



SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE  
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT

## **Adult Basic Education and Training (ABET)**

### **Summative Assessment**

**Natural Sciences: NQF Level 1**

**Examination Session: November 2023**

**Total Marks: 100 Marks**

**Time: 3 Hours**

**Number of Pages: 21 Pages**

### **Learner Information**

**Candidate Number**

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**Centre**

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**Date**

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## EXAMINATION RULES FOR CANDIDATES

1. Candidates are bound in all matters relating to the examination to obey the instructions of the chief invigilator. The chief invigilator, where relevant, determines the dress code.
2. Candidates must be identified before they are permitted to write an examination. Identity document must be produced when required. All candidates are to sign the attendance register.
3. Candidates will not be admitted to the examination room if they arrive an hour or more after the start of the examination. Candidates who have finished answering an examination paper within fifteen minutes of stopping time will not be allowed to leave the examination room, provided there are still candidates writing.
4. Candidates must occupy the places first allocated to them for the entire duration of the examination and for all other examination sessions, unless otherwise directed by the chief invigilator.
5. No explanation of examination questions may be asked or given by any person.
6. No candidate is allowed to leave the examination room within the first hour of the examination, except in an emergency and under supervision.
7. A candidate may only be allowed to leave the examination room in the case of an emergency or to go to the toilet, and in these cases, this must be done under supervision.
8. As soon as a candidate hands in his or her answer script, he or she must leave the examination room.
9. A candidate must carefully read and comply with the instructions, which appear in his or her question paper and the examination timetable.
10. A candidate is not allowed to assist another candidate or try to assist him or her or communicate with another candidate. Should this occur, it would constitute an irregularity. Invigilators are expressly forbidden from assisting candidates in the answering of questions.
11. All questions must be directed to the invigilator.
12. A candidate may not cause a disturbance in the examination room or behave in an improper or unseemly manner.
13. A candidate may not disregard the instructions of the invigilator or may not conduct themselves in a manner that is in conflict with the instructions of the chief invigilator.
14. The following are not allowed next to the candidate in the examination room: suitcases, school bags, Walkmans, CD players, cellphones, books, dictionaries, notes, sketches or paper other than the official examination material distributed by the chief invigilator. Slide-rules and non-programmable, silent calculators may be used, unless expressly prohibited in the question paper. Pens, erasers, rulers, etc. should be kept in transparent containers / bags. No borrowing is allowed. Wristwatch alarms must be switched off.
15. Candidates should be informed that the possession of notes constitutes an irregularity regardless of whether or not the notes are used. The excuse that a candidate has forgotten or was not aware that he or she has the unauthorised material listed in paragraph 14 in his or her possession will not be accepted.
16. No examination answer books (or part of an answer book), whether used or unused, may be removed from the examination room. Should this occur, it will be considered an irregularity and the candidate will receive NO credit for the examination. Should a candidate write the wrong subject or wrong grade of a subject, this will be a technical irregularity and will lead to the candidate's results being blocked / cancelled / delayed.
17. Should a candidate miss an examination due to illness, a valid doctor's certificate must be given to the chief invigilator. A Certificate will not be awarded to candidates who miss an examination.
18. Any candidate who disregards these rules or the instructions of the chief invigilator or his / her assistants, will have committed an offence in terms of the Regulations [Regulation 6 2(a) and (b)] or a contravention of the Rules [Rule 3(2)].

## INSTRUCTIONS

1. This question paper consists of **TWO** sections.
2. **All** sections are compulsory.
3. Answer **ALL** the questions in Section A and Section B.
4. Answer all the questions in the space provided.
5. Write in a blue or black pen only.

**SECTION A****Question 1**

1.1 Various possible options are provided as answers to the following questions. Choose the answer and ENCIRCLE only the letter [A-D].

1.1.1 Which item does not use a lens for its function?

- A. Camera
- B. Mirror
- C. Binoculars
- D. Telescope (2)

1.1.2 Iodine solution is used to test for \_\_\_\_\_.

- A. starch.
- B. fats.
- C. protein.
- D. fibre. (2)

1.1.3 The natural science study of weather forecasting.

- A. Climatology
- B. Astronomy
- C. Astrology
- D. Meteorology (2)

1.1.4 An average body temperature of an adult person.

- A. 100°C
- B. 30°C
- C. 37°C
- D. 50°C (2)

- 1.1.5 Identify a non-recyclable material.
- A. Copper wire
  - B. Paper
  - C. Asbestos
  - D. Rubber (2)
- 1.1.6 Sub-atomic particles found inside the nucleus of an atom.
- A. Electrons and neutrons
  - B. Protons and neutrons
  - C. Protons and electrons
  - D. Electrons only (2)
- 1.1.7 Which factor will make photosynthesis NOT to take place in a plant?
- A. Sufficient light
  - B. Chloroplast
  - C. Availability of water
  - D. Unavailability of carbon dioxide (2)
- 1.1.8 Which halogen is a liquid at room temperature?
- A. Chlorine
  - B. Iodine
  - C. Bromine
  - D. Fluorine (2)
- 1.1.9 A safe way to clean off an acid spill from the floor.
- A. Pour a neutralizing agent over it
  - B. Use a paper towel to wipe it off
  - C. Leave the spill to dry off by itself
  - D. Pour a weak acid on it (2)

1.1.10 Identify a process that plays a crucial role during the water cycle.

A. Photosynthesis

B. Deforestation

C. Respiration

D. Transpiration

(2)

**Total Marks for Question 1.1**

**[20]**

1.2 Indicate whether the following statements are **TRUE** or **FALSE**.

Choose the answer and write only **TRUE** or **FALSE** in the spaces provided.

1.2.1 Fraternal twins share the same placenta.

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(1)

1.2.2 Mixing of all primary colours produces a white colour.

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(1)

1.2.3 A salt solution decreases the rate of rusting in a metal.

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(1)

1.2.4 Humus is one component of topsoil.

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(1)

1.2.5 A generator produces electrical energy in the form of alternating current.

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(1)

**Total Marks for Question 1.2**

**[5]**

- 1.3 Choose a statement from COLUMN A that matches a term in COLUMN B. Write only the letter (A – F) **UNDER** the question number (1.3.1 – 1.3.5) in the table below.

COLUMN A		COLUMN B	
1.3.1	It increases the gravitational force on the Earth's ocean.	<b>A</b>	Oxygen gas (1)
1.3.2	Used in conducting photosynthesis experiments.	<b>B</b>	Nitrogen gas (1)
1.3.3	Used in hospitals for life support systems.	<b>C</b>	Spring tides (1)
1.3.4	Found in the car's exhaust fumes.	<b>D</b>	Neap tides (1)
1.3.5	Component of air with the biggest percentage.	<b>E</b>	Lead (1)
		<b>F</b>	Light bulb

	1.3.1	1.3.2	1.3.3	1.3.4	1.3.5
<b>Column B</b>					

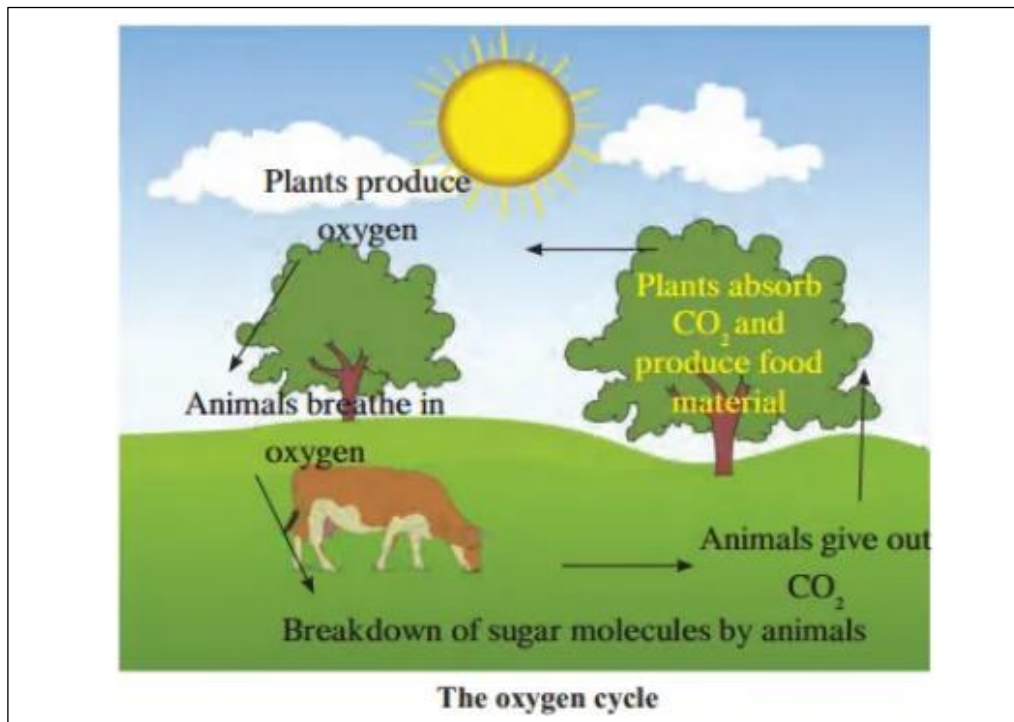
Total Marks for Question 1.3

[5]

**Total for Section A: 30 Marks**  
**SECTION B is on the next page.**

**SECTION B****Question 2: Life and Living**

2.1 Study the diagram and answer the questions that follow.



Source: <https://www.sarthaks.com/>

2.1.1 Name the biological process that produces the following gases.

(a) Oxygen (1)

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(b) Carbon dioxide (1)

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2.1.2 In which part of a plant's leaf does gaseous exchange occur? (2)

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2.1.3 Provide TWO benefits humans gain from inhaling oxygen. (2)

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2.2 Read the extract and answer the questions that follow.

Microbiology is the natural science field of study of all living organisms that are too small to be seen with a naked eye. Such living organisms includes bacteria, viruses, fungi, etc.  
*Source:www.britannica.com*

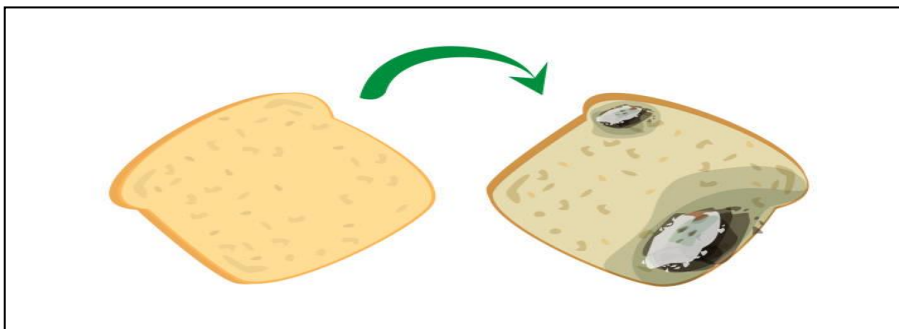
2.2.1 Which term is used to define “living organisms that are too small to be seen with a naked eye”? (1)

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2.2.2 Identify the device used by scientists to study the nature of organisms like bacteria. (2)

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2.3 Study the picture showing the mold growing on a slice of bread and answer the questions that follow.



*Source: Shutterstock images*

2.3.1 Define the term “mold”. (2)

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2.3.2 What is the name of the reproductive cell that causes mold? (1)

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2.3.3 The growth of mold depends on a number of factors. (3)  
Mention THREE factors.

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2.3.4 Is the amount of mold growing on bread a dependent or (2)  
independent variable?

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**Total Marks for Question 2**

**[17]**



**Question 3: Energy and Change**

- 3.1 Study the diagram showing young girls playing on a seesaw and answer the questions that follow.



Source: Wikimedia-images

- 3.1.1 Name the energy possessed by the girl on the ground. (1)

- 
- 3.1.2 If the mass of the girl above the ground is 22kg. Calculate the girl's gravitational potential energy if her height above the ground is 1.5 metres. (3)

**Use the formula:**

$$E_{p(\text{gravitational})} = \text{mass} \times \text{gravitational acceleration} \times \text{height},$$

where gravitational acceleration =  $10\text{m}\cdot\text{s}^{-2}$

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- 3.2 Read the extract and answer the questions that follow.

South Africa is experiencing a decline in generation of electricity. The demand of electricity is high, meanwhile the supply is very low. So, communities are encouraged to use electricity sparingly and if possible, to use other sources of energy. The current reality is that, the generation of electricity by Eskom is expensive and that is why the cost of buying electricity is also very expensive for consumers.

Source:energynews.co.za

3.2.1 There are a number of sources of energy that South Africa may explore for the generation of electricity. Mention ONE. (1)

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3.2.2 List TWO ways electricity can be conserved in our homes. (2)

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3.2.3 Explain the economic benefit of electricity generation in South Africa. (2)

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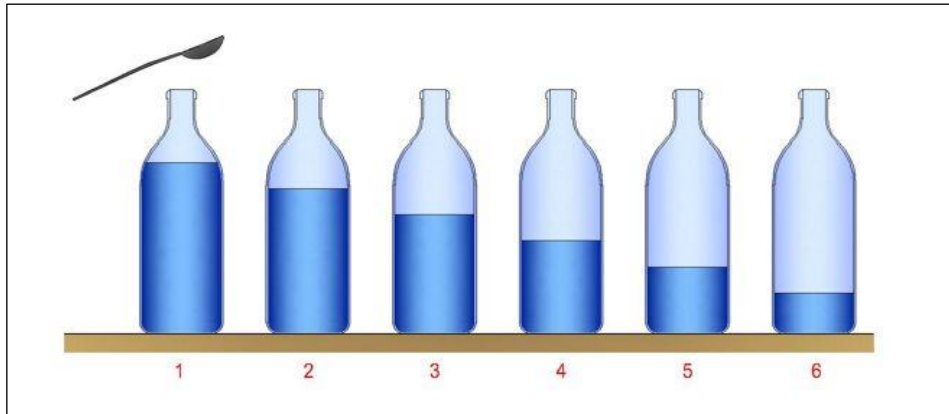


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3.3 Study the diagram showing a set-up of sound and pitch experiment and answer the questions that follow.



Source: [thehomeschoolscientist.com](http://thehomeschoolscientist.com)

3.3.1 Classify sound and pitch as either a property of frequency or vibration. Write the correct answer in the space provided. (2)

Property of frequency	Property of vibration

3.3.2 After the experiment has been conducted, what did you observe? (2)  
Complete the following statement:

“The bottle with \_\_\_\_\_ water will have the  
\_\_\_\_\_ pitch.”

3.3.3 Identify the materials used to conduct the experiment above. (3)  
Mention THREE.

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3.3.4 In which sector of life is sound and pitch mainly used? (2)

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**Total Marks for Question 3**

**[18]**



**Question 4: Matter and Materials**

4.1 Study the table and answer the questions that follow.

Substance	Density (g/cm <sup>3</sup> )
A	1.00
B	0.0013
C	19.3

4.1.1 Which letter represents a substance that is water? (1)

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4.1.2 Which letter represents a substance that will sink in water? (1)

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4.1.3 If the volume of the substance with letter C is doubled, whilst mass is kept constant, will its density INCREASE, DECREASE or STAY THE SAME? (1)

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4.2 Rice, cake flour and sugar beans are mixed together in a small bowl. The reason is to then separate them again.

4.2.1 Is the mixture heterogeneous or homogeneous? (3)  
Provide a reason for your answer.

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- 4.2.2 Explain, mentioning the separation methods you would use to separate the mixture until you remain with rice in 2 STEPS. (4)

	Method with explanation	What remains
Step 1		
Step 2		

- 4.3 Read the passage and answer the questions that follow.

Sodium hydrogen carbonate,  $\text{NaHCO}_3$  (commonly known as bicarbonate of soda or baking soda) is a white powder used in baking. On heating it gives off carbon dioxide gas which makes the dough rise. In solution it is a weak base, so it is used as an antacid to relieve acid indigestion.

*Source:chemistryjournal.org*

- 4.3.1 What is the name of an indicator that turns red from blue when testing an acidic solution? (1)

- 4.3.2 List any TWO industrial uses of bicarbonate of soda. (2)

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4.3.3 Is bicarbonate of soda an organic substance? Explain the reason (2)  
for your answer.

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4.4 Classify the following fields of study as natural or non-natural science.

4.4.1 Computer Science (1)

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4.4.2 Pharmacy (1)

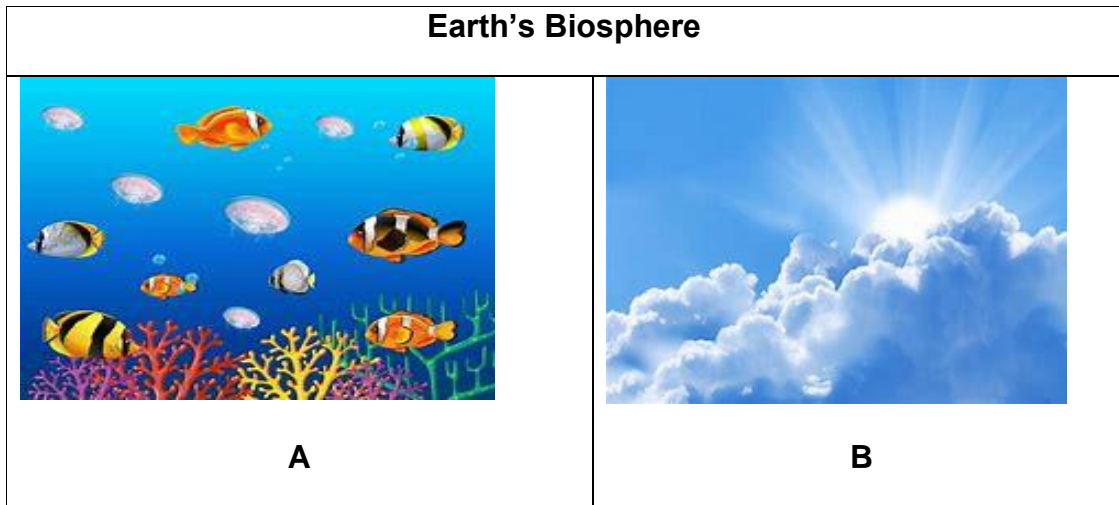
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**Total Marks for Question 4**

**[17]**

**Question 5: Earth and Beyond**

5.1 Study the images below and answer the questions that follow.



Source: Google Images

5.1.1 What is a biosphere? (1)

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5.1.2 What are the names of the biospheres labelled A and B? (2)

**A**

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**B**

5.1.3 Provide the name of the biosphere that may be affected by soil erosion. (1)

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5.2 Study the table and answer the questions that follow.

Sectors of society	Percentage of water used
Municipal and domestic	12%

Industry and commerce	11%
Agriculture	52%
Forestry	7%
Conservation	15%
Other	3%

Source: ScienceMatters, Gr.8LB

5.2.1 Briefly explain why most water is used in the Agricultural sector. (2)

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5.2.2 Which relevant sector of society could be represented by "Other"? (1)

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5.2.3 The information presented above is in table form. In what other forms can it be presented? Name TWO (for example, bar graph). (2)

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5.3 Read the passage and answer the questions that follow.

Many countries are affected by some form of natural disasters which are sudden events that are caused by environmental factors such as storms, floods, earthquakes, etc.

Source: sciencedirect.com

5.3.1 What is the name of a device used by scientists to measure the magnitude of an earthquake? (2)

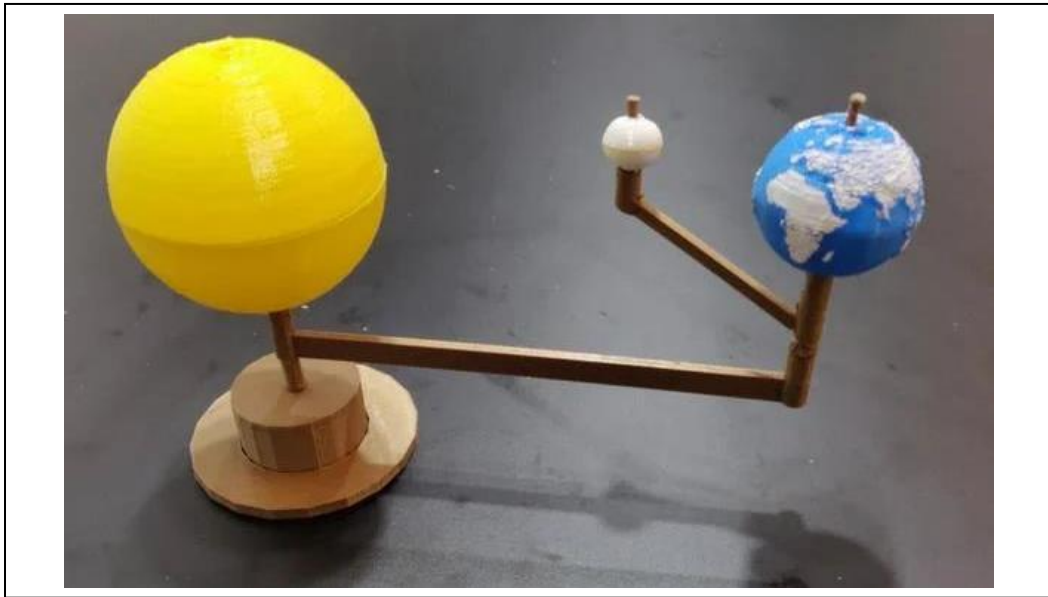
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5.3.2 Name TWO other types of natural disasters. (2)

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5.4 Study the image and answer the questions that follow.



Source:<http://.Eclipse.org/images>

5.4.1 Which type of eclipse is illustrated in the image? (1)

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5.4.2 Explain what you would observe when a demonstration is carried out to achieve the eclipse mentioned in 5.4.1. (3)

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- 5.4.3 What is the name of an American space agency that studies and explores the space environment for scientific discovery? (1)
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**Total Marks for Question 5**

**[18]**

**Total for Section B: 70 Marks**

**TOTAL MARKS: 100 MARKS**

**END OF THE EXAMINATION**



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Section	Question	Maximum Mark	Learner's Mark	Moderated Mark
<b>A</b>	Question 1.1	20		
	Question 1.2	5		
	Question 1.3	5		
	<b>Total: A</b>	<b>30</b>		
<b>B</b>	Question 2	17		
	Question 3	18		
	Question 4	17		
	Question 5	18		
	<b>Total: B</b>	<b>70</b>		

<b>Grand Total (A + B)</b>	<b>100</b>
<b>Learner's Total (A + B)</b>	
<b>Percentage</b>	
<b>Final Grading</b>	

Name and Surname of Marker

\_\_\_\_\_

Date of Marking

\_\_\_\_\_

Name and Surname of Umalusi  
Official

Date of Marking

\_\_\_\_\_

Name and Surname of Moderator

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Date of Moderation

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