



**Cambridge Assessment
International Education**

Cambridge Lower Secondary Sample Test
For use with curriculum published in
September 2020

Science Paper 2
Mark Scheme
Stage 7

General guidelines on marking

Many descriptive answers can be expressed in a variety of ways. Professional judgement can be used in these cases, providing it matches the marking points and further information in the mark scheme.

Answers may have words spelt incorrectly. Credit is normally given for phonetically correct answers, unless the word has a scientifically different meaning. For example, where the answer should be antennae, credit will be given for antenna but not for anthen (too close to anther).

Only the science is being assessed, so answers do not need to be grammatically correct.

Significant figures will be indicated in the question or in the mark scheme.

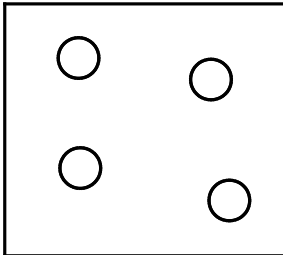
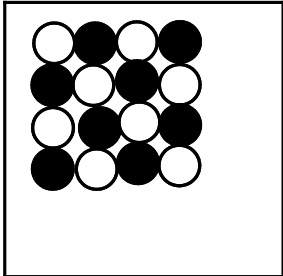
Unless specified all marking points are independent.

Annotations and abbreviations

/ OR	alternate responses for the same marking point
() brackets	the words or units in brackets do not need to be stated, for example, (recycles or releases or provides) minerals = minerals scores the mark
<u>underline</u>	exact word is required
Accept	an acceptable response
Do not accept	indicates an incorrect response that would contradict another otherwise correct alternative
Ignore	indicates an irrelevant answer that is not creditworthy. Full marks can still be achieved even with answers that are ignored.
Note	provides extra information when necessary
ecf	error carried forward; marks are awarded if an incorrect response has been carried forward from earlier working provided the subsequent working is correct
ora	or reverse argument; for example, as mass increases, volume increases could be written as mass decreases, volume decreases

Question	Answer	Marks	Further Information
1	organ system organ tissue cell	1	all in correct order = 1 mark

Question	Answer	Marks	Further information
2(a)	any three from evaporation condensation precipitation	3	each process = 1 mark processes can be in any order Accept rainfall Accept melting
2(b)	water runoff	1	Accept any correct process from the water cycle not mentioned in (a) Accept transpiration

Question	Answer	Marks	Further Information
3(a)	magnesium oxide	1	Accept MgO but name takes precedence
3(b)	colour change / new substance formed / solid to powder	1	Accept there is a change in mass / the mass of magnesium after reacting is different / bright white light
3(c)(i)		1	<p>particle model should show random arrangement of at least four particles of oxygen spaced far apart.</p> <p>Accept molecules of oxygen rather than individual particles</p>
3(c)(ii)		1	<p>particle model with regular arrangement of particles, in a fixed position, showing some oxygen and some magnesium particles.</p> <p>Ignore the order of the oxygen and magnesium particles</p> <p>Note the diagram does not need to fill the box</p>


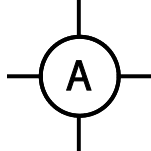
Question	Answer	Marks	Further Information
4(a)	<p> eagle (jaguar) boa constrictor (monkey) tapir (macaw) sloth (agouti) (fruit and nuts on the trees) </p>	2	all four organisms correct = 2 marks two or three organisms correct = 1 mark one organism correct = 0 marks
4(b)	energy flow (through the food web)	1	Ignore reference to what eats what
4(c)	5	1	
4(d)(i)	microorganisms / bacteria / fungi	1	Accept named examples Accept earthworms / maggots / woodlice or other detritivores
4(d)(ii)	dead material / decaying material / waste material / dead leaves / dead animals / faeces	1	

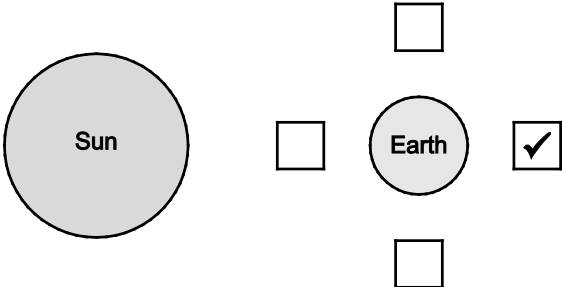
Question	Answer	Marks	Further Information
5	any three from hard strong shiny sonorous malleable ductile high melting point high boiling point (good) thermal conductor / heat conductor	3	each correct answer = 1 mark Accept high density

Question	Answer	Marks	Further Information
6(a)(i)	16 (J)	1	
6(a)(ii)	it has been transferred into the environment/ air	1	Accept it spreads out
6(b)	150 (J)	1	
6(c)	electric drill electrical energy \longrightarrow kinetic + heat + sound skydiver falling out of a plane (gravitational) potential energy \longrightarrow kinetic + heat girl running chemical \longrightarrow kinetic + heat	3	each correct energy transfer = 1 mark Accept sound Accept sound

Question	Answer	Marks	Further Information
7(a)	A – adelic (penguin) B – emperor (penguin) C – chinstrap (penguin) D – african (penguin)	2	all four correct = 2 marks two or three correct = 1 mark one correct = 0 marks
7(b)	how many eggs do they lay each breeding season?/they lay one egg each breeding season/they lay two eggs each breeding season	1	Accept (does it have) an orange glow on its cheeks
7(c)	metre ruler / tape measure	1	

Question	Answer	Marks	Further Information
8(a)(i)	nitrogen	1	Accept N/N ₂ but name takes precedence
8(a)(ii)	oxygen	1	Accept O/O ₂ but name takes precedence
8(a)(iii)	carbon dioxide / neon / argon / krypton / xenon	1	Accept correct formula or symbols but name takes precedence Do not accept water vapour
8(b)	carbon dioxide	1	only accept gas C if it has been identified as carbon dioxide or water vapour in (a)(iii) Accept water vapour / carbon monoxide Accept correct formula but name takes precedence

Question	Answer	Marks	Further Information
9(a)		1	Do not accept 
9(b)	The metal fork is an electrical conductor because it allows particles called electrons to flow through it.	1	

Question	Answer	Marks	Further Information
10		1	more than one boxed ticked = 0 marks

Question	Answer	Marks	Further Information
11(a)	13	1	Accept any value between 12.9 and 13.1
11(b)	<div> <div>it is acidic <input type="checkbox"/></div> <div>it is alkaline <input checked="" type="checkbox"/></div> <div>it is neutral <input type="checkbox"/></div> <div>it is magnetic <input type="checkbox"/></div> </div>	1	more than one box ticked = 0 marks Accept ecf from (a)
11(c)	neutralisation	1	
11(d)	no it is still alkaline/she needs to add 25 cm ³ /the pH is 12.5	1	answer yes = 0 marks answer must have both no and an explanation
11(e)	universal (indicator paper)	1	Accept pH paper/pH indicator Do not accept litmus
11(f)	the colour of the indicator is subjective/the pH probe gives a digital reading/the resolution of the pH probe is smaller/indicator can only measure to the nearest integer/the pH probe is more precise	1	

Question	Answer	Marks	Further Information
12(a)	any two from shows the different layers colours let us see the different layers clearly can study the inside of the earth which is too hot for us to visit can see all the layers at the same time the Earth is too large	2	each correct answer = 1 mark
12(b)	any three from it is not to scale the layers are not the correct thickness the layers are not made out of clay / not made from the same substance it does not show the movement of the layers it does not show if layers are solid or liquid it does not show inner and outer core	3	each correct answer = 1 mark

Question	Answer	Marks	Further Information
13(a)	sound source	1	Accept named sound sources
13(b)(i)	rarefaction	1	Accept the particles are spread out
13(b)(ii)	compression	1	Accept the particles are close together
13(c)	vibrate	1	Accept move to and fro Accept moving forwards and backwards / left and right