

MULTIPLE CHOICE QUESTIONS

1	2	6	2	11	3	16	3	21	2	26	1
2	3	7	2	12	4	17	3	22	3	27	3
3	1	8	2	13	3	18	1	23	3	28	3
4	4	9	4	14	3	19	1	24	4		
5	3	10	2	15	1	20	4	25	4		

OPEN-ENDED QUESTIONS

Q29a Number of steel paper clips attracted to the electromagnet

Number of batteries used	Number of steel paper clips attracted to the electromagnet
1	2
2	3
3	1
4	4

b Steel/Nickel/Cobalt

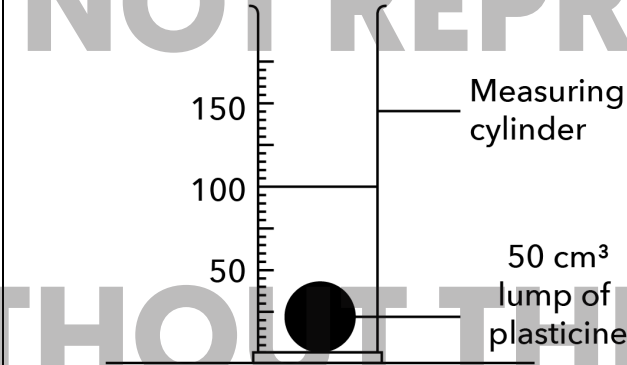
c

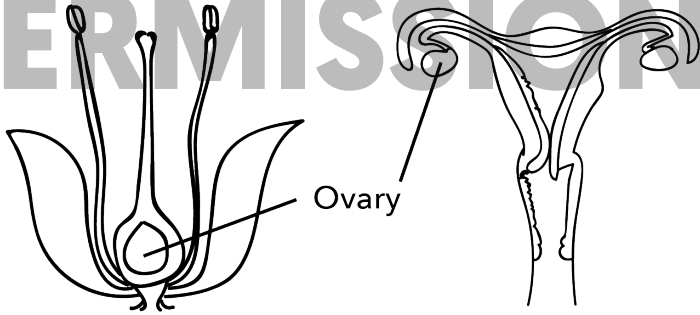
Variable	Kept the same	Changed
The number of batteries used		√
The type of paper clips	√	
The number of coils around the iron nail	√	
The distance between the electromagnet and the paper clips	√	

d As the number of batteries used in the circuit increases, the magnetic strength of the electromagnet increases.

*Since this is a "conclusion" questions, we have to relate the "number of steel paper clips attracted to the electromagnet" to the "magnetic strength of the electromagnet".

*Do not accept - "As the number of batteries used in the circuit increases, the number of steel paper clips attracted to the electromagnet increases."

Q30a	Metal is a good conductor of heat. Thus, the metal pot is able to conduct heat from the flame to the water quickly, allowing the water to be boiled quickly.
b	The metal pot gained heat from the flame to become warmer. The water in the metal pot gained heat from the warmer pot to boil.
Q31a	
b	The reading of the water level would still be 100cm ³ . Plasticine is a solid, which has a definite volume. Thus, even though the plasticine is flattened, it will still occupy 50cm ³ of space.
c	i) False ii) True
Q32a	i) False ii) True
b	Muscular system and skeletal system OR Respiratory system and circulatory system
c	The breathing rates of both Ben and Jack increase when they started jogging after 5 minutes. When Ben and Jack are jogging, their bodies need more energy. Thus, their breathing rates increase to take in more oxygen, which is pumped by the heart through the blood vessels to all parts of the body, which is used in the process of respiration to release more energy and carbon dioxide at a faster rate.
Q33a	Warmth and water
b	The seed leaf stores food, which is used by the seedling in the process of respiration to release energy for growth, until the true leaves are formed.
c	The seedling will be able to make its own food by Day 6. At Day 6, the first leaves have developed. Thus, the first leaves, which contain chloroplasts, which contain chlorophyll, would be able to trap light for photosynthesis to make its own food.
Q34a	Choose: Cell P. Use data: Unlike Cells Q and R, cell P does not have a cell wall Explain data: to give the cell a regular shape, which is only present in plant cells. Hence, Cell P must be an animal cell.
b	The nucleus controls all the activities in the cell.

c	Root cell B has an elongated protrusion, which increases the amount of exposed surface area of the roots in contact with the soil, allowing root cell B to absorb water and mineral salts from the soil faster.
d	Chloroplast
Q35a	The longer the the length of the wing-like structure, the longer fruit Z can stay in the air.
b	Dispersing their fruits far away from the parent plant reduce overcrowding and competition between the parent plant and the seedlings for water, space, mineral salts and sunlight, ensuring the healthier growth of the seedlings.
Q36a	<p>Choose: Flower X.</p> <p>Use Data: The anthers of Flower X are dangling outside the flower and the stigmas are feathery.</p> <p>Explain Data: The anthers dangle outside the flower so that the wind can carry pollen grains away easily. The stigmas are feathery to trap pollen grains in the air easily for pollination to take place.</p>
b	Flowers X and Y are not from the same species. Thus, fertilisation will not be able to occur.
Q37a	 <p>Reproductive system of a flower</p> <p>Reproductive system of a human female</p>
b	Fruit
c	<p>F</p> <p>T</p> <p>F</p> <p>F</p>
Q38a	<p>Steel.</p> <p>Step 1: When steel, a conductor of electricity, is used to make the target area,</p> <p>Step 2: there will be a closed circuit with the target area and the bulb.</p> <p>Step 3: Thus, electric current can then flow through the target area and the bulb,</p> <p>Step 4: allowing the bulb to light up.</p> <p>*Accept any material (solid) that is a conductor of electricity.</p>

b	<p>Step 1: When the player's weapon strikes the middle of the target board, Step 2: there is a closed circuit with the bulb. Step 3: Thus, electric current is able to flow through the circuit, Step 4: allowing the bulb to light up.</p>
Q39a	<p>Choose: Shirt A. Use Data: Shirt A was not folded. Explain Data: Shirt A has the largest exposed surface area in contact with the surrounding air. Thus, the water in shirt A will gain heat the fastest from the surrounding air to evaporate the fastest, allowing it to take the shortest time to dry completely.</p>
b	<p>1) Place the shirts in an open area where the temperature is higher than 25°C. 2) Place the shirts in front of a fan.</p>
c	<p>Evaporation of water occurs at any temperature below 100°C but boiling of water only occurs at boiling point (100°C).</p>
Q40a	<p>When the ice is melting from 0 to 4th minute, the temperature of the melting ice should stay constant at 0°C instead of increasing.</p>
b	<p>There is a change in state from liquid to gas.</p>
c	<p>The heat source has been turned off. OR Ice was added to the boiling water.</p>
Q41a	<p>The container needs to be air-tight to prevent water vapour in the container from escaping into the surrounding air.</p>
b	<p>The water in the moist soil gained heat from the surrounding air to evaporate to form water vapour. Water is also lost through the stomata of the leaves as water vapour in the process of transpiration. The warmer water vapour then rises and comes into contact with the cooler inner surface of the clear glass bottle, loses heat to it and condenses to form tiny water droplets. The water droplets fall back to the soil, allowing the soil to stay moist and the cycle repeats itself.</p>

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