



THE PIQUE LAB LEARNING CENTRE
Primary School Science Programme



P4 CCI™ SCIENCE COURSE
Answer Booklet

Name: _____

Class: _____

TOPICS COVERED

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2026 P4 CCI™ SCIENCE COURSE
TOPIC: PLANTS, FUNGI & BACTERIA

Qn	Answer
Q1	4
Q2	1
Q3	3
Q4	4
Q5a	Reproduces by spores
b	Bracket fungi feed on the dead matter that they grow on by breaking them down into simpler substances and absorbing them.
c	<p><i>Any 2 of the following:</i></p> <ol style="list-style-type: none"> 1) Flowering plants produce flowers <u>but</u> bracket fungi do not produce flowers. 2) Flowering plants produce fruits <u>while</u> bracket fungi do not produce fruits. 3) Flowering plants reproduce by seeds <u>but</u> bracket fungi reproduce by spores. 4) Flowering plants make their own food <u>while</u> fungi feed on plants or animals, dead or alive.
Q6a	Mould/Bread mould
b	Reproduce by spores
c	Water, air (oxygen) and warmth.
Q7a	F makes its own food <u>but</u> H does not make its own food.
b	No. E makes its own food and reproduces by spores, <u>unlike</u> bacteria which feeds on plants or animals, dead or alive and does not reproduce by spores.

2026 P4 CCI™ SCIENCE COURSE
TOPIC: ANIMAL CLASSIFICATIONS

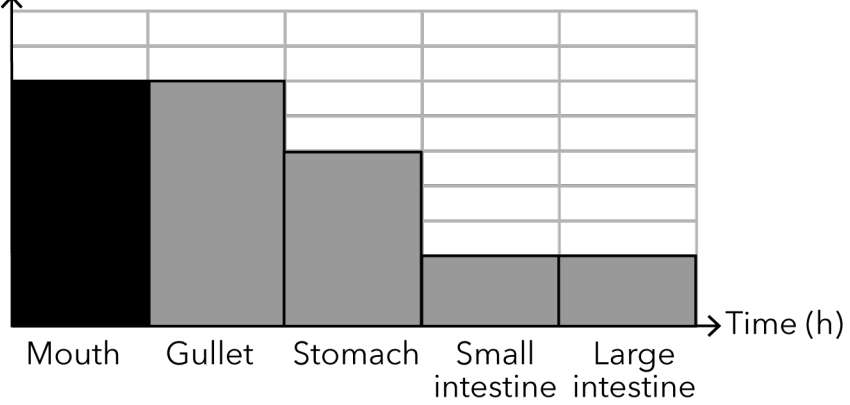
Qn	Answer
Q1	2
Q2	3
Q3	4
Q4	1
Q5a	P: Amphibians / Outer covering of moist skin Q: Mammals / Outer covering of hair R: Reptiles / Outer covering of dry skin covered with scales
b	R. A python has an outer covering of dry skin covered with scales.
c	1) They have hair as their outer covering. 2) The adults produce milk for their young.
d	1) The animals in both groups are cold-blooded. 2) The animals in both groups reproduce by laying eggs.
Q6a	X does not have scales and lays eggs.
b	Y has scales <u>but</u> X does not have scales.
c	Mammals: W Birds: X Insects: X Fish: Z Reptiles: Y Amphibians: X
Q7a	Animal X: Insects Animal Y: Fish
b	<i>Accept any 1 of the following:</i> <ul style="list-style-type: none"> • Has hair as its outer covering • Produce milk for their young • Warm-blooded • Gives birth to young alive • Breathes through lungs
c	Yes. W has more than 6 legs/3 body parts, <u>unlike</u> an insect which has 6 legs/3 body parts.

2026 P4 CCI™ SCIENCE COURSE
TOPIC: MATERIALS

Qn	Answer
Q1	3
Q2	1
Q3	3
Q4	1
Q5a	P, M, L, Q
b	Choose: P.
c	Use data: <u>All</u> the water that was poured onto P remained on the material. Explain: This shows that P is waterproof (Property). Thus, a drinking straw made of P would not absorb any of the drink, preventing any drink from leaking out of the straw (Purpose).
Q6a	Flexibility
b	Choose: D. Use data: Distance X for D was the least. Explain: This shows that D is the most flexible (Property). Thus, a strap made of D will be able to bend the most around the user's wrist, allowing the user to wear the watch most comfortably (Purpose).
Q7a	Choose: Y.
b	Use data: No light was detected by the light sensor when Y was tested. Explain: This shows that Y is opaque (Property). Thus, the bathroom door made of Y will not allow any light to pass through, preventing people outside the bathroom from seeing the person inside (Purpose).

2026 P4 CCI™ SCIENCE COURSE
TOPIC: DIGESTIVE SYSTEM

Qn	Answer	
FITB	<u>starts</u>	<u>Teeth ; chew</u>
	<u>Least</u>	<u>smaller</u>
	<u>Least</u>	<u>^DMouth</u>
	<u>digestion</u>	
	<u>Saliva ; digestive juices</u>	<u>Tongue</u>
	<u>simpler</u>	<u>surface area</u>
		<u>food</u>
	<u>muscular</u>	<u>digestive juices</u>
		<u>faster</u>
		<u>Gullet</u>
	<u>Mouth ; stomach</u>	<u>digestion of food</u>
	<u>Churns ; mixes</u>	
		<u>^DStomach</u>
	<u>digestive juices</u>	<u>a few hours</u>
		<u>starts</u>
	<u>Most</u>	<u>^DSmall intestine^A</u>
	<u>Most</u>	
	<u>digestion</u>	<u>Digested ; absorbed</u>
	<u>ends</u>	
	<u>bloodstream</u>	
<u>water</u>	<u>Large intestine^A</u>	
<u>undigested</u>		
<u>bloodstream</u>	<u>Anus</u>	
	<u>waste materials</u>	
	Pg 23 of P4 CCI Question Booklet 1	
Q1	3	
Q2	4	
Q3	3	
Q4	2	
Q5a	Digestive juices. Substance X can be found in parts P, Q and R.	
b	The absorption of water from undigested food into the bloodstream.	
c	The teeth chew food and break food into smaller pieces. This increases the surface area of the food in contact with the digestive juices for faster digestion of food.	
d	Both parts absorb substances into the bloodstream.	

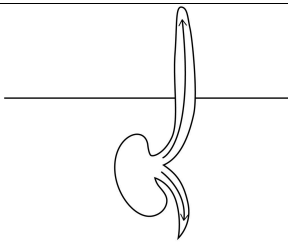
Q6a	No digestion takes place in the gullet as no digestive juices are released in the gullet.												
b	All the digested food has been absorbed through the small intestine into the bloodstream.												
Q7	<p>Amount of undigested food</p>  <p>Time (h)</p> <table border="1"> <caption>Data from Bar Chart: Amount of undigested food at different stages</caption> <thead> <tr> <th>Stage</th> <th>Amount of undigested food (relative units)</th> </tr> </thead> <tbody> <tr> <td>Mouth</td> <td>4.0</td> </tr> <tr> <td>Gullet</td> <td>3.5</td> </tr> <tr> <td>Stomach</td> <td>2.5</td> </tr> <tr> <td>Small intestine</td> <td>1.0</td> </tr> <tr> <td>Large intestine</td> <td>1.0</td> </tr> </tbody> </table>	Stage	Amount of undigested food (relative units)	Mouth	4.0	Gullet	3.5	Stomach	2.5	Small intestine	1.0	Large intestine	1.0
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Large intestine	1.0												

2026 P4 CCI™ SCIENCE COURSE
TOPIC: HUMAN SYSTEMS

Qn	Answer
Q1	3
Q2	4
Q3	2
Q4	1
Q5ai	System P: Respiratory System
aii	System Q: Circulatory System
b	Small intestine. The small intestine breaks down food into simpler substances and absorbs digested food into the bloodstream.
c	Lungs
Q6a	Ribcage
b	Heart and lungs
c	Skeletal system
Q7a	Respiratory system. It allows exchange of gases between the body and the surroundings / It takes in oxygen (air) into the body and removes carbon dioxide (air) from the body.
b	Lungs
c	Nose and windpipe
d	The digestive system breaks down food into <u>simpler substances</u> , which is <u>absorbed</u> through the small intestine into the <u>bloodstream</u> . The <u>heart</u> in the circulatory system then pumps <u>blood</u> containing <u>digested food</u> to <u>all parts of the body</u> .

2026 P4 CCI™ SCIENCE COURSE
TOPIC: PLANT SYSTEM AND PLANT CYCLE

Qn	Answer
FITB	<div style="border: 1px solid black; padding: 10px;"> <p>the adult stage</p> <p><u>SEED</u> → <u>SEEDLING</u> → <u>YOUNG PLANT</u> → <u>ADULT PLANT</u></p> <p><u>Protects</u></p> <p><u>Stores food ; true leaves are fully developed ; decreases</u></p> <p><u>sunlight ; food</u></p> <p><u>fruit</u></p> <p><u>reproduce</u></p> <p><u>Water</u> <u>Oxygen</u> <u>Warmth</u></p> <p>*<u>Sunlight is not needed for germination to take place.</u></p> <ul style="list-style-type: none"> • <u>Holds the plant firmly to the ground</u> • <u>Absorbs water and mineral salts from the ground</u> <p>*<u>Roots develop first, followed by the shoot, then true leaves</u></p> <ul style="list-style-type: none"> • <u>used up</u> • <u>wither ; fall off</u> • <u>relies</u> </div> <p>Pg 37 of P4 CCI Question Booklet 1</p>
Q1	3
Q2	4
Q3	3
Q4	1
Q5a	P: Seed leaf Q: Roots
b	Part P, which is the seed leaf, stores food which is used by the seedling to grow until the true leaves are fully developed.
c	The plant will die. If all of Part Q are removed, there will not be any roots to absorb water and mineral salts from the ground. Thus, the leaves will not be able to receive water to make food.
d	Flowers and/or fruits

Q6a	Factors required for germination: <u>Oxygen, water and warmth</u> Factor that does not affect germination: <u>Light</u>
b	The roots
c	
Q7a	Part X: Flower Part Y: Stem
b	The plant will die. When part Y is broken, the stem will be damaged. Thus, the water absorbed by the roots cannot be transported up to the leaves, causing them to be unable to make food.

2026 P4 CCI™ SCIENCE COURSE
TOPIC: ANIMAL LIFE CYCLE

Qn	Answer
Q1	4
Q2	2
Q3	1
Q4	2
Q5a	Q
b	<p>Animal P moults in the <u>larva</u> stage to <u>shed its hard outer covering</u> to <u>grow bigger</u>.</p> <p><i>P4 CCI Notes, Volume 3, Page 8 Q4</i></p>
Q6a	Both have an egg stage/adult stage.
b	<p>The mosquito has a 4-stage life cycle <u>but</u> the chicken has a 3-stage life cycle.</p> <p>OR</p> <p>The young of the mosquito does not resemble its adult <u>but</u> the young of the chicken resembles its adult.</p> <p>OR</p> <p>The mosquito spends part of life cycle in water <u>while</u> the chicken spends its entire life cycle on land.</p>
c	<p>This <u>increases the chances</u> that <u>some</u> eggs will not be <u>eaten</u> by predators, can <u>hatch</u> to form <u>young</u> and develop into <u>adults</u> that can <u>reproduce, ensuring the continuity of its own kind</u>.</p> <p><i>P4 CCI notes, Volume 3, page 8 Q3</i></p>
d	<p>The <u>adult</u> stage. The <u>adult</u> mosquito can <u>fly</u> and <u>spread diseases</u> when they <u>bite/sting</u> humans.</p> <p><i>P4 CCI notes, Volume 3, page 9 Q9</i></p>
e	<p>This blocks the <u>eggs</u> and the <u>breathing tubes</u> of the <u>larvae</u> and <u>pupae</u> from taking in <u>oxygen</u> from the surrounding air, causing them to <u>die</u>.</p> <p><i>P4 CCI notes, Volume 3, page 9 Q10</i></p>

Q7a	Stage M: Pupa Stage N: Larva
b	<p>Stage N <u>moults while</u> the stage M <u>does not moult</u>.</p> <p>OR</p> <p>Stage N <u>moves from place to place while</u> the stage M <u>does not move from place to place</u>.</p> <p>OR</p> <p>Stage N <u>feeds while</u> the stage M <u>does not feed</u>.</p> <p><i>P4 CCI notes, Volume 3, page 9 Q7</i></p>
c	<p>Stage <u>N</u>. The <u>larva/caterpillar feeds a lot</u> on the <u>leaves</u> of the plants, <u>damaging</u> the <u>leaves</u> of the farmers' crops.</p> <p><i>P4 CCI notes, Volume 3, page 9 Q8</i></p>

2026 P4 CCI™ SCIENCE COURSE
TOPIC: MAGNETS

Qn	Answer
Q1	3
Q2	4
Q3	3
Q4	2
Q5	Flip the <u>object around</u> so that end <u>Q</u> of the object is facing the <u>same pole</u> of the bar magnet. If the <u>object</u> and the <u>bar magnet</u> moved <u>away from</u> each other / <u>repelled</u> each other, he can confirm that the object is a <u>magnet</u> since only <u>like</u> poles of two magnets (P) <u>facing</u> each other (F) <u>repel</u> (E) .
Q6a	Wood / Glass / Copper / Aluminium (<i>any non-magnetic material</i>)
b	The magnet's magnetism <u>passed through</u> the <u>non-magnetic toy bridge</u> (Rule 2), to <u>attract the magnetic toy block</u> (Rule 3). This caused the toy block to move to other end of the bridge.
c	The toy block is made of a <u>non-magnetic material</u> and cannot be <u>attracted</u> to the bar magnet.
Q7a	Iron / Steel / Nickel / Cobalt (<i>any magnetic material</i>)
b	Nail Y is made of a <u>non-magnetic material</u> and cannot be <u>magnetised</u> to become an <u>electromagnet</u> .
c	1) Increase the number of <u>batteries</u> . 2) Increase the number of <u>turns/coils of wire</u> around <u>nail X / the electromagnet</u> .
d	Magnet <u>A</u> . Magnet <u>A</u> can <u>attract</u> the <u>most</u> iron pins from the <u>furthest</u> distance.

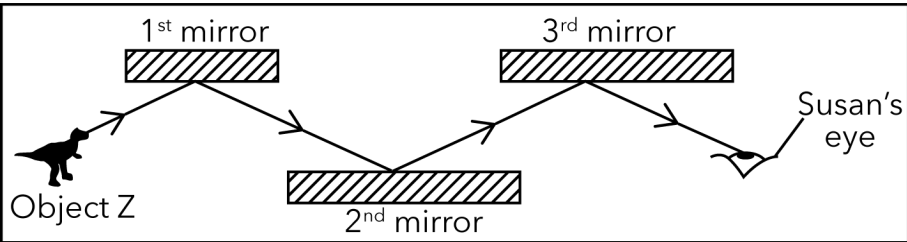
2026 P4 CCI™ SCIENCE COURSE

TOPIC: MATTER

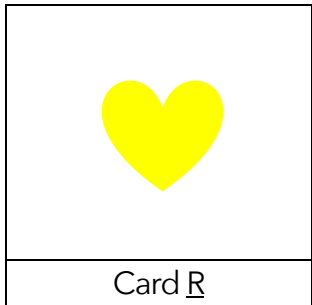
Qn	Answer
Q1	4
Q2	3
Q3	2
Q4	3
Q5a	70 cm ³
b	130 cm ³ . Water has a definite volume / cannot be compressed.
c	<p>Less than 600 cm³. There are <u>air spaces</u> between the <u>marbles</u>. As water does not have a <u>definite shape</u>, water can <u>enter</u> to occupy the space previously taken up by / displace the air.</p> <p><i>P4 CCI notes, Volume 3, page 30, Q6</i></p>
Q6a	<p>Air <u>occupies space</u> in the cup and <u>cannot escape</u>. While air in the cup can be <u>compressed initially</u> to allow some <u>water</u> to <u>enter</u>, it could not be <u>compressed any further</u>.</p> <p><i>P4 CCI notes, Volume 3, page 27, Q1A</i></p>
b	<p>Poke a <u>hole</u> at the base of the cup. The <u>air</u> in the cup <u>escapes</u> through the hole, allowing water to <u>enter</u> the cup to occupy the space previously taken up by / displace the air.</p> <p><i>P4 CCI notes, Volume 3, page 27, Q1B & 1C</i></p>
c	<p>With <u>two holes</u> in the lid of the can, <u>air</u> from the surroundings will <u>enter</u> the can through <u>one hole</u> to occupy the space previously taken up by / displace the milk that is <u>flowing out</u> through the other hole. This allows the condensed milk to flow out <u>faster</u>.</p> <p><i>P4 CCI notes, Volume 3, page 30, Q5</i></p>
Q7a	While the coloured water <u>cannot be compressed</u> , air <u>can be compressed</u> .
b	<p>15 ml</p> <p><i>*Any reasonable answer between 15 ml to 20 ml (not inclusive). Air can actually only be slightly compressed.</i></p>

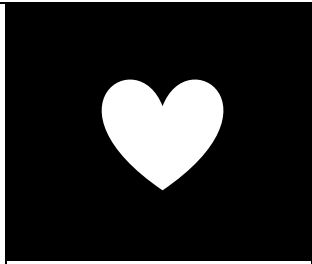
2026 P4 CCI™ SCIENCE COURSE
TOPIC: LIGHT ENERGY

PROPERTIES OF LIGHT/LIGHT RAYS

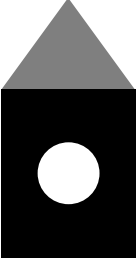



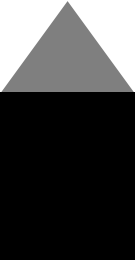
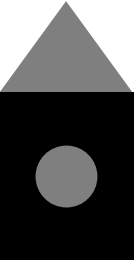
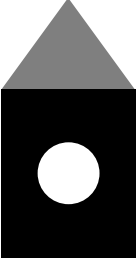



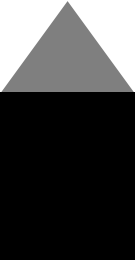
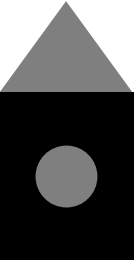
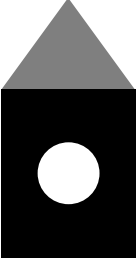



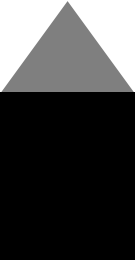
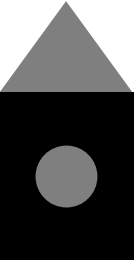
Qn	Answer
Q1	1
Q2	4
Q3	3
Q4	2
Q5a	<div style="border: 1px solid black; padding: 10px; text-align: center;">  <p>Top view</p> </div>
b	Light from Object Z is reflected off the 1 st mirror, which is then reflected off the 2 nd mirror and is reflected off the 3 rd mirror into Susan's eye.
c	1) Light travels in a straight line. 2) Light can be reflected.
Q6	Light from the <u>Sun</u> is reflected off the <u>lady</u> , which is then reflected off the <u>side mirror</u> into the <u>rider's</u> eyes.
Q7a	5
b	1) Place more objects G closer to each other on the moving belt. 2) Increase the speed of the moving belt.
c	An object that is 5 cm in height <u>cannot block light</u> from the barcode scanner <u>from reaching the light sensor</u> . Thus, the light sensor still receives <u>all</u> the light from the barcode scanner.

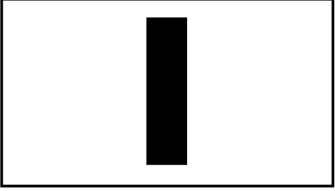

PROPERTIES OF MATERIALS

Qn	Answer
Q8	2
Q9	3
Q10	1
Q11	4
Q12a	<p>Choose: Material <u>Z</u>.</p> <p>Use data: The amount of light detected by <u>light sensor A</u> is the <u>most</u>.</p> <p>Explain: This shows that material <u>Z</u> is the <u>most reflective (Property)</u>. Thus, <u>most</u> light from the streetlamps would be <u>reflected off</u> the safety vest made of material <u>Z</u>, allowing the cyclist wearing the safety vest to be seen <u>most easily (Purpose)</u>.</p>
b	<p>Choose: Material <u>X</u>.</p> <p>Use data: The amount of light detected by <u>light sensor B</u> is the <u>most</u>.</p> <p>Explain: This shows that material <u>X</u> allows the most amount of <u>light to pass through (Property)</u>. Thus, <u>most</u> light from the Sun would be able to <u>pass through</u> the windows made of material <u>X</u> into Stefanie’s room, allowing her room to be lit <u>most brightly (Purpose)</u>.</p>
Q13a	Cup Q blocks more light than cup P.
b	<p>Cup P: Frosted glass Cup Q: Metal/Wood/Ceramic Cup R: Clear glass/Clear plastic</p>
c	<p>10.30 am</p> <p><i>* Any reasonable time in the mid-morning.</i></p>
Q14a	She will observe a bright heart-shaped patch of light on card R only.
b	<div style="border: 1px solid black; padding: 10px; text-align: center;">  <p>Card <u>R</u></p> </div> <p>(Use a highlighter to draw a heart and colour it with the highlighter.)</p> <p>OR</p>

	
	Card <u>R</u> (Draw a heart, then shade the outside of the heart.)

SHADOWS

Qn	Answer												
Q15	4												
Q16	2												
Q17	3												
Q18	3												
Q19a	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%;"></td> <td style="width: 33%;"></td> </tr> <tr> <td>Position <u>C</u></td> <td>Position <u>A</u></td> <td>Position ____</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>Position ____</td> <td>Position <u>B</u></td> <td>Position ____</td> </tr> </table>				Position <u>C</u>	Position <u>A</u>	Position ____				Position ____	Position <u>B</u>	Position ____
													
Position <u>C</u>	Position <u>A</u>	Position ____											
													
Position ____	Position <u>B</u>	Position ____											
b	Light from the torch, which travels in a straight line, was (completely) blocked by the opaque metal block and (partially) blocked by the translucent triangular block.												
Q20a	X; Z; Y												
b	Move object Y nearer to the light source such that object Y is closer to the light source than object Z is.												
c	The shadows will become bigger/fainter/blurrier [Choose any 2]												
d	Light travels in a straight line / Light can be blocked.												

Q21a	 <p style="text-align: center;">Screen P</p>	 <p style="text-align: center;">Screen Q</p>
b	The shadows will become smaller, darker, and sharper/clearer.	
c	As the distance of the torch from an object increases, the size of the shadow formed on the screen decreases.	
d	The shadow formed on Screen P would be <u>lighter/fainter</u> than the shadow formed on Screen Q. Since frosted glass is <u>translucent</u> while wood is <u>opaque</u> , the frosted glass cup will block <u>less</u> light from the torch.	