

STD 7 BS Model Paper 2

Answer Key

Activity 1

1. True or False:

- Heat travels from a hotter object to a colder object. True
- Radiation requires a medium to transfer heat. False

2. Why does the handle of a frying pan feel hot even if it is not directly heated?

- The heat from the pan is transferred to the handle through conduction, as metals are good conductors of heat.

3. Why do woolen clothes keep us warm in winter?

- Wool traps air, which is a poor conductor of heat. This prevents body heat from escaping, keeping us warm.

Activity 2

1. Five stages of nutrition in humans:

- Ingestion, Digestion, Absorption, Assimilation, Egestion.
- Absorption: Nutrients from digested food are absorbed into the bloodstream through the walls of the small intestine.

2. Fill in the blanks:

- Digestion of food starts in the mouth and is completed in the small intestine.
- The process of removing undigested food from the body is called egestion.

3. Why is chewing food properly important for digestion?

- Chewing breaks food into smaller pieces, increasing the surface area for enzymes to act on, making digestion easier and more efficient.

Activity 3

1. Differences between laboratory and clinical thermometers:

Feature	Laboratory Thermometer	Clinical Thermometer
Range	-10°C to 110°C	35°C to 42°C
Kink	Absent	Present to hold the temperature

2. Why is the kink in a clinical thermometer important?

- The kink prevents the mercury from falling back, allowing the temperature to be read accurately after it is removed from the body.

3. Convert 55°C to Fahrenheit:

$$F = \frac{9}{5}C + 32 = \frac{9}{5}(55) + 32 = 99 + 32 = 131^{\circ}F$$

Activity 4

1. Labeled diagram of the human respiratory system:

- The diagram should include nostrils, trachea, bronchi, alveoli, diaphragm.

2. Why are alveoli important for respiration?

- Alveoli provide a large surface area for gas exchange, allowing oxygen to enter the blood and carbon dioxide to exit.

3. Fill in the blanks:

- The diaphragm contracts and moves downward during inhalation.
- Air reaches the lungs through the trachea.

Activity 5

1. Laws of reflection:

- The angle of incidence is equal to the angle of reflection.
- The incident ray, reflected ray, and normal all lie in the same plane.
Importance: These laws help in designing mirrors, periscopes, and optical instruments.

2. Match the following:

Device	Principle
Kaleidoscope	(a) Multiple reflections
Plane mirror	(b) Reflection
Convex lens	(c) Refraction

3. Multiple reflections in a kaleidoscope:

- Multiple mirrors in a kaleidoscope create numerous reflections of light, forming beautiful symmetrical patterns.

Activity 6

1. Differences between land breeze and sea breeze:

Feature	Land Breeze	Sea Breeze
Direction	From land to sea	From sea to land
Time	Night	Day

2. Why do coastal areas have moderate climates?

- Coastal areas are influenced by the heat capacity of water, which heats up and cools down slower than land, leading to moderate temperatures.

3. Diagram of land breeze:

- Include labels for land, sea, warm air rising, and cool air descending.

Activity 7

1. Functions of blood components:

- Plasma: Transports nutrients, hormones, and waste products.
- White Blood Cells (WBCs): Fight infections and build immunity.

2. Complete the table:

Part of the Circulatory System	Function
Heart	Pumps blood to all parts of the body
Blood Vessels	Transport blood throughout the body

3. Why is blood circulation important?

- Blood circulation delivers oxygen and nutrients to body cells and removes waste products like carbon dioxide.

Activity 8

1. Classification of objects:

Object	Type
A glass window	Transparent
Butter paper	Translucent
Aluminum foil	Opaque

Object	Type
Clear plastic sheet	Transparent

2. Correct option for translucent material:

- (b) Frosted glass

3. How frosted glass is made translucent:

- Frosted glass is made by sandblasting or acid etching to create a rough surface that scatters light.