Republic of the Philippines
Department of Education
National Capital Region
SCHOOLS DIVISION OF TAGUIG CITY AND PATEROS

FIRST TERM DIAGNOSTIC TEST IN SCIENCE 6
School Year 2026-2027

Name: _____ Grade & Section: _____
Teacher: _____ Date: _____

Directions: Read each question carefully. Choose the letter of the correct answer and write it on your answer sheet.

1. What phase change occurs when a solid turns directly into a liquid because heat is added?

- **A.** Freezing
- **B.** Melting
- **C.** Evaporation
- **D.** Condensation

2. Which of the following processes requires a substance to release or lose heat energy to its surroundings?

- **A.** Sublimation
- **B.** Freezing
- **C.** Melting
- **D.** Evaporation

3. What process is shown when water droplets form on the cold outer surface of a glass of ice juice?

- **A.** Condensation
- **B.** Evaporation
- **C.** Melting
- **D.** Freezing

4. When you boil water in a covered pot, steam rises, hits the lid, and converts back into liquid droplets. Which sequence correctly tracks the state changes involved?

- **A.** Liquid -> Solid -> Liquid
- **B.** Gas -> Liquid -> Gas
- **C.** Liquid -> Gas -> Liquid
- **D.** Solid -> Gas -> Liquid

5. Why does wet laundry dry faster under the hot sun compared to a cloudy day?

A. Solar heat energy accelerates the rate of evaporation.

B. The sun directly cools the liquid water until it solidifies.

C. Clouds chemically alter water into gas molecules.

D. High temperatures cause the fabric fibers to squeeze water out.

6. Imagine an ice cube sitting in a warm room. How does heat energy interact with the ice during this phase shift?

A. The ice releases cold energy into the air to stay solid.

B. Heat energy flows from the room into the ice, increasing molecular movement.

C. The ice creates its own internal heat energy to destroy its bonds.

D. Heat energy moves away from the ice cube, causing it to liquefy.

7. A student creates a flowchart tracking water as it moves from a puddle to a cloud, and finally down as rain. Which set of labels belongs in the process boxes?

A. Melting followed by Freezing

B. Evaporation followed by Condensation

C. Condensation followed by Sublimation

D. Freezing followed by Evaporation

8. What happens to the behavior of gas particles when they lose a significant amount of heat energy?

A. They speed up and expand to fill a much larger volume.

B. They slow down, pull closer together, and may form a liquid.

C. They immediately break apart into raw atomic radiation.

D. They convert into solid particles without changing positions.

9. Analyze a closed system where a block of dry ice (solid carbon dioxide) disappears without leaving any wet residue. What can you infer about the energy changes taking place?

A. The dry ice absorbed heat rapidly, skipping the liquid phase entirely.

B. The dry ice lost all its thermal energy, triggering sudden chemical degradation.

C. Atmospheric pressure forced the solid to compress into an invisible crystal.

D. Surrounding air absorbed moisture from the dry ice, changing its mass.

10. Which of the following is an example of a physical change that can be easily reversed to its original state?

A. Baking a chocolate cake

B. Burning dried leaves

C. Melting a stick of butter

D. Rusting of an iron nail

11. Why is the crumpling of a sheet of notebook paper categorized as a physical change rather than a chemical change?

A. No new chemical substance is created during the process.

B. The action cannot be reversed under normal room conditions.

C. The mass of the paper doubles when it changes shape.

D. A bright flash of light and smoke are released during crumpling.

12. A clear liquid is mixed with another clear liquid in a beaker. A yellow solid suddenly forms at the bottom, and the beaker gets hot. What does this indicate?

A. A physical change occurred because the materials simply mixed together.

B. A chemical change occurred because a new substance and heat were produced.

C. A reversible change happened because you can dissolve the solid by shaking it.

D. An evaporation phase change took place because liquids combined.

13. Which scenario demonstrates an irreversible chemical change?

A. Dissolving spoonfuls of white sugar into hot coffee

B. Freezing liquid water into solid ice cubes

C. Frying an egg until the clear albumen turns solid white

D. Slicing fresh ripe mangoes into small cubes

14. Contrast the rotting of a banana with the slicing of a banana. Which statement best evaluates their irreversibility?

A. Slicing is irreversible because you cannot perfectly rejoin the cells, but it is a chemical change.

B. Rotting is a chemical change because new substances form, making it fundamentally irreversible.

C. Both events are physical changes since the banana remains fruit matter throughout.

D. Slicing is a chemical change, while rotting is a physical change that can be undone by cooling.

15. What type of mixture is formed when salt completely dissolves in water, presenting a completely uniform appearance throughout?

A. Heterogeneous mixture

B. Solution

C. Suspension

D. Insoluble emulsion

16. Which of the following household mixtures is an example of a non-uniform or heterogeneous mixture?

A. Clear soy sauce

B. Halo-halo dessert

C. Carbonated soft drink

D. Clean tap water

17. Air is a vital mixture that surrounds us. Which gas makes up the largest percentage of this atmospheric mixture?

A. Oxygen

B. Carbon dioxide

C. Nitrogen

D. Water vapor

18. Which tool or method is most effective if you want to quickly separate a mixture of iron filings and sand?

A. Evaporation

B. Filter paper

C. A strong magnet

D. A fine sieve

19. You are given a muddy water sample collected from a local river. Which technique should you use to separate the heavy suspended mud particles that settle at the bottom by carefully pouring out the clear water?

A. Decantation

B. Winnowing

C. Scooping

D. Evaporation

20. A baker wants to remove large lumps from a bowl of flour to ensure a smooth cake batter. What separation technique should be applied?

A. Filtering

B. Sieving

C. Decantation

D. Picking

21. Farmers in rural areas throw harvested grain into the air to let the wind blow away the light, unusable husks or chaff. What is this separation technique called?

A. Filtering

B. Winnowing

C. Scooping

D. Sieving

22. Why can evaporation be used to successfully separate a mixture of salt and water?

A. Salt dissolves completely and turns into gas before the water does.

B. Water has a lower boiling point than salt and escapes as vapor, leaving the solid salt behind.

C. The heat destroys the salt molecules, converting them into invisible particles.

D. Water freezes rapidly while salt expands into large crystalline blocks.

23. Which mixture requires a piece of filter paper or a fine cloth mesh to separate its solid components from the liquid?

A. Vinegar and soy sauce mixture

B. Ground coffee beans steeped in hot water

C. Sugar dissolved completely in warm milk

D. Cooking oil floating on top of pure water

24. In a coastal community, people gather seawater and store it in wide, shallow ponds under the sun to produce sea salt. How does this separation technique benefit the community?

A. It purifies the seawater into drinkable freshwater lakes.

B. It provides a local source of dietary salt for food preservation and cooking.

C. It eliminates harmful fish populations from the shoreline.

D. It cools down the local environment through mass cloud creation.

25. A child accidentally drops a box of steel paperclips into a sandbox. What is the fastest, cleanest way to retrieve all the paperclips without making a mess?

A. Pouring water into the box to float the clips

B. Running a magnet through the sand to attract the steel items

C. Passing all the sand through a fine laboratory filter paper

D. Picking each paperclip out one by one using a pair of tweezers

26. Which of the following mixtures is best classified as a suspension?

A. Hot tea with dissolved honey

B. Antibiotic medicine powder shaken with water

C. Clear seawater filtered from debris

D. Bleach solution used for disinfection

27. Suppose you are stranded on an island with only muddy seawater. How could you combine two separation techniques to produce both dry salt and clear, safe water?

A. Winnow the mud out, then scoop the salt crystals from the surface.

B. Sieve the large stones out, then use a magnet to draw out the salt particles.

C. Filter the muddy water to remove suspended dirt, then evaporate and condense the water.

D. Decant the top layer immediately, then use a chemical catalyst to freeze the mud.

28. Examine the air composition. Why is the presence of carbon dioxide in the air mixture crucial for life on Earth, despite its small percentage?

A. Humans require carbon dioxide to breathe in during respiration.

B. Green plants need carbon dioxide to undergo photosynthesis and create food.

C. It acts as the primary fuel source for lightning storms.

D. It prevents water vapor from turning into clouds.

29. What is a primary requirement of a fair test in a scientific investigation?

A. Changing all experimental factors at the exact same time

B. Modifying only one factor while keeping all other conditions identical

C. Using different types of equipment for each trial run

D. Allowing the human observer to guess the measurements

30. In an experiment, what do we call the factor or condition that the scientist intentionally changes or manipulates?

A. Controlled variable

B. Independent variable

C. Dependent variable

D. Constant trial

31. Why is it highly recommended to perform at least three trials when conducting a science experiment?

A. It ensures that the experiment takes a long time to finish.

B. It reduces the impact of accidental errors and makes the results more reliable.

C. It allows the student to use up all the remaining laboratory samples.

D. It changes the independent variable automatically during the process.

32. A student wants to find out which brand of fertilizer makes tomato plants grow the tallest. What factor must be kept the same for all the plants to ensure a fair test?

A. The brand of fertilizer used on each plant

B. The amount of water and sunlight each plant receives

C. The final height reached by each individual tomato plant

D. The day the fertilizers are completely changed

33. You want to test how temperature affects the speed at which sugar dissolves in water. Which setup represents a fair test?

A. Dissolving sugar in hot water while stirring, and dissolving sugar in cold water without stirring.

B. Dissolving different amounts of sugar in unequal amounts of hot and cold water.

C. Dissolving 5 grams of sugar in 100 mL of hot water and 5 grams of sugar in 100 mL of cold water, stirring both at the same rate.

D. Using a sugar cube in hot water and refined powder sugar in ice-cold water.

34. Two students measure the time it takes for a toy car to roll down a ramp. Student A uses a digital stopwatch, while Student B counts seconds in their head. Whose data is more accurate, and why?

A. Student B, because human counting is immune to battery failure.

B. Student A, because a digital stopwatch provides precise, standardized time measurements.

C. Both are equally accurate because time is always subjective in physics.

D. Student B, because counting allows the student to adjust the ramp mid-way.

35. A group records these heights for a plant over three separate trials under identical conditions: 12 cm, 12 cm, and 13 cm. What should they do to report their final findings properly?

A. Discard the 13 cm reading because it does not match the other two perfectly.

B. Add all measurements together and report the sum as the true height.

C. Calculate and record the average value of the three trials to ensure accuracy.

D. Change the previous logs to make all three trials read exactly 12 cm.

36. Imagine you are investigating how the weight of a pendulum bob affects its swing rate. If you change the bob weight, what must you do with the string length?

A. Double the string length for the heaviest bob.

B. Keep the string length exactly the same across all tests.

C. Shorten the string length progressively with each new trial.

D. Remove the string and let the bob drop freely.

37. A scientist claims a new medicine cures headaches. Other researchers across the country run the exact same experiment with identical controls and find no cure. What feature of a good investigation did the first scientist fail to secure?

A. Complex variable manipulation

B. Proper replication and verification by others

C. Changing multiple conditions simultaneously

D. Graphic design of data tables

38. Which component of the circulatory system acts as the main pump that pushes blood to all parts of the human body?

A. Lungs

B. Blood vessels

C. Heart

D. Kidneys

39. How do blood vessels called arteries differ in function from veins?

A. Arteries carry oxygen-rich blood away from the heart; veins return oxygen-poor blood back to the heart.

B. Arteries carry solid nutrients; veins carry gaseous wastes only.

C. Arteries bring blood to the lungs; veins pump blood directly to the brain cells.

D. Arteries have valves to prevent backward flow; veins have thick muscular walls.

40. What is the primary role of red blood cells circulating within our blood plasma?

A. To fight off invading bacteria and viruses entering a wound

B. To form solid scabs that seal damaged skin cells

C. To bind with oxygen in the lungs and deliver it to body tissues

D. To digest large sugar molecules before they reach the stomach

41. Predict what will most likely happen to the human body if the blood vessels become severely blocked by fatty cholesterol deposits.

A. The heart will pump less blood but with much lower physical effort.

B. Blood flow will be restricted, forcing the heart to work harder and increasing blood pressure.

C. The body will automatically produce more blood to dissolve the fat deposits.

D. Oxygen delivery to vital organs will instantly increase.

42. What type of plant reproduction involves the transfer of pollen grains from the anther to the stigma of a flower?

A. Vegetative propagation

B. Spore formation

C. Pollination

D. Grafting

43. Which of the following plants can naturally reproduce through specialized underground stems known as tubers or bulbs?

A. Mosses and ferns

B. Potato and onion plants

C. Pine trees and sago palms

D. Mango and papaya trees

44. A gardener wants to grow 50 identical rose bushes that bloom with the exact same shade of red as the parent plant. Which method should they choose?

A. Planting seeds collected from the autumn blooms

B. Using stem cuttings from the original red rose bush

C. Cross-pollinating the rose with a white hibiscus flower

D. Waiting for natural spore production to occur on the leaves

45. What is the main structural difference between pollination and artificial plant propagation?

A. Pollination is a form of sexual reproduction involving gametes; propagation is asexual and uses vegetative parts.

B. Propagation requires insects like bees, while pollination only uses sharp knives.

C. Pollination produces exact clones; propagation introduces genetic variations.

D. Propagation only occurs in water, while pollination happens exclusively in soil.

46. You are planning an investigation to find out if stem cutting or air layering results in faster root growth for garden hibiscus plants. How should you design your experiment to make sure it is a fair test with accurate measurements?

A. Give the stem cuttings more water and fertilizer than the air-layered branches.

B. Use identical hibiscus parent plants, keep environmental factors constant, run three trials for each method, and measure root length weekly with a ruler.

C. Test the stem cuttings in a dark indoor closet and the air layering out in the open garden.

D. Measure root growth by guessing the weight of the plants by lifting them up with your hands.

47. Which of the following pairs of animals consists entirely of vertebrates?

A. Earthworm and Grasshopper

B. Tilapia fish and Carabao

C. Sea anemone and Starfish

D. Housefly and Jellyfish

48. How do scientists distinguish an insect, such as an ant, from a mammal, such as a dog, based on skeletal structures?

A. Ants have an internal skeleton made of bone; dogs have an exoskeleton made of chitin.

B. Ants are invertebrates with a hard outer exoskeleton; dogs are vertebrates with an internal backbone.

C. Ants lack any protective structural support; dogs have both an exoskeleton and an endoskeleton.

D. Ants have backbones made of soft cartilage; dogs lack backbones entirely.

49. Why is a local pond snail classified as an invertebrate while a frog living in the same pond is classified as a vertebrate?

A. The snail possesses a true bony spine, whereas the frog has only muscles.

B. The snail has no vertebral column or backbone, while the frog has a distinct bony spinal column.

C. The snail lays eggs, while the frog gives birth to live active young.

D. The snail breathes through lungs, while the frog uses gills throughout its life.

50. Imagine you find an unfamiliar animal in your backyard. It has smooth skin, moves using four legs, and a firm, hard ridge of bone can be felt running along the middle of its back. How should this animal be classified?

A. Invertebrate, because it lives in a local residential backyard.

B. Vertebrate, because the presence of a back ridge indicates an internal backbone.

C. Non-classified organism, because it lacks an visible outer shell.

D. Microscopic specimen, because it has four limbs.

ANSWER KEY (For Teacher's Use)

Question 1: B	**Question 11: A**	**Question 21: B**	**Question 31: B**	**Question 41: B**
Question 2: B	**Question 12: B**	**Question 22: B**	**Question 32: B**	**Question 42: C**
Question 3: A	**Question 13: C**	**Question 23: B**	**Question 33: C**	**Question 43: B**
Question 4: C	**Question 14: B**	**Question 24: B**	**Question 34: B**	**Question 44: B**
Question 5: A	**Question 15: B**	**Question 25: B**	**Question 35: C**	**Question 45: A**
Question 6: B	**Question 16: B**	**Question 26: B**	**Question 36: B**	**Question 46: B**
Question 7: B	**Question 17: C**	**Question 27: C**	**Question 37: B**	**Question 47: B**
Question 8: B	**Question 18: C**	**Question 28: B**	**Question 38: C**	**Question 48: B**
Question 9: A	**Question 19: A**	**Question 29: B**	**Question 39: A**	**Question 49: B**
Question 10: C	**Question 20: B**	**Question 30: B**	**Question 40: C**	**Question 50: B**