

Answer

2024 Science Prelim (Anglo Chinese School (Junior))



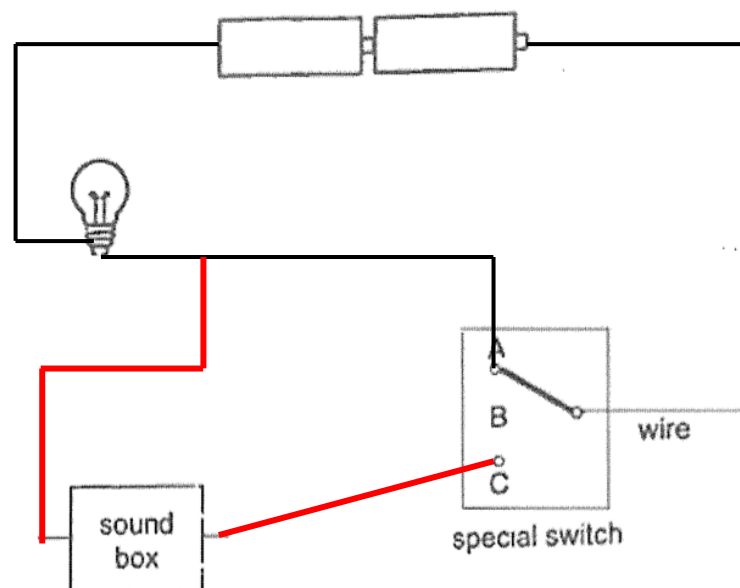
Booklet B

29)	a) <u>Blood vessels contain blood and allow blood to be transported to all parts of the body.</u> [1m] b) Digested food and carbon dioxide [1m] c) After eating, <u>the volume of blood supplied to head per minute is less but volume of blood supplied to small intestine per minute is more.</u> [1m]
30)	a) <u>Fruit A does not depend on any agents such as animal or wind to disperse its seeds</u>[1m] , hence, A has higher chance of seed dispersal. b) Seed C : The <u>hooks cling onto the body of animals and will be carried further away</u> from the parent plant. [1m] Seed D : The animals will <u>swallow the small seeds, which cannot be digested by the digestive system and passed out in the droppings further</u> away from the parent plant. [1m] c) As fruit gives off similar unpleasant smell like the dung, <u>animal Z would think that it is a food source to eat, hence rolling fruit of plant E further from the parent plant,</u> to its nest. [1m]

31)	a) <u>Animal S is attracted to the nectar as S gets to feed on the nectar produced by plant P.</u> [1m] <u>Plant P gets more nutrients and mineral salts from the droppings of animals</u> S, so that P can grow more healthily. [1m] b) When there are aphids, <u>animal S will kill and eat aphids for food</u>, hence getting rid of the pest for plant P. [1m]
32)	a) By using the spider-looking tail, animal V <u>can attract the spider's predator, such as a bird, to move towards itself.</u> [1m] When the animal is near, <u>animal V can kill and eat the animal with more ease.</u> [1m] b) Animal V can <u>hide behind big rocks to find shade</u> against the sun, so it will not overheat. [1m]
33)	a) Fill the measuring cylinder with <u>starting volume of water,</u> [0.5m] such as 100ml of water. Put in the <u>plasticine sculpture into the measuring cylinder and record the final volume of water</u> [0.5m]. <u>Calculate the difference between the final volume and starting volume to get the volume of plasticine sculpture.</u> [1m] b) Same. Plasticine is a solid and <u>solid has a definite volume.</u> [1m]
34)	a) To <u>find out how different materials, X, Y and Z, affects the amount of light detected by the light sensor.</u> [1m] b) Material Z. Z <u>allows some light to pass through.</u> [0.5m] As screen Z is translucent, [0.5m] <u>shadows created by the puppets can be formed on the screen which appears black</u> [0.5m] At the same time, <u>some light from the light source can pass through screen Z,</u> [1m] allowing shadows to be seen.

- 35) a) Grass lost heat to cool surroundings to become a cool surface. Warm water vapour in the surroundings lost heat to the cool surface of grass [1m] and condensed into water droplets. [1m]
- b) Dew gained heat and evaporated into water vapour. [1m]
- c) Corrugated surface has larger exposed surface area to water vapour in surroundings, [1m] so more water vapour can lose heat to the surface and condense more to form more water droplets [1m] to collect more dew.

- 36) a) The bulb and the sound box are arranged in series. [1m]
- b) There is an open circuit where no electric current can flow through. [1m]
- c) 1 mark for correct arrangement to light up bulb (wires are connected to tip and casing) when switch is at A. (black lines)
1 mark for correct **arrangement to light up both sound box and light bulb when switch is at C (red lines)**



37)	a) <u>Temperature of an object is the measurement of its degree of hotness.</u> [1m] b) <u>As time increased, the temperature of water in the metal cup decreased over 40 minutes.</u> [1m] c) Same volume of water ensures that <u>the amount of heat in the hot water is the same at the start.</u> [1m] d) Ceramic cup. Ceramic is a <u>poorer conductor of heat, so the ice cubes gained heat slower from outer surroundings.</u> [1m]
38)	a) A : (gravitational) potential energy [0.5m] B : kinetic energy [0.5m] b) i) Even without electrical energy, <u>the moving pendulum still possess some kinetic energy which can be converted to potential energy and back to kinetic energy continuously</u> for some time. [1m] ii) <u>All the kinetic energy of the moving pendulum is converted to heat and sound energy due to friction,</u> hence there is no kinetic energy in the pendulum. [1m]
39)	a) Iron bar X. There are <u>more coils wrapped around iron bar.</u> [1m] When switch is closed, <u>more electric current flows through the coil,</u>[1m] causing iron bar X to become a stronger electromagnet.

	b) When button is pressed, there is closed circuit where <u>electric current flows through iron bar X, causing X to become an electromagnet.</u> [0.5m] <u>Due to more coils, X is a stronger electromagnet than Y, it will exert a greater magnetic force of attraction on the steel gate, pulling it towards the left side,</u>[1m] thus allowing packet of food to fall due to gravity. When button is released, the electromagnet X is demagnetized while <u>the electromagnet of iron bar Y will attract the steel gate</u> [0.5m] to close the food shelf. c) <u>Copper is not a magnetic material, hence cannot be attracted</u> by any electromagnet. [1m]
40)	a) <u>Increasing the mass of the blocks will cause the distance moved by blocks to decrease.</u> [1m] b) No. <u>Comparing block G and H, even when area of contact is larger for block H, the distance moved is constant at 9 cm.</u> [1m] Hence, area of contact has no effect on distance. c) 12 cm [1m]