, school garden, compost heap or vegetable garden.
- Measure a plot that you would like to study. The plots size can vary from 1 (1 m x 1m) to 10 meters by 10 meters (10 m x 10 m)



- Identify what type of ecosystem your study area classifies as.
- Focus your investigation on the main living (biotic) organisms and non-living (abiotic) elements in your ecosystem. Do some research as to what plants and animals live in this type of ecosystem and how they interact with each other.
- Study your ecosystem carefully and make notes in your workbook. Sit in your study area and observe and make notes of everything that you see.
- Create a T-Chart (sample below) to help you sort your finding into the following categories:

Non-living (Abiotic)	Living organisms (Biotic)				
	Plants	Animals			
		Herbivore	Carnivore	Omnivore	Decomposers

- You must name at least 4 non-living elements, 8 plants and 8 animals. Look at Appendix A for examples of animals and plants you might find in your ecosystem. Also, count how many of each species you can find, if possible.
- Investigate your ecosystem's biodiversity. Are there many different plants and animals?
- Identify any possible threats to your ecosystem.
- Note any other interesting observations down in your workbook.

Activity 1: Write a report on your findings

- Make a Cover Page for your report that includes the following information
 - Your Name and Surname
 - Grade and Class
 - Study area location
 - Type of ecosystem
 - Date of observation
- Read the questions below carefully. Answer the questions on your exam pad or as instructed by your teacher.
- Make sure that you number your questions correctly.

1. Use your textbook and dictionary to define the following terms
 - a) Ecosystem
 - b) Biotic
 - c) Abiotic
 - d) Investigate
 - e) Observation
 - f) Herbivore
 - g) Carnivore
 - h) Omnivore
 - i) Food web
 - j) Biodiversity
 - k) Threat
 - l) Urban ecosystem

2. What type of ecosystem did you investigate? (1)
3. Name the location of your ecosystem. (1)
4. Create a T-Chart (sample below) to help you sort your finding into the correct categories as indicated below. (2 marks) (12)

Non-living (Abiotic)	Living organisms (Biotic)				
	Plants	Animals			
		Herbivore	Carnivore	Omnivore	Decomposers

Name at least 4 non-living elements ($\frac{1}{2}$ mark each), 8 plants ($\frac{1}{2}$ mark each) and 8 animals ($\frac{1}{2}$ mark each). Next to each plant and animal name, write how many you counted e.g mushrooms (4)

5. Draw a food chain of your ecosystem. Include herbivores, carnivores, scavengers or decomposers. (4)
Look for an example of a food chain in your textbook
6. Evaluate your ecosystem's biodiversity. Is your ecosystem biodiverse? Provide a reason for your answer. (2)
7. Suggest two ways to increase the biodiversity of your ecosystem. (2)
8. Identify two possible threats to your ecosystem. (2)
9. Provide two possible solutions to overcome these threats. (2)
10. How do these identified threats affect the biodiversity of your ecosystem? (2)
11. Why is biodiversity within an ecosystem important? (2)

TOTAL

[30]

Appendix A: Examples of organisms in your ecosystem.

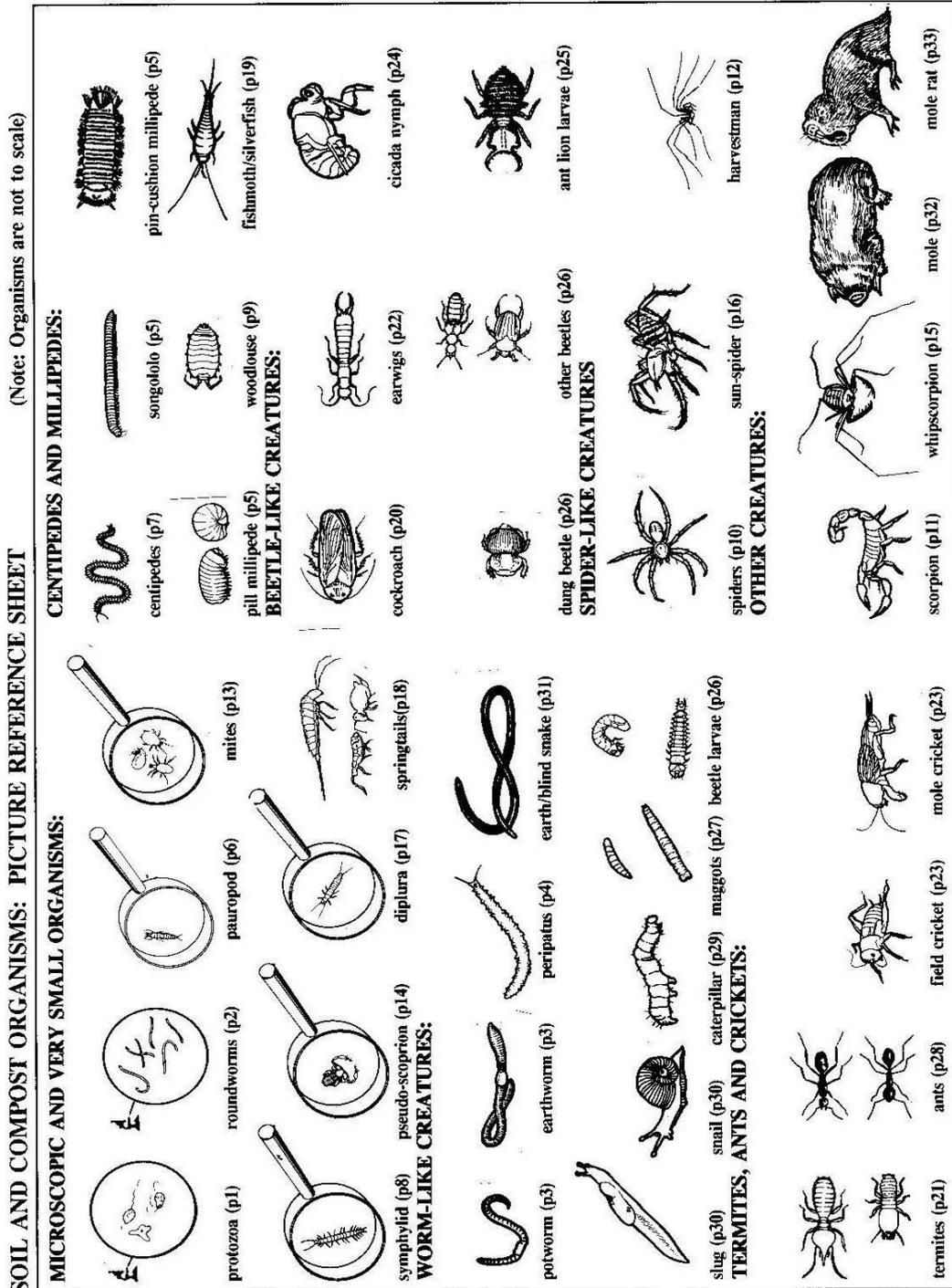


Figure 1: Soil and Compost Organisms - Available at:

https://docs.google.com/document/d/1CxpNmp9h_NmdycFByWTfEd7fjp4vXIBP/edit?usp=sharing&ouid=104214709973770054707&rtopf=true&sd=true

Appendix B – Food Chains (Question 5)

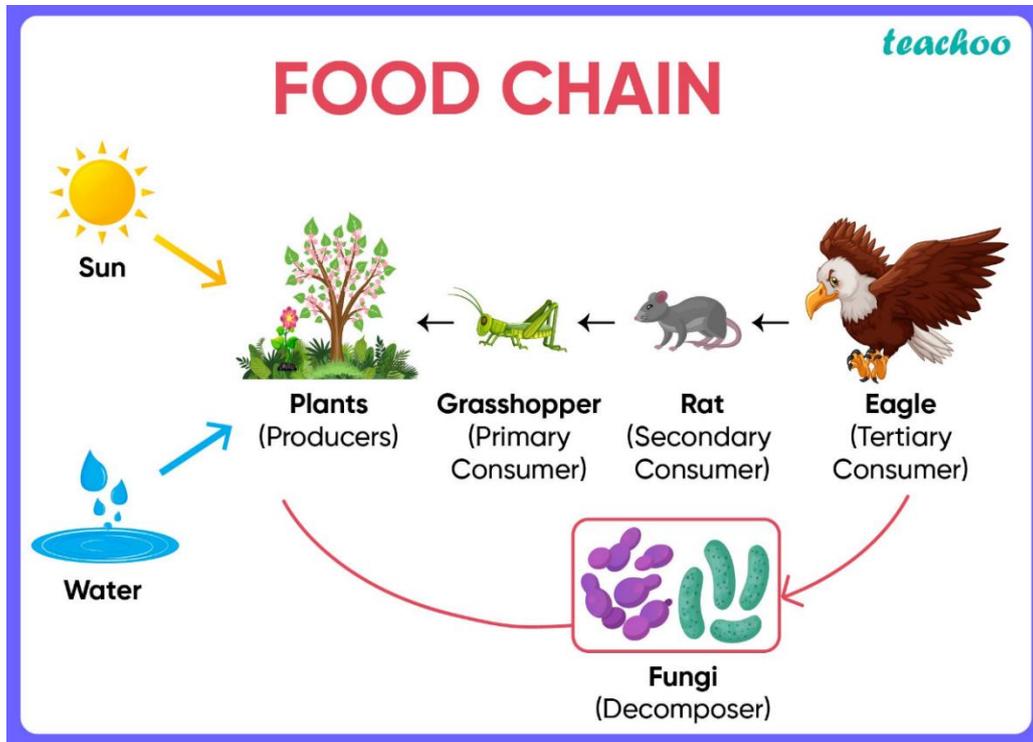


Figure 5: Food web Images available at: <https://www.teachoo.com/12932/3534/Question-2/category/Case-Based-Questions/>

Natural Science and Technology Practical Task – MEMO

1. Use your textbook and dictionary to define the following terms: *This question is crucial to make sure learners understand the terminology used in the practical task. Question 1 does not count as part of the assessment, but learners need to complete this section nonetheless as part of their language skills development.*
 - a) Ecosystem: *A biological community, together with, and interacting with its physical & chemical environment.*
 - b) Biotic: *living*
 - c) Abiotic: *non-living*
 - d) Investigate: *carry out research or study into (a subject or problem, typically one in a scientific or academic field)*
 - e) Observation: *The action or process of closely observing or monitoring something or someone.*
 - f) Herbivore: *A herbivore is an animal anatomically and physiologically adapted to eating plant material*
 - g) Carnivore: *meat-eater is an animal whose food and energy requirements derive from animal tissues*
 - h) Omnivore: *Animal that eats plants and animals*
 - i) Food web: *A food web is the natural interconnection of food chains and a graphical representation of what-eats-what in an ecological community.*
 - j) Biodiversity: *Biodiversity or biological diversity is the variety and variability of life on Earth. Biodiversity is a measure of variation at the genetic, species, and ecosystem level*
 - k) Threat: *a person or thing likely to cause damage or danger.*
 - l) Urban ecosystem: *Urban ecosystems are cities and the surrounding, socio-ecological systems where most people live*

2. What type of ecosystem did you investigate? (1)
✓ (1 mark) for correct ecosystem. Including urban ecosystem, river, mountain, sea, pool, rocky shore, wetlands, grasslands, forest, desert.

3. Where is your ecosystem located and describe your ecosystem? (2)
Location ✓ (1 mark)
Description ✓ (1 mark)

4. Create a T-Chart (sample below) to help you sort your finding into the correct categories as indicated below. ✓ ✓ (2 marks) (12)

Non-living (Abiotic)	Living organisms (Biotic)				
Soil	Plants	Animals			
Water		Herbivore	Carnivore	Omnivore	Decomposers
Rocks					
Dead wood					
Cement					
Temperature					
sunlight					

Look at examples of plants that learners may find in their ecosystem. Real names must be provided tree, grass or bird is not correct. Teachers may assist learners to identify the correct names for the species in their ecosystem during the practical session. Learners can also describe the tree or grass if they do not know the name.

4 non-living elements (½ mark each), ✓ ✓
 8 plants (½ mark each) and ✓ ✓ ✓ ✓
 8 animals (½ mark each). ✓ ✓ ✓ ✓

5. Draw a food chain of your ecosystem. Include herbivores, carnivores, scavengers or decomposers. (4)

Producer (½ mark); producer (½ mark); primary consumer (½ mark)

Decomposer (½ mark) ✓ ✓

Learning correctly drew the food chain (1 mark) and named all the parts correctly (1 mark) ✓ ✓ .

Look for an example of a food chain in your textbook or in appendix B.

6. Evaluate your ecosystem's biodiversity. Does your ecosystem have a high biodiversity or low biodiversity? Provide a reason for your answer. (2)

Biodiversity is a term used to describe the enormous variety of life on Earth. It can be used more specifically to refer to all of the species in one region or ecosystem. Biodiversity refers to every living thing, including plants, bacteria, animals, and humans. High biodiversity means that a region supports a wide variety of species, while low biodiversity implies that an area supports only a few. The reasons for variances in biodiversity are complex, but they include both natural and man-made causes.

- *Low or high biodiversity (1 mark) ✓*
- *Reason for the answer (1 mark) The reason must correlate the number of different species and the total of each species data that the learner listed in question 4. ✓*

7. Suggest two ways to increase the biodiversity of your ecosystem. (2)
TWO suggestions. 1 mark each ✓ ✓
Any answer that will increase biodiversity such as

- *Building an insect house*
- *Add a bee hotel, so that bees can move into the area*
- *Plant fruit trees to attract more birds*
- *Clean up the rubbish*
- *Remove alien plant species*
- *Tackle soil erosion*
- *Nesting boxes*
- *Rock gardens*
- *Build a frog pond*
- *Educate the community on protecting diversity*

8. Identify two possible threats to your ecosystem. (2)

- *Two threats. 1 mark each ✓*
- *Alien species, littering, deforestation, Illegal dumping, Illegal hunting, urbanisation, fires etc*

9. Provide two possible solutions to overcome these threats. (2)

- *TWO solutions. 1 mark each ✓ ✓*

Any reasonable solution must be marked as correct

10. How do these threats affect the biodiversity of your ecosystem and if so, (1)

how? A reasonable explanation of why the threat can decrease the different species and amount of species in the ecosystem.

1 mark ✓

11. Why is biodiversity within an ecosystem important? (2)

TWO reasons. 1 mark each ✓ ✓

- *Ecological life support— biodiversity provides functioning ecosystems that supply oxygen, clean air and water, pollination of plants, pest control, wastewater treatment and many ecosystem services.*
- *Biodiversity Provides the Food We Eat. ...*
- *Biodiversity Keeps Us Healthy. ...*
- *Biodiversity Supports our Ecosystem. ...*
- *Biodiversity Safeguards Nature...*
- *Biodiversity Helps Our Economy Thrive. ...*
- *Biodiversity Can Potentially Provide A Solution to Climate Change*
- *Biodiversity ensures health and food security. Biodiversity underpins global nutrition and food security. ...*
- *Biodiversity helps fight disease. Higher rates of biodiversity have been linked to an increase in human health*

TOTAL

[30]