E-mail: Info@saolympiads.co.za website: www.saolympiads.co.za

Natural Science Olympiad
GRADE 7

DATE: 25 AUGUST 2026

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 50 multiple-choice questions.
2. Each question is followed by answers marked A, B, C, and D. Only one answer is correct. Choose the correct answer and shade the corresponding circle on the answer sheet.
3. All working details must be done in the space provided.
4. Calculators are permitted.
5. Diagrams are not necessarily drawn to scale.
6. Each question carries one mark.
7. You have 90 minutes for the paper, which works out to an average of 1.8 minutes per question.
8. Read the questions carefully before answering.
9. Visit the website: www.saolympiads.co.za.

ENJOY THE OLYMPIAD.

Grade 7 NS Olympiad 2026

Various options are provided to answer the following questions. Choose the correct answer and indicate the correct answer by circling the correct letter on the answer sheet provided.
E.g., 1.1.1 – (A.) (see guide)

1. Some penguin species live in very cold regions such as Antarctica, while others live in much warmer regions such as along the coast of southern Africa.

Which adaptation best explains how penguins living in cold environments survive compared to those in warmer environments?

A Penguins in cold regions have a thicker layer of fat and denser feathers that reduce heat loss, while penguins in warmer regions have less insulation to prevent overheating.
B Penguins in cold regions are larger because they eat different food than penguins in warm regions.
C Penguins in warm regions cannot survive cold temperatures because they do not have feathers.
D Penguins in cold regions breathe more slowly to avoid losing heat. (1)

https://www.istockphoto.com/photos/african-penguins

2. The Great Green Wall project in Africa aims to restore degraded land across the Sahara by planting a variety of trees and plants.

https://earthbound.report/2024/03/01/what-africas-great-green-wall-looks-like/

Why does increasing biodiversity in the Great Green Wall help make the ecosystem more stable?

A More species compete for resources, which weakens the ecosystem.
B A greater variety of species can better survive droughts, pests, and climate changes.
C Biodiversity prevents all plants from dying during extreme weather.
D Ecosystems with many species use less sunlight and water. (1)

3. Which taxonomic level is INCORRECT for humans?

A Kingdom: Animalia.
B Phylum: Chordata.
C Class: Mammalia.
D Genus: Humanus. (1)

4. A scientist discovers a strange animal in the forest. It has a beak like a duck and lays eggs, but the mother feeds its young with milk produced by her body. Based on the biological definition of classes, why is this animal classified as a mammal?

A Because it has a beak, it must be a bird.
B Because it lays eggs, it is classified as a reptile.
C Because it produces milk to feed its young, a unique feature of mammals.
D Because it lives in the forest near water. (1)

5. Which ONE of the following is an example of an amphibian? (1)

A	B	C	D

6. Which characteristic is unique to angiosperms?

A Photosynthesis.
B Flowers that produce spores for reproduction.
C Flowers that produce seeds in fruits.
D Vascular tissue. (1)

7. Mosses are often seen growing on the trunks of trees, especially on the side that receives less direct sunlight.
What does this observation tell us about mosses?

A Mosses grow only on dead trees because they obtain nutrients from decaying wood.
B Mosses are parasitic plants that damage the tree to obtain food.
C Mosses require large amounts of sunlight and deep roots to survive.
D Mosses prefer moist, shaded environments and do not need soil to grow. (1)

8. Keeping bees has become more popular in recent years. Programmes like the *Bee Prosperous Programme* in KwaZulu-Natal and the Eastern Cape support communities in creating and maintaining beehives.

Why is it important to increase the number of bees in South Africa?

A Bees play a critical role in pollination, which supports food production and ecosystem stability.
B Bees reduce the number of harmful insects by hunting and eating them.
C Bees are the main producers of oxygen in natural ecosystems.
D Bees increase soil nutrients by breaking down dead plant material. (1)

9. Which of the following is NOT dispersed by wind? (1)

A	B	C	D

10. Which statement about menstruation is CORRECT?

A Females can control their menstruation.
B Menstruation occurs once a month.
C Menstruation occurs on average every 28 days.
D Menstruation is contagious. (1)

11. Which contraceptive method, when used correctly and consistently, helps to prevent both unplanned pregnancy and the transmission of sexually transmitted diseases (STDs), including HIV and AIDS?

A Male condom.
B Vasectomy.
C Contraceptive injections.
D Female diaphragm. (1)

12. In a litter of Golden Retriever puppies, most have golden-coloured fur, but some are cream and others are red-gold. Even though all puppies have the same parents, they do not look exactly alike.

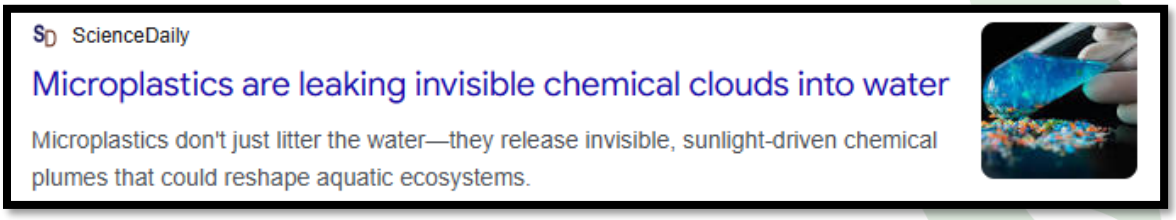
Which explanation best accounts for the variation in coat colour among these siblings?

A The puppies choose which traits to express depending on their environment.
B Each puppy inherits a unique combination of genes from both parents, resulting in differences in appearance.
C The first-born puppy inherits the strongest genes, leaving weaker genes for the others.
D Differences in coat colour are caused by the puppies eating different types of food as they grow.

13. When doing your shopping, you are required to use a recycled-material bag instead of a plastic bag. Identify the property of the recycled bag that allows it to be used repeatedly without breaking.

A durable
B flexible
C lightweight
D colourful (1)

14. Which of the following is a major source of microplastics in rivers and oceans?



A Crushed rocks from rivers
B Synthetic fibres from washing clothes
C Salt from the sea
D Sunlight breaking down water molecules (1)

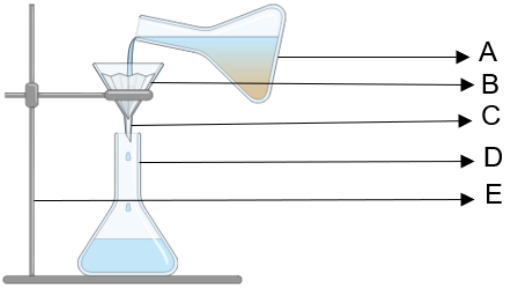
15. Choose the correct options to complete the following sentence:
Paraffin has a ____ melting point than water, but a ____ boiling point. (1)

A	higher	lower
B	lower	higher
C	lower	lower
D	higher	higher

16. A detective finds a ransom note written in black ink. He uses chromatography to test the ink against four different pens found at a suspect's house. What is the detective actually looking for on the chromatography paper to solve the crime?

A To see which pen is the heaviest.
B To see if the ink turns into a gas.
C To see the unique pattern of colors that make up the black ink mixture.
D To measure how much water the paper can soak up. (1)

Use the following diagram to answer questions 17 and 18



https://www.nagwa.com/en/explainers/429179270853/

17. Identify the object labelled B

A. Filter paper.
B. Erlenmeyer flask.
C. Retort stand.
D. Water and sand mixture. (1)

18. What is the purpose of the instrument illustrated above?

A Evaporation
B Decanting
C Filtration
D Distillation (1)

19. During an edible experiment you taste a substance and it tastes bitter. Your teacher asks you to identify the substance. It is most likely to be …

A An acid
B A base
C Neutral
D None of the above (1)

20. The best way to reduce damage to teeth after drinking acidic drinks is:

A Drink water immediately after the drink.
B Brush teeth immediately while enamel is soft.
C Drink more sugary drinks to balance the acid.
D Rinse with orange juice. (1)

21. Rain that falls on cities can be slightly acidic due to pollution. Adding crushed limestone to rivers or lakes helps to:

A Make the water taste better.
B Neutralise the acid and protect aquatic life.
C Increase the acidity to kill microorganisms.
D Add oxygen to the water. (1)

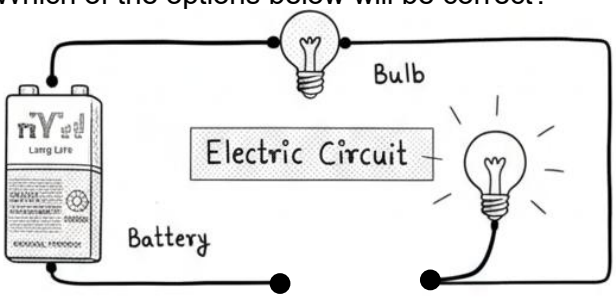
22. The symbol for the element Iron is Fe (from the Latin word *Ferrum*), and Gold is Au (from *Aurum*). Following the standard rules of the Periodic Table, if a new element was named "Zebrium," what would its most likely chemical symbol be?

A ze
B ZE
C Ze
D ZEB (1)

23. Which of the following is NOT regarded as a metal?

A Alkali metals
B Lanthanides
C Metalloid
D Transition metals (1)

24. You are conducting an experiment to test if an object is an insulator or a conductor. Which of the options below will be correct? (1)

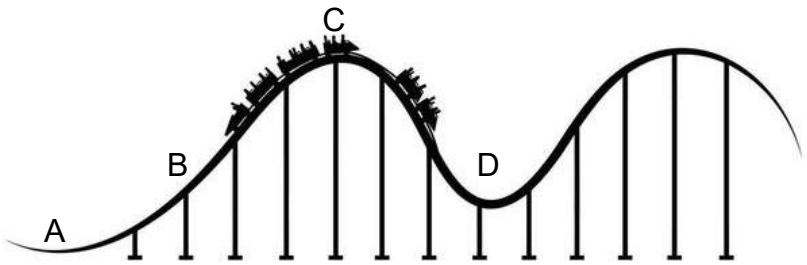


	Insulator	Conductor
A	Pencil	Wooden block
B	Wooden block	Rock
C	Rock	Pencil
D	Rubber band	Paperclip

25. Biofuels are often described as a renewable energy source. Which statement best explains *why* biofuels are considered renewable?

A They release no energy when burned.
B They are made from plants and organic materials that can be regrown.
C They are formed naturally over millions of years.
D They do not produce any gases during combustion. (1)

26. In which ONE of the following positions will potential and kinetic energy be exactly the same? (1)



27. Look at the picture of the rural water pump. To get water out of the ground, a person must move the handle up and down repeatedly.

A Kinetic energy (movement) → Heat energy
B Kinetic energy (movement) → Potential energy (water lifted up)
C Electrical energy → Kinetic energy (movement)
D Kinetic energy (movement) → Sound energy (1)

28. A lightbulb uses 60 Joules of energy every second to stay bright. If you replace it with an "Energy Saver" bulb that provides the same amount of light using only 10 Joules per second: Which statement best explains this change in Joules?

A The new bulb is heavier and stores more electricity.
B The new bulb is more efficient because it uses less energy to do the same amount of work.
C The new bulb creates energy out of nothing.
D The Joules moved from the bulb into the wall (1)

29. Which of these is the best example of heat moving through convection?

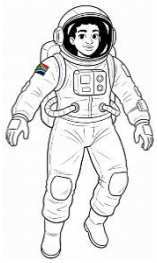
A A black road feeling hot under the sun.
B A metal spoon getting hot in a cup of tea.
C Warm air rising from a heater while cool air sinks.
D Burning your hand by touching a hot stove. (1)

30. In many traditional South African communities, clay pots and containers were used to keep food warm for long periods.

Which property of clay makes it suitable for this purpose?

A It is a good conductor of heat
B It slows down heat transfer to the surroundings
C It reflects radiant energy very effectively
D It produces heat when exposed to fire

(1)



31. Why are most space suits and many parts of the International Space Station painted bright white?

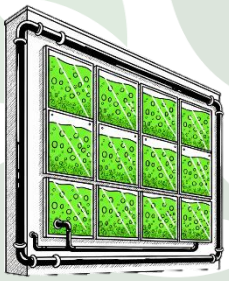
A To make them easier to see in the dark.
B To reflect radiant energy from the Sun and prevent overheating.
C Because white paint is the cheapest.
D To absorb as much heat as possible from the stars. (1)

32. In the Southern Hemisphere (like in South Africa), solar geysers must be installed on a specific side of a roof to ensure they absorb the most sunlight possible during the day.

On which side of a sloped roof should a solar geyser be placed to be most effective?

A On the East-facing side, to catch the early morning sun only.
B On the North-facing side, to face the Sun directly for most of the day.
C On the South-facing side, where it will be in the shade most of the time.
D On the West-facing side, to catch the sunset only. (1)

33. The world's first "algae house," the BIQ House in Germany, uses micro-algae panels to generate heat for its hot water system while simultaneously providing insulation.



How do these algae-filled walls help a building stay "green" and energy-efficient?

A They use the algae to produce heat by burning it inside the walls.
B The algae absorb sunlight and CO_2 to grow, providing natural shade and cleaner air.
C They turn the building a green colour so it is harder to see.
D The algae act as a giant battery to store electricity from the city grid. (1)

34. Many indigenous African homes use thatch roofs and mud walls. Why are these materials effective?

A They conduct heat quickly.
B They are good insulators that keep the inside cool in summer and warm in winter.
C They are made of metal.
D They allow heat to escape easily. (1)

35. When you walk or run, your body uses energy from your food to make your legs move. However, your body isn't a perfect machine, and not all of that energy becomes "walking energy."

What happens to the energy that does NOT turn into movement?

A It is turned into heat that warms up your body and sound as your feet hit the ground.
B The energy disappears and is gone forever.
C Your body stores it as electricity to use later.
D Walking doesn't actually require any energy at all. (1)

36. South Africa is the only country on the African continent that uses nuclear energy to produce electricity. Our nuclear power station, Koeberg, is located on the coast of the Western Cape.

Why was the Koeberg Nuclear Power Station built specifically on the coast of the Atlantic Ocean?

A Because the uranium fuel needs to stay salty to work properly.
B To use the cold seawater to cool down the steam and machinery inside the station.
C So that the electricity can be shipped to other countries by boat.
D Because nuclear power stations can only be built on flat sand. (1)

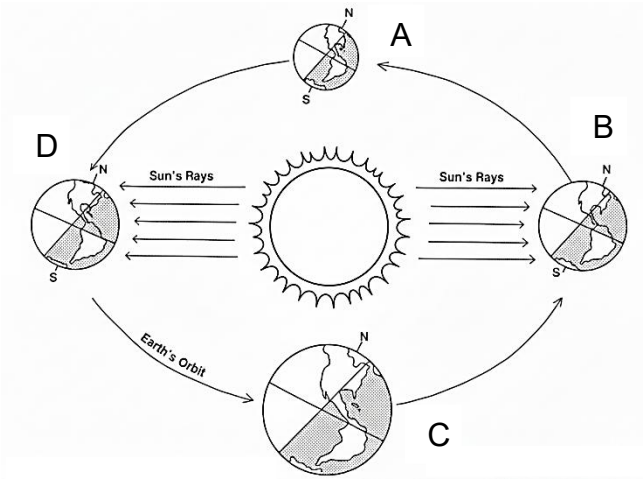
37. If the Earth is directly between the Sun and the Moon, the Moon would look like…(1)

A	B	C	D

38. Approximately how many days does it take for the Moon to go from one New Moon to the next New Moon?

A 7 days
B 14 days
C 29.5 days
D 365 days (1)

39. In which of the following positions will it be Summer in South Africa? (1)



40. The Moon is "tidally locked" to the Earth, which means we always see the same side of the Moon from our backyard. People often call the side we cannot see the "Dark Side of the Moon."

Why is the name "Dark Side of the Moon" actually a scientific mistake?

A Because that side of the Moon is actually made of glowing rocks.
B Because the "far side" of the Moon gets just as much sunlight as the side we see; we just can't see it from Earth.
C Because the Moon doesn't have a back side; it is flat like a coin.
D Because the Sun only shines on the Earth, not the Moon. (1)

41. Why was the winter solstice (the shortest day of the year) so important to ancient farmers?

A It helped them predict when it would rain next.
B It acted as a calendar marker to prepare for the return of longer days and planting seasons.
C It was the only day they could see the Moon.
D It told them when an earthquake was coming. (1)

42. If a South African goes on holiday to the South Pole during the month of June, what will they notice about the daylight hours?

A The days will get longer and hotter.
B The days will get shorter until there is almost no daylight at all.
C The amount of daylight stays exactly the same everywhere.
D The sun will rise in the West instead of the East. (1)

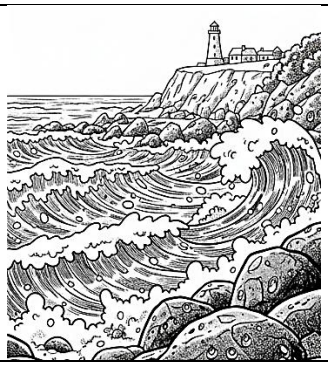
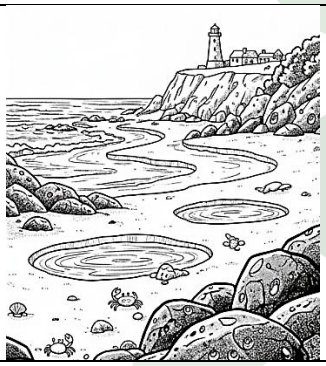
43. Standard Time (Time Zones) was created because "Solar Time" (using the sun's position) caused confusion for train schedules. If South Africa did NOT have one single time zone, what would happen?

A Clocks in Durban would be ahead of clocks in Cape Town because the sun rises earlier in the East.
B The sun would stop moving across the sky.
C Every town would have the exact same time automatically.
D It would always be noon in every province (1)

44. If you look at the Moon, you will see thousands of bowl-shaped holes called craters. Unlike Earth, which has wind and rain to wear away old marks, the Moon's surface stays the same for millions of years.
What is the most likely cause of these craters?

A Huge bubbles of gas burst from the center of the Moon long ago.
B Massive rocks from space (asteroids and comets) crashed into the surface.
C Ancient civilizations on the Moon dug them out to build underground cities.
D The Moon's gravity is so strong that it causes the surface to collapse inward. (1)

45. What is illustrated in the following two pictures? (1)

Picture I	Picture II
	

	Picture I	Picture II
A	High tide	Low tide
B	Low tide	High tide
C	Winter solstice	Summer solstice
D	Lunar tide	Spring tide

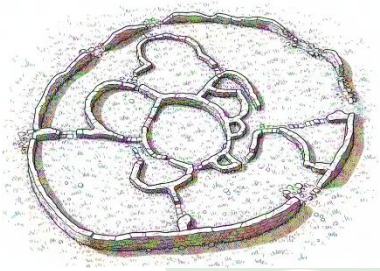
46. Ancient people didn't have digital watches. How did they use the "new moon" to help build their calendars?

A They used it to mark the start of a new month (approximately 29.5 days).
B They used it to tell what time of day it was.
C They used it to predict when the wind would blow.
D They used it to measure how tall a person was. (1)

47. A learner sets up a sundial in the school garden. At 12:00 PM (noon), the shadow is very short. By 4:00 PM, the shadow has become much longer. Why did the shadow change?

A The sundial grew taller during the afternoon.
B The Earth rotated, changing the angle of the Sun in the sky.
C The clouds pushed the shadow outward.
D Shadows always grow longer when it gets colder. (1)

48. In the mountains of Mpumalanga, South Africa, there is an ancient site known as "Adam's Calendar." It consists of large stones that were placed in a specific pattern thousands of years ago.



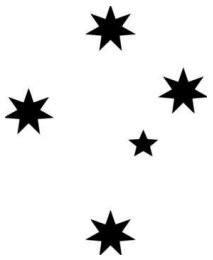
What was the primary purpose of arranging these stones in this specific way?

A It was a site for ancient religious rituals related to the sun and stars
B It was an ancient astronomical observatory used to track the phases of the Moon
C It was the burial site of an ancient Egyptian Pharaoh
D It was used as a trading hub for early civilizations (1)

49. While Galileo used a telescope to look at Jupiter, he didn't invent the lens. What did the first practical telescopes (like those by Lippershey) use to make distant objects look closer?

A Specially shaped pieces of curved glass (lenses) that bend light.
B Powerful magnets that pull the image toward the eye.
C Small television screens hidden inside the tube.
D Mirrors that flip the image upside down only. (1)

50. You are lost in the bush at night and have no compass. You locate the Southern Cross and the two Pointer stars. How do you use these stars to find your way home toward the South?



A You walk directly toward the brightest star in the cross.
B You follow the line of the "long axis" of the cross down to the horizon to find South.
C You wait for the stars to move to the West and follow them.
D You walk in the opposite direction of where the Pointers are. (1)

https://www.vecteezy.com/free-vector/southern-cross-stars

TOTAL MARKS = 50