

EXPLORING THE INVESTIGATIVE WORLD OF SCIENCE
Class 08 - Science (Curiosity)

Time Allowed: 1 minute

Maximum Marks: 110

1. When observing Moon phases, which position causes a new moon to occur? [1]
 - a) Moon at right angle to Earth and Sun
 - b) Sun between Moon and Earth
 - c) Moon between Earth and Sun
 - d) Earth between Moon and Sun
2. What is the basis for classifying materials into elements, compounds, and mixtures? [1]
 - a) The type and arrangement of particles
 - b) Their color
 - c) The temperature at which they boil
 - d) Their physical state
3. Which activity is essential to fight infections according to the Chapter Exploring the Investigative World of Science? [1]
 - a) Mining
 - b) Painting
 - c) Exercise
 - d) Travelling
4. How does nutritious food help our bodies as per the Chapter Exploring the Investigative World of Science? [1]
 - a) By causing infections
 - b) By providing energy and essential nutrients
 - c) By reducing body temperature
 - d) By solely fighting infections
5. A coin placed in a glass of water appears raised due to which phenomenon? [1]
 - a) Refraction
 - b) Reflection
 - c) Scattering
 - d) Diffraction
6. What role does electricity play in everyday life according to the Chapter Exploring the Investigative World of Science? [1]
 - a) Supporting respiratory functions
 - b) Preventing skin infections
 - c) Generating light from gases
 - d) Making tasks easier through applications like heating and motor functions
7. How is the bending of light described in its function with corrective lenses? [1]
 - a) It changes light into different spectrums reviewed in vision aids
 - b) It increases light diffraction disturbances
 - c) It permanently alters the lenses
 - d) It explains how corrective lenses adjust the focal point to aid in clearer vision
8. What is meant by 'systematic investigation'? [1]

- a) A random exploration of ideas b) A linear progression of steps
- c) A guided tutorial session d) A controlled and methodical way of doing experiments
9. How do lenses help us see clearly? [1]
- a) By emitting a special light b) By bending light rays
- c) Amplifying sounds d) Reflecting laser beams
10. What does pressure help to explain? [1]
- a) Movement planets b) Taste of food
- c) Weather events d) Growth of plants
11. What is used as an example to show how pressure changes affect results? [1]
- a) Ice cream b) Boiling water
- c) Growing plants d) A puri puffing up
12. How does exercise contribute to health as explained in the Chapter Exploring the Investigative World of Science? [1]
- a) By causing tiredness b) By lowering immunity
- c) By increasing stamina and fitness d) By weakening bones
13. What property of air allows it to exert pressure in different directions? [1]
- a) The weight of oxygen only b) Its colourless nature
- c) Movement of its particles d) Its fixed volume
14. What creates the phases of the Moon as explained in the Chapter Exploring the Investigative World of Science? [1]
- a) The tilt of the Earth's axis b) The relative positions of the Earth, Moon, and Sun
- c) The distance from the Earth to the Sun d) The color of the atmosphere
15. What helps scientists predict cyclones and severe storms? [1]
- a) Changes in soil types b) Air pressure
- c) Cloud colours d) Studying Moon phases
16. Why do objects appear bent in water? [1]
- a) Due to sound waves b) Due to reflection
- c) Due to gravity d) Refraction of light
17. What phenomenon explains why a ball thrown upwards falls back? [1]
- a) Electricity b) Light bending
- c) Air pressure d) Force of gravity
18. What role does science play in protecting Earth's environment? [1]

- a) Increasing temperature
b) Creating pollution
c) Blocking sunlight
d) Understanding changes

19. What kind of organisms are studied when examining a single drop of water? [1]
a) Insects
b) Microorganisms
c) Plants
d) Birds

20. According to the Chapter Exploring the Investigative World of Science, what is a prerequisite for conducting scientific experiments? [1]
a) A curious mindset
b) Advanced equipment
c) Access to a laboratory
d) Professional supervision

21. **Assertion (A):** Nutritious food is necessary for maintaining good health. [1]
Reason (R): All invisible microorganisms are harmful to humans.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

22. **Assertion (A):** The Earth's atmosphere shields us from harmful ultraviolet rays. [1]
Reason (R): The Earth's atmosphere contains ozone which blocks ultraviolet radiation from reaching us.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

23. **Assertion (A):** In solids, particles can move around freely. [1]
Reason (R): Particles in solids are closely packed and can only vibrate in place.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

24. **Assertion (A):** Certain small organisms can cause health problems, being harmful to humans. [1]
Reason (R): Not all small organisms support processes like food digestion or medicine production.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

25. **Assertion (A):** Electricity and magnetism are interconnected phenomena. [1]
Reason (R): Electric current generates heat and operates motors via magnetic effects.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

26. **Assertion (A):** While doing a scientific experiment, only one variable should be changed at a [1]

time.

Reason (R): Changing multiple variables together makes it difficult to identify which change caused the observed effect.

- | | |
|---|---|
| a) Both A and R are true but R is not the correct explanation of A. | b) Both A and R are true and R is the correct explanation of A. |
| c) A is true but R is false. | d) A is false but R is true. |

27. **Assertion (A):** Living organisms are interdependent within ecosystems. [1]

Reason (R): Ecosystems arise from relationships among individual organisms and their environments.

- | | |
|---|---|
| a) Both A and R are true and R is the correct explanation of A. | b) Both A and R are true but R is not the correct explanation of A. |
| c) A is true but R is false. | d) A is false but R is true. |

28. **Assertion (A):** A scientific approach requires only careful observation without experimentation. [1]

Reason (R): Because accurate results can be obtained without systematic investigation.

- | | |
|---|---|
| a) Both A and R are true and R is the correct explanation of A. | b) Both A and R are true but R is not the correct explanation of A. |
| c) A is true but R is false. | d) A is false but R is true. |

29. **Assertion (A):** A higher pressure difference between air masses can result in cyclones. [1]

Reason (R): Forces lead to all forms of weather phenomena.

- | | |
|---|---|
| a) Both A and R are true and R is the correct explanation of A. | b) Both A and R are true but R is not the correct explanation of A. |
| c) A is true but R is false. | d) A is false but R is true. |

30. Why is it important to control variables in an experiment? [1]

31. According to the Chapter "Exploring the Investigative World of Science", why is Earth considered 'just right' for life? [1]

32. Evaluate the importance of classifying materials in science. [1]

33. How does our body fight infections and stay healthy? [1]

34. How are materials classified in science? [1]

35. Why is classifying substances important in science? [1]

36. What are some uses of electric current according to the Chapter "Exploring the Investigative World of Science"? [1]

37. How does investigation in science go beyond just finding new facts? [1]

38. What is the relationship between light and mirrors as explained in the Chapter "Exploring the Investigative World of Science"? [1]

39. What are the methods mentioned in Chapter "Exploring the Investigative World of Science" to stay healthy and fight infections? [1]

40. How do we see objects using light? [1]

41. What role do scientific principles play in addressing the challenges faced by Earth? [2]

42. Describe how science plays a role in our understanding of the pressure and forces as mentioned in the Chapter "Exploring the Investigative World of Science". [2]

43. How the heating and magnetic effects of electric current improve our daily lives. [2]
44. Explain how the reflective properties of mirrors help us in our daily life. [2]
45. Why is a fair test important in experiments? [2]
46. What systematic approach is suggested for investigating how a puri puffs up during cooking? [2]
47. What are some of the invisible helpers found in a single drop of water, and how do they benefit humans? [2]
48. How are elements, compounds, and mixtures classified based on particle arrangement and bonding? [2]
49. Explain the concept of force and how it is related to objects speeding up, slowing down, or changing direction. [2]
50. How do pressure and distribution of force affect the movement of air? [2]
51. What are the roles of tiny particles in determining the state of matter? [2]
52. Describe the role of particles in determining the states of matter, such as solids and gases. [2]
53. How do microorganisms in a single drop of water affect human health? [2]
54. Describe how light behaves when it interacts with flat and curved mirrors. [2]
55. Discuss how studying light and lenses helps in the design of corrective glasses. [2]
56. **State whether the given statement is True or False:** [3]
 - (a) Every living organism depends on air, water, sunlight, and other organisms for survival. [1]
 - (b) All materials are made up of tiny particles. [1]
 - (c) A microscope helps us see very small things that are not visible to the naked eye. [1]
57. What are the methods our body uses to stay healthy and fight infections? [3]
58. Why is classification useful in science? [3]
59. How can differences in air pressure affect the weather? [3]
60. What is the difference between an observation and an inference in science? [3]
61. Explain how scientists refine their ideas when results do not match their expectations, with an example from daily life. [5]
62. How do tiny organisms in a single drop of water affect human life, both positively and negatively? [5]
63. Explain how curiosity can turn an everyday observation into a full scientific investigation. [5]
64. **Fill in the blanks:** [10]
 - (a) A _____ surface reflects light evenly, producing clear images. [1]
 - (b) All matter is made of tiny _____ that behave differently in solids, liquids, and gases. [1]
 - (c) Scientific investigations involve careful _____, measurement, and testing of ideas. [1]
 - (d) In gases, particles move _____ and collide with surfaces, creating pressure. [1]
 - (e) Light can _____ from mirrors and _____ through lenses. [1]
 - (f) The Moon appears to change shape because different portions are _____ by sunlight. [1]
 - (g) The Moon reflects light from the _____ to become visible from Earth. [1]
 - (h) The pressure differences can lead to weather events like _____. [1]
 - (i) A gentle breeze is caused by a small difference in air _____. [1]
 - (j) Tools like weather balloons and satellites help scientists observe and record _____ conditions. [1]

Solution
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1.
(c) Moon between Earth and Sun
Explanation:
A new moon occurs when the Moon is positioned between the Earth and the Sun. In this position, the side of the Moon facing Earth does not receive sunlight, so it appears dark or invisible from Earth.
2.
(a) The type and arrangement of particles
Explanation:
Classification is based on the fundamental composition of materials.
3.
(c) Exercise
Explanation:
Exercise is one of the activities listed that help fight infections.
4.
(b) By providing energy and essential nutrients
Explanation:
Nutritious food supplies energy and nutrients needed for health.
5.
(a) Refraction
Explanation:
A coin in water appears raised because light bends when it passes from water to air. This bending of light is called refraction. Due to refraction, the position of the coin appears higher than its actual position.
6.
(d) Making tasks easier through applications like heating and motor functions
Explanation:
Electricity powers various everyday applications.
7.
(d) It explains how corrective lenses adjust the focal point to aid in clearer vision
Explanation:
Lenses refract light to focus onto the retina correctly.
8.
(d) A controlled and methodical way of doing experiments
Explanation:
Systematic investigation involves organized experimental procedures.
9.
(b) By bending light rays
Explanation:
Lenses change the direction of light to help us see.
10.
(c) Weather events
Explanation:

Pressure in the atmosphere refers to the force exerted by air on the Earth's surface. Differences in air pressure cause air to move from high-pressure areas to low-pressure areas. This movement of air leads to wind formation and plays an important role in weather changes and weather events like storms and rainfall.

11.
(d) A puri puffing up
Explanation:
A puri puffing up
12.
(c) By increasing stamina and fitness
Explanation:
Exercise helps improve physical health.
13.
(c) Movement of its particles
Explanation:
Air exerts pressure in all directions because its particles are constantly moving and colliding with objects and each other. This continuous movement and collision create force, which results in air pressure acting in different directions.
14.
(b) The relative positions of the Earth, Moon, and Sun
Explanation:
These celestial alignments illustrate moon phases.
15.
(b) Air pressure
Explanation:
Scientists predict cyclones and severe storms by observing changes in air pressure and wind patterns. Sudden drops in air pressure and strong, rotating wind movements help identify the formation of such weather systems in advance.
16.
(d) Refraction of light
Explanation:
Objects appear bent in water because light changes its speed when it passes from one medium (air) to another (water). This bending of light is called refraction. Due to refraction, the position of the object appears shifted or distorted when seen through water.
17.
(d) Force of gravity
Explanation:
Gravity attracts the ball back to Earth.
18.
(d) Understanding changes
Explanation:
Science helps in protecting the Earth's environment by observing and understanding changes happening in nature, such as pollution, climate change, and resource use. This knowledge allows

scientists to find solutions and take steps to reduce environmental damage.

19. **(b) Microorganisms**
Explanation:
A single drop of water contains tiny living organisms that cannot be seen with the naked eye. These are called microorganisms. They are studied using a microscope to understand their structure, movement, and role in nature.
20. **(a) A curious mindset**
Explanation:
A curious mindset is seen as essential for engaging in scientific exploration.
21. **(c) A is true but R is false.**
Explanation:
While nutritious food is indeed vital for health, not all microorganisms are harmful. Some are beneficial, aiding in digestion and medical treatments.
22. **(a) Both A and R are true and R is the correct explanation of A.**
Explanation:
Ozone in the Earth's atmosphere is responsible for blocking ultraviolet radiation.
23. **(d) A is false but R is true.**
Explanation:
In solids, particles are tightly packed in fixed positions due to strong intermolecular forces. They cannot move freely like in liquids or gases, but they vibrate about their mean position.
24. **(a) Both A and R are true and R is the correct explanation of A.**
Explanation:
While some microorganisms are helpful in digestion and medicine production, others are harmful, causing diseases and health issues.
25. **(a) Both A and R are true and R is the correct explanation of A.**
Explanation:
Electricity's role in generating both heat and magnetic effects ties it to various physical occurrences.
26. **(b) Both A and R are true and R is the correct explanation of A.**
Explanation:
In experiments, keeping all other factors constant and changing only one independent variable ensures a fair test. If multiple variables change at once, it becomes impossible to determine the true cause of the result.
27. **(a) Both A and R are true and R is the correct explanation of A.**
Explanation:
Ecosystems thrive via these interconnections that dictate survival, forming interdependencies.
28. **(d) A is false but R is true.**
Explanation:
A complete scientific approach involves both observation and experimentation for valid results.

29. **(a)** Both A and R are true and R is the correct explanation of A.

Explanation:

Forces, such as pressure differences, directly result in various weather events, including cyclones.

30. To ensure that any observed changes are due to the variable being tested and not other factors.

31. It is the right distance from the Sun, has liquid water, and an atmosphere that provides oxygen and shields from harmful ultraviolet rays.

32. Classification helps in understanding material properties, predicting behavior, and simplifying complex systems.

33. Through nutritious food, exercise, medicines, and the immune system that defends against harmful microbes.

34. Materials are classified into elements, compounds, and mixtures.

35. Classification helps in understanding the properties, behaviour, and uses of different materials.

36. Electric current is used to help make our lives easier through the heating effect (like keeping us warm) and the magnetic effect (helping motors run and machines function).

37. It involves forming focused questions, designing experiments, making observations, and using results to deepen understanding.

38. Light rays reflect off flat and curved mirrors, and bending of light when passing through lenses.

39. Nutritious food, exercise, medicines, and vaccines.

40. Light reflects off objects and enters our eyes; smooth surfaces like mirrors reflect it.

41. Scientific principles play a vital role in addressing Earth's challenges. By observing, measuring, and experimenting, scientists study problems like climate change, pollution, and resource depletion. This knowledge helps us develop sustainable solutions to protect Earth's delicate balance that supports life.

42. Science helps explain how forces cause objects to move, stop or change direction. This also links to the understanding of pressure and its effects, such as air movement causing breezes or strong winds.

43. The heating effect of electric current helps keep us warm, while the magnetic effect allows motors and machines to function efficiently.

44. Mirrors have reflective surfaces that bounce light back, helping us see ourselves and objects. They are used in daily life for personal grooming, improving visibility in vehicles (rear-view mirrors), focusing light in torches and lamps, and in optical instruments. Reflective properties make mirrors essential in both everyday tasks and scientific applications.

45. In a fair test, only one thing is changed at a time while all other conditions remain the same. This helps us know exactly what caused the change, like checking if oil temperature alone affects puri puffing. It makes results accurate and trustworthy.

46. The systematic approach suggested involves controlling variables like dough thickness and measuring results like time to puff up, changing one variable at a time, and observing outcomes while keeping notes.

47. The invisible helpers could be microorganisms that aid in digestion or the production of medicines.

48. Elements are pure substances made of one type of atom. Compounds consist of two or more elements chemically bonded in fixed proportions. Mixtures are combinations of substances physically mixed together, which can usually be separated by physical methods like filtration or evaporation.

49. Force is any push or pull that can change the motion of an object. It may cause the object to start moving, stop, speed up, slow down, or change its direction, depending on the applied strength.

50. Air moves from high-pressure to low-pressure areas. Small differences in pressure cause gentle breezes, while larger differences generate strong winds. Very high pressure differences may result in cyclones. Thus, pressure and force distribution play a vital role in shaping weather events.

51. Tiny particles determine the state of matter. In solids, they are tightly packed and only vibrate, giving solids a definite shape. In liquids, they are close but can slide past each other, so liquids take the shape of the container. In gases, they move freely and are far apart, giving gases no fixed shape or volume.

52. In solids, particles are tightly packed and can only vibrate in fixed positions, so movement is very limited. In gases, particles are far apart and move freely in all directions, making them highly mobile and fast-moving.

53. Some microorganisms can help with digestion or produce medicines, while others can cause infections that require the immune system to fight off.

54. Light reflects off flat mirrors in predictable ways, producing clear images. Curved mirrors bend light rays, either converging or diverging them, which can focus light or change image size.
55. Understanding the bending of light through lenses helps in designing corrective glasses that focus light correctly onto the retina. Convex or concave lenses adjust vision for people who are farsighted or nearsighted. This knowledge ensures that glasses correct eyesight accurately, improving clarity and visual comfort in daily life.
56. State whether the given statement is True or False:
- (a) True**
Explanation:
True
 - (b) (a) True**
Explanation:
True
 - (c) (a) True**
Explanation:
A microscope is used to magnify very small objects such as cells and microorganisms that cannot be seen with the naked eye. It helps scientists study their structure and details clearly.
57. Good health depends on a combination of lifestyle choices and medical support. A balanced, nutritious diet and regular exercise strengthen the body and keep it active. Medicines are used to treat illnesses, while vaccines prepare the immune system to fight specific infections. Together, these factors ensure we stay healthy, prevent diseases effectively, and recover more quickly when sick, promoting long-term physical well-being and overall fitness.
58. Classification groups materials and organisms based on shared properties, such as solids, liquids, gases, elements, compounds, and mixtures. It makes studying and identifying them easier. By knowing categories, scientists can better understand particle behavior, solutions, and relationships in nature, improving systematic study and knowledge organisation.
59. Air pressure differences influence the movement of air in our atmosphere. When the pressure difference is small, it results in gentle breezes that bring comfort and freshness. However, larger differences create strong winds and even cyclones, which can be destructive. These shifts in air movement affect daily life, agriculture, and human safety by influencing weather conditions, crop growth, and disaster preparedness, making air pressure an important factor in our environment.
60. An observation is something we directly notice through our senses or measurement, such as seeing a puri puff up while frying in oil. An inference, on the other hand, is a logical conclusion drawn from that observation- example, assuming steam inside the puri caused it to swell. Observations provide factual information, while inferences help us explain those facts, linking cause and effect to build understanding of natural processes and daily phenomena.
61.
 - When results are unexpected, scientists do not give up; they rethink their plan. Suppose you expect a homemade solar oven to melt chocolate quickly, but it stays solid.
 - You check for problems like leaks in the foil, angle of sunlight, or lid gaps. You then adjust one part, such as sealing edges better or changing the angle. After retesting, you compare new results with the old ones.
 - This cycle of testing and improving makes ideas stronger and more accurate.
62. A single drop of water holds a hidden world of microscopic organisms, many invisible to the naked eye yet closely connected to our lives. Some are beneficial- helping in digestion, producing vitamins, or even aiding in the creation of medicines like antibiotics. Others can be harmful, causing diseases such as cholera or dysentery when contaminated water is consumed. Staying healthy involves more than avoiding harmful microbes; it also means boosting our body's defences through nutritious food, regular exercise, medicines, and vaccines. Understanding these tiny life forms helps us protect ourselves and use their benefits wisely.
63.
 - Curiosity starts when you notice something unusual, like why cut apples turn brown after some time. You then ask a clear question, such as whether lemon juice can slow the browning.

- Next, you plan steps to test this idea by treating apple slices with lemon, salt water, and plain water. You keep other conditions the same, like slice size and room temperature.
- You observe and record how fast each slice changes color. Finally, you use your results to explain which treatment worked best and why.

64. Fill in the blanks:

- (a) Smooth
- (b) particles
- (c) Observation
- (d) Randomly
- (e) reflect and refract
- (f) illuminated
- (g) Sun
- (h) cyclones
- (i) pressure
- (j) Atmospheric

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