



**YEW TEE PRIMARY SCHOOL
PRELIM PRACTICE PAPER SET 1
PRIMARY 6 SCIENCE
MARK SCHEME**

Booklet A

Question No	Correct Answer	Question No	Correct Answer	Question No	Correct Answer
1	1	11	2	21	1
2	1	12	4	22	4
3	2	13	3	23	3
4	2	14	1	24	4
5	4	15	3	25	3

6	3	16	2	26	2
7	4	17	3	27	1
8	3	18	1	28	2
9	1	19	4		
10	4	20	2		

Booklet B

Specific Instructions for Markers

1. Each question carries 2 to 5 marks.
2. Award the full mark for a question or part question when the idea/concept is correct.
3. Do not award any mark if the answer expresses a wrong idea/concept.
4. Do not deduct any mark for an answer that is not well expressed or has grammatical errors, provided the idea/concept is correct.
5. Do not deduct any mark for an answer that is dependent on a previous wrong answer which has been penalised (Error Carried Forward or EFC).

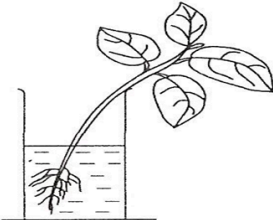
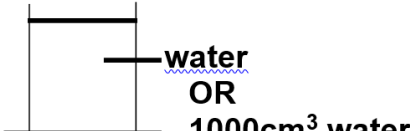
Qn	Correct/Acceptable Answers	Marks	Remarks	Marker's Comments / Common Errors or Misconceptions
29a	<p><u>Advantage 1</u> To reduce competition for space, nutrients, water and light (1) <i>1m – 3 or 4 conditions stated</i> <i>1/2m – 2 conditions stated</i></p> <p><u>Advantage 2</u> The seeds can be dispersed / carried further away from parent (1) OR Reduce overcrowding (1)</p> <p><u>Advantage 3</u> The droppings give nutrients to the young plant (1). OR The droppings are fertiliser to the young plant (1). OR The warmth from the faeces of the Animal Y aids in germination of the seeds. (1)</p>	2m	<p>Must show comparison for Advantage 2</p> <p><u>DNA</u> Dropping give nutrients to seeds</p>	
29b	C. It has hooks to attach/cling to the fur / body / spines / spikes / needles of Animal Y.	1m	<p><u>DNA</u> 0m – wrong fruit selected</p>	

30a	It is the fusion of the male and female sex cells. OR Male reproductive cell fuse with female reproductive cell. OR Pollen and ovule fuse . OR Nucleus of pollen grains fuses with nucleus of ovule	1m	<u>DNA</u> -merger -male/female part -male/female plant cell -male/female cell -fertilise	
30b	Ovule	1m		
30c	It increases the number of pollinators attracted to the flower ($\frac{1}{2}$) so increases the chance of flower Z being pollinated ($\frac{1}{2}$). OR It can attract more pollinators ($\frac{1}{2}$) so increases chance of flower Z being pollinated ($\frac{1}{2}$). OR It can attract pollinators ($\frac{1}{2}$) so increases chance of flower Z being pollinated ($\frac{1}{2}$).	1m	<i>animals/insects also accepted in place of pollinators</i> <u>DNA</u> pollinate faster	Common error: state only function of petal and purpose of attracting pollinators e.g. "attract pollinators to help pollinate the flower"
30d	Part F is more exposed to sunlight ($\frac{1}{2}$). So it can make more food / photosynthesis more / increase rate of photosynthesis ($\frac{1}{2}$). OR Part F is not blocked by petals from sunlight ($\frac{1}{2}$). So it can make more food / photosynthesis more / increase rate of photosynthesis ($\frac{1}{2}$). OR Part F can get / absorbed more sunlight ($\frac{1}{2}$). So it can make more food / photosynthesis more / increase rate of photosynthesis ($\frac{1}{2}$).	1m	<u>DNA</u> - More surface area	Common errors: No comparison made
30e	QR. The butterflies are in caterpillar stage ($\frac{1}{2}$) so there is less butterflies to pollinate the flowers ($\frac{1}{2}$). OR QR. There are less leaves so less butterflies will visit plant Z ($\frac{1}{2}$) so reduced pollination of plant Z ($\frac{1}{2}$). OR	1m	0m – no mention of butterflies pollinating the flowers	Most students relate less leaves to making less food to having less flowers so less become fruit.


	QR. There are less leaves so less food is made, hence having less flowers for butterflies to pollinate ($\frac{1}{2}$) so reduced pollination of plant Z ($\frac{1}{2}$).			
31a	<p>To allow gaseous exchange. OR For gaseous exchange. OR Exchange gas/gases OR To take in carbon dioxide and give out oxygen during photosynthesis/make food. OR To take in oxygen and give out carbon dioxide during respiration.</p> <p><u>Partial</u></p> <ul style="list-style-type: none"> - To take in carbon dioxide and give out oxygen ($\frac{1}{2}$) <i>[process not stated]</i> - To take in oxygen and give out carbon dioxide ($\frac{1}{2}$) <i>[process not stated]</i> - To take in carbon dioxide during photosynthesis ($\frac{1}{2}$) <i>[incomplete]</i> 	1m	<u>DNA</u> <ul style="list-style-type: none"> - Take in carbon dioxide - Give out oxygen - To help leave/plant photosynthesize/make food - Trap sunlight (for photosynthesis) 	
31b	The stomata size increases when there is more light ($\frac{1}{2}$). So leaves can take in more carbon dioxide ($\frac{1}{2}$).	1m	<u>DNA</u> When stomata size increases/ is bigger, rate of photosynthesis is higher	
31c	There were more stomata on the upper surface than lower surface of the leaves (1). So more stomata were covered/closed/blocked in leaf X ($\frac{1}{2}$). So leaf X took in less carbon dioxide($\frac{1}{2}$)	2m	Comparison must be made <u>DNA:</u> less gaseous exchange	

32a	<pre> graph TD LPB[lower part of the body] -- B --> H[heart] H --> L[lungs] L --> H H -- A --> UPB[upper part of the body] UPB --> H </pre>	1m	1/2m for each correct arrow	
32b	Oxygen	1m		
32c	<p>A carries blood rich in oxygen and poor in carbon dioxide. But Y carries blood poor in oxygen and rich in carbon dioxide.</p> <p><u>Partial</u> : If only 1 gas is compared, it must be the same gas</p> <ul style="list-style-type: none"> - A carries blood rich in oxygen but Y carries blood poor in oxygen. (½) - A carries blood poor in carbon dioxide but Y carries blood rich in carbon dioxide. (½) 	1m	<p>Comparison must be made for both gases.</p> <p><u>DNA</u> Comparing different attribute eg A is rich in oxygen but Y is rich in carbon dioxide</p> <p><u>DNA</u> Student wrote B instead of Y</p>	
32d	<p>Fish has a single circuit for blood flow but human has double circuit.</p> <p>OR</p> <p>Fish has single loop circulation but human has double loop circulation.</p> <p>OR</p> <p>In 1 circulation, the blood in fish flows through the heart once only but in human, blood flows through the heart twice.</p>	1m	<p><u>DNA</u> In fish, blood flows in 1 direction but 2 directions in humans.</p> <p><u>DNA</u> In 1 circulation, the blood in fish flows through the body once only</p>	<p>Common mistake: The blood in fish circulates once but the blood in human circulates twice.</p>

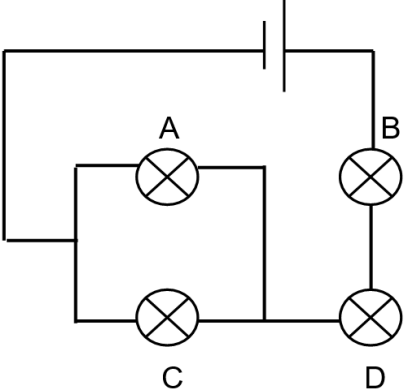
	<p>OR</p> <p>In humans, both blood rich and poor in oxygen flow through the heart but in fish only blood poor in oxygen flow through the heart.</p> <p>OR</p> <p>Blood (rich in oxygen) flows from the lungs go to the heart first before going to the rest of the body while the oxygen from the gills goes to the rest of the body first before going to the heart.</p>		but in human, blood flows through the body twice.	
33a	<p>i) The volume of air she breathed (in and out) increased./ Breathed more amount of air. (½)</p> <p>ii) The breathing rate increased / faster. (½)</p> <p>OR</p> <p>Breathing is faster.(½)</p> <p><u>Also accept:</u></p> <p>Breathing more frequent</p> <p>Breathing rate was less frequent before exercising</p> <p>The interval between every breath is shorter during exercise.</p> <p>Shorter interval when air is breathed in and out.</p> <p>Before exercising , breathing was calmer and slower than when she was exercising.</p>	1m	<p><u>DNA</u></p> <p>If students write only breathe in OR out.</p> <p>Take in more oxygen and give out more carbon dioxide than before exercising.</p> <p>Number of times she breathed increased (have to mention “per minute”).</p> <p>Breathed more regularly.</p>	
33b	The carbon dioxide is absorbed into the blood and transported to lungs and leaves through the nose.	1m No partial marks.	<p><u>DNA:</u></p> <p>Blood rich in carbon dioxide goes to heart then the lungs and then out of the mouth / nose. <i>[Saying that blood is coming out, not carbon dioxide]</i></p>	
34a	The decrease / loss in water is <u>also</u> due to evaporation. OR	1m	<p><u>Wrong concept (deduct ½ m)</u></p> <p>Leaves absorb water</p>	Water can evaporate / evaporated (½ m)

	<p>The decrease / loss in water is due to evaporation and plant/roots absorbing water.</p> <p>OR</p> <p>Water is evaporating so cannot conclude if the decrease / loss in water is due to plant/roots absorbing water.</p>		<p><u>DNA</u></p> <p>- There is no control setup</p> <p>- A control setup is needed</p>	Water also evaporated / can also evaporate (1m)						
34b	<div><p>Beaker R</p></div> <div><p>Beaker S</p></div> <p>1m – correct drawing of water at the same level with set-up R</p> <p>OR</p> <p>volume 1000cm³ is indicated in label</p>	1m	<p>No partial mark</p> <p><u>DNA</u></p> <p>- A layer of oil on water</p>							
34c	Measure the volume of water left in S and R and find the difference between them.	1m	<p>No partial mark</p> <p><u>DNA</u></p> <p>- Compare the volume of water left in S and R (no mention of exact volume)</p>							
35a	Flexibility	1m	-							
35b	Use F that is same length as G. OR Use G that is same length as F.	1m								
36a	<table border="1"><thead><tr><th>Observation</th><th>Yes</th><th>No</th></tr></thead><tbody><tr><td>Did light sensor 1 detect light?</td><td>✓</td><td></td></tr></tbody></table>	Observation	Yes	No	Did light sensor 1 detect light?	✓		1m	½ m for each correct pair of observation and result.	
Observation	Yes	No								
Did light sensor 1 detect light?	✓									

	<table><tr><td>Did alarm 1 go off?</td><td>✓</td><td></td></tr><tr><td>Did light sensor 2 detect light?</td><td></td><td>✓</td></tr><tr><td>Did alarm 2 go off?</td><td></td><td>✓</td></tr></table>	Did alarm 1 go off?	✓		Did light sensor 2 detect light?		✓	Did alarm 2 go off?		✓			
Did alarm 1 go off?	✓												
Did light sensor 2 detect light?		✓											
Did alarm 2 go off?		✓											
36b	<p><u>Suggestion (1m)</u></p> <p>Place all the jars touching one another. (1) OR Arrange jars with no gaps / space / interval between them. (1)</p> <p><u>Explanation (1m)</u></p> <p>(The alarm will go off when there is no jar) as light will not be blocked (1) so it is false alarm. OR (The alarm will go off at gaps / space / interval between jars) as light is not blocked (1) so it is false alarm.</p>	2m	<p>Accept:</p> <p>Light cannot pass through the gap. Light will not be detected by the light sensor. Light will not reach the light sensor.</p> <p>*Students do not need to mention that the alarm will not go off.</p> <p><u>DNA</u> Place all the jars closer to each other.</p>										
37a	<p>The water is boiling (½) and boiling takes place at a fixed temperature/remains constant at 100°C/change of state (½). OR It has reached boiling point (½) of 100°C (½).</p>	1m											
37b	<p>Beaker A. The metal plate has a larger surface area in contact with beaker A (½) so more heat can be conducted/transferred/flowed/gained to the beaker (½). OR Beaker A. The metal plate has a larger surface area in contact with beaker A (½) so heat can be conducted/transferred/flowed to the beaker faster (½).</p>	1m	<p>0m – no comparison</p> <p>DNA: A has larger exposed area (no mention of contact)</p>	<p>There is air in the gaps and air is a poor conductor of heat</p>									
38a	<p>Jack repeated the experiment (½) so his results are more reliable (½) than Ella's.</p>	1m	<p>If student mentioned both “accurate” and “reliable”, it will be ½ - ½ = 0</p>										

38b	<p><i>1m – stating how height affects depth of dent</i></p> <p>When the ball is dropped from higher, the dent is deeper (1).</p> <p><i>1m – explaining the results in terms of energy conversion</i></p> <p>The ball has more (gravitational) potential energy when it is higher. So it will convert to more kinetic energy when it is dropped. (1)</p>	2m	-	
38c	The <u>magnet will attract ball so fingers will not make dent deeper / more dented (½)</u> so results will be more accurate (½).	1m	<u>DNA</u> - More dent (indicates number of dents)	
39a	Table top lost heat to the cold drink/cup (½). Warmer water vapour in the air touches the cooler underside of the table top (½), loses heat (½) and condenses (½) into water droplets.	2m		
39b	<p>The cloth slowed down/reduce heat loss from table top to cold drink (½) so rate of condensation is slower (½).</p> <p><u>Partial</u> The cloth is a poor conductor of heat (½). The table is less cold (½)</p>	1m		
40a		1m		
40b	The more load added, the more spring compressed (½) until 120kg where it cannot be compressed further (½).	1m	<u>DNA</u> the more the spring compressed, the more the load was added <i>[wrong cause and effect]</i>	
40c	A less than 40kg person will not compress spring enough / by 2cm. The metal plate will not touch the first/top contact so circuit is open/not closed. So no bulb light up. (1m)	2m	If student mentioned “too heavy/too light” instead of exact values 40kg and 120kg, deduct ½m in total	students do not define the weight limits.

	<p>A 120kg or more person will compress / push spring by 6cm. Then the metal plate will touch the second / bottom contacts and close the circuit. Then the red light will turn on. (1m)</p> <p>OR</p> <p>A more than 40kg but less than 120kg will not compressed spring to the second / bottom but has left the first/top contact (1). So green lit up and then no bulb will light up. (1m)</p>			closing and opening of circuit not mentioned.									
40d	No. Spring T does not go back to original length at no load($\frac{1}{2}$) and a less than 120 kg person will compress the spring by 6cm/turn the light on.	1m		<p>Students use elasticity wrongly/loosely when there is no change in it.</p> <p>Evidence from graph is not used to generate results.</p> <p>Non-Original length @ zero load is not observed for the most part.</p>									
41a	<table><tr><td></td><td>Smallest number of bulbs remaining lit</td><td>Largest number of bulbs remaining lit</td></tr><tr><td>Circuit P</td><td>0</td><td>3</td></tr><tr><td>Circuit Q</td><td>2</td><td>2</td></tr></table>		Smallest number of bulbs remaining lit	Largest number of bulbs remaining lit	Circuit P	0	3	Circuit Q	2	2	2m	1/2m for each correct answer	
	Smallest number of bulbs remaining lit	Largest number of bulbs remaining lit											
Circuit P	0	3											
Circuit Q	2	2											

41b			<u>DNA</u> - Wire cut through bulb - Gap between wire and bulb/battery is too big	Most students had difficulty drawing the correct circuit diagram, especially the drawing of the parallel arrangement between bulbs A and C. Quite a number of them added in extra wire which resulted in a short circuit.
41d	(chemical) potential energy → electrical energy → light energy + heat energy	1m	No partial mark Ignore spelling error	