Foundation

GCSE

Physics B Twenty First Century Science

J259/02: Depth in physics (Foundation Tier)

General Certificate of Secondary Education

Mark Scheme for June 2025

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Online Training: OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are available in RM Assessor

3. Log-in to RM Assessor and mark the **required number** of practice responses (“scripts”) and the **required number** of standardisation responses.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the RM Assessor messaging system.

5. **Crossed-Out Responses**

Where a candidate has crossed out a response and provided a clear alternative then the crossed-out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed-out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM Assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple-Choice Question Responses

When a multiple-choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).

When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only one mark per response)

Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth two or more marks)

If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space).

Longer Answer Questions (requiring a developed response)

Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add the annotation 'SEEN' to confirm that the work has been seen and mark any responses using the annotations in section 11.

7. There is a NR (**No Response**) option. Award NR (No Response):

   - if there is nothing written at all in the answer space
   - OR if there is a comment which does not in any way relate to the question (e.g., 'can't do', 'don't know')
   - OR if there is a mark (e.g., a dash, a question mark) which is not an attempt at the question.

   Note: Award 0 marks – for an attempt that earns no credit (including copying out the question).

8. The RM Assessor **comments box** is used by your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. For answers marked by levels of response:

Read through the whole answer from start to finish, using the Level descriptors to help you decide whether it is a strong or weak answer. The indicative scientific content in the Guidance column indicates the expected parameters for candidates' answers, but be prepared to recognise and credit unexpected approaches where they show relevance. Using a 'best-fit' approach based on the skills and science content evidenced within the answer, first decide which set of level descriptors, Level 1, Level 2 or Level 3, best describes the overall quality of the answer.

Once the level is located, award the higher or lower mark:

The higher mark should be awarded where the level descriptor has been evidenced and all aspects of the communication statement (in italics) have been met.

The lower mark should be awarded where the level descriptor has been evidenced but aspects of the communication statement (in italics) are missing.

In summary:

The skills and science content determines the level.

The communication statement determines the mark within a level.

Level of response questions on this paper are **3(c)** and **10(a)**.

11. Annotations available in RM Assessor

Annotation	Meaning
	Correct response
	Incorrect response
	Omission mark
BOD	Benefit of doubt given
CON	Contradiction
RE	Rounding error
SF	Error in number of significant figures
ECF	Error carried forward
L1	Level 1
L2	Level 2
L3	Level 3
NBOD	Benefit of doubt not given
SEEN	Noted but no credit given
I	Ignore

12. Abbreviations, annotations and conventions used in the detailed Mark Scheme (to include abbreviations and subject-specific conventions).

Annotation	Meaning
/	alternative and acceptable answers for the same marking point
✓	Separates marking points
DO NOT ALLOW	Answers which are not worthy of credit
IGNORE	Statements which are irrelevant
ALLOW	Answers that can be accepted
( )	Words which are not essential to gain credit
__	Underlined words must be present in answer to score a mark
ECF	Error carried forward
AW	Alternative wording
ORA	Or reverse argument

13. **Subject-specific Marking Instructions**

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper
- the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

The breakdown of Assessment Objectives for GCSE (9-1) in Physics B:

	Assessment Objective
AO1	**Demonstrate knowledge and understanding of scientific ideas and scientific techniques and procedures.**
AO1.1	Demonstrate knowledge and understanding of scientific ideas.
AO1.2	Demonstrate knowledge and understanding of scientific techniques and procedures.
AO2	**Apply knowledge and understanding of scientific ideas and scientific enquiry, techniques and procedures.**
AO2.1	Apply knowledge and understanding of scientific ideas.
AO2.2	Apply knowledge and understanding of scientific enquiry, techniques and procedures.
AO3	**Analyse information and ideas to interpret and evaluate, make judgements and draw conclusions and develop and improve experimental procedures.**
AO3.1	Analyse information and ideas to interpret and evaluate.
AO3.1a	Analyse information and ideas to interpret.
AO3.1b	Analyse information and ideas to evaluate.
AO3.2	Analyse information and ideas to make judgements and draw conclusions.
AO3.2a	Analyse information and ideas to make judgements.
AO3.2b	Analyse information and ideas to draw conclusions.
AO3.3	Analyse information and ideas to develop and improve experimental procedures.
AO3.3a	Analyse information and ideas to develop experimental procedures.
AO3.3b	Analyse information and ideas to improve experimental procedures.

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>AO element</th><th>Guidance</th></tr>
<tr><td>1</td><td>(a)</td><td></td><td>Infrared
Visible light
X-rays
✓✓</td><td>2</td><td>1.1</td><td>All 3 correct = 2 marks
1 or 2 correct = 1 mark</td></tr>
<tr><td></td><td>(b)</td><td></td><td><table><tr><th></th><th>True</th><th>False</th></tr><tr><td>All parts of the electromagnetic spectrum travel at the speed of light.</td><td>✓</td><td></td></tr><tr><td>Gamma has the longest wavelength.</td><td></td><td>✓</td></tr><tr><td>Radio waves carry the greatest energy.</td><td></td><td>✓</td></tr><tr><td>Visible light is a transverse wave.</td><td>✓</td><td></td></tr></table>✓✓✓</td><td>3</td><td>1.1</td><td>All 4 correct = 3 marks
3 correct = 2 marks
2 correct = 1 mark</td></tr>
<tr><td></td><td>(c)</td><td></td><td><table><tr><th></th><th>Absorbed</th><th>Reflected</th><th>Transmitted</th></tr><tr><td>Infrared radiation heats up a plastic block.</td><td>✓</td><td></td><td></td></tr><tr><td>Microwaves bounce off a metal sheet.</td><td></td><td>✓</td><td></td></tr><tr><td>Visible light passes through glass.</td><td></td><td></td><td>✓</td></tr></table>✓✓</td><td>2</td><td>2.1</td><td>All 3 correct = 2 marks
1 or 2 correct = 1 mark</td></tr>
</table>

Question			Answer	Marks	AO element	Guidance
2	(a)		Weight is the force on a mass due to gravity. ✓	1	1.1	
	(b)		The extension/length increases (with the heavier equipment) ✓	1	2.1	**ALLOW** extends further/**AW**
	(c)		**First check the answer on the answer line.** **If answer = 20 (N) award 3 marks** Select force exerted by a spring = extension x spring constant ✓ Force = 0.08 x 250 ✓ = 20 (N) ✓	3	 **1 x 1.1** **2 x 2.2**	**DO NOT ALLOW** any alternative equation
	(d)		**First check the answer on the answer line.** **If answer = 19.2 (N) award 2 marks** Substitute: weight = mass x gravitational field strength = 12 x 1.6 ✓ 19.2 (N) ✓	2	2.2	 **ALLOW** 19

Question			Answer	Marks	AO element	Guidance
3	(a)	(i)	Sound waves transfer energy ✓ The number of sound waves every second is the frequency✓	2	1.1	
		(ii)	Longitudinal waves are a series of compressions. ✓ The disturbance of particles is parallel to the direction of motion. ✓	2	1.1	
	(b)		**First check the answer on the answer line.** **If answer = 0.05 (m/s) award 4 marks** Finding total distance: 45 x 2 (= 90 (cm)) **OR** halving the time: 18/2 = 9 ✓ Apply speed = distance/time: 90/18 **OR** 45/9 ✓ = 5 (cm/s) ✓ Correct conversion to m/s = 0.05m/s✓	4	 1 x 3.1a 2 x 2.2 1.2	**If answer = 0.025 (m/s) award 3 marks** **ALLOW** 45/18 for MP2 **ALLOW** ECF for MP3 (typically 2.5 x 10^n) **ALLOW** for MP4, any correct conversion into m at any point in the question. E.g. 90cm = 0.9m

	(c)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5–6 marks)** Identifies suitable equipment **AND** Gives a full working method to find the speed of sound **AND** Identifies possible error *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3–4 marks)** Gives a method for measuring speed of sound that measures/sets distance and time to calculate speed but is missing detailed procedures **AND** Identifies suitable equipment **OR** identifies a possible error *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1–2 marks)** Identifies suitable equipment to measure the speed of a wave **OR** Gives a partial method **OR** Identifies a possible error *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.*	**6**	**4 x 1.2** **2 x 3.3b**	**AO1.2 Know a method for measuring speed of sound.** **Flash-bang method** Equipment • 2 people • Sound source (e.g. wooden blocks/clap/shout/gun) • Stopwatch • Tape/trundle wheel/metre rule Method • Measure distance from sound source to person/detector/observer • Make sound with visual cue (e.g. flash/hand raise/flag) • Record time between seeing visual cue and hearing the sound • Use speed = distance/time **Echo method** Equipment • Large wall • Wooden blocks or other suitable way of making sound • Stopwatch • Tape/trundle wheel/metre rule Method • Measure distance to wall (with suitable instrument) • Clap wooden blocks together to make sound • Listen for echo • Time with stopwatch • Use speed = total distance/ total time

			0 marks *No response or no response worthy of credit.*			**Data logger / sound gates** Equipment • 2 microphones • Ruler • Data logger/sound gates • Wooden blocks or other suitable way of making sound Method • Set up two microphones • Measure distance between microphones • Make noise • Data logger records time • Use speed = distance/time **AO 3.3b Analyse information and ideas to improve experimental procedures.** Possible errors • Inaccurate measurements of distance • Inaccurate measurement of time/effect of (different) reaction times • Realise need to double distance when calculating echo • Distance to wall must be great enough (>18m) • Volume/sound not being detected • Other sounds/interference

Question			Answer	Marks	AO element	Guidance
4	(a)		Any **two** from: Volume/mass of water ✓ Initial temperature of water ✓ Size of beakers ✓ Material of beakers ✓ Ambient temperature ✓ Thickness of layer ✓	2	3.3a	**ALLOW** same shaped beakers / same SA to volume ratio **ALLOW** <u>amount</u> of water **ALLOW** temperature of <u>hot</u> water **ALLOW** dimensions of bubble wrap **ALLOW** type of bubble wrap **ALLOW** time for thermometer to acclimatise
	(b)		The temperature in each beaker dropped more quickly when the water was hotter✓ The water stays warmer for longer with more layers of insulation ✓	2	3.2b	
	(c)		Any **one** from: Use a lid/cover ✓ Place on heatproof mat **OR** cover the base of the beaker✓ (Use a data logger to) take more/continuous readings of temperature ✓ Check external conditions are the same for each beaker ✓ (Use more beakers to) test more layers of bubble wrap ✓ Repeat for <u>accuracy</u>/ repeat **and** calculate a mean / repeat **and** identify anomalies ✓	1	3.3b	**ALLOW** named condition: Temperature, air flow, humidity… **ALLOW** acceptable response to (a) not already credited

Question			Answer	Marks	AO element	Guidance
5	(a)		2 protons 2 neutrons	2	2.1	**IGNORE** +(2) **IGNORE** 4-2
	(b)	(i)	71 (cpm) ✓	1	2.2	**ALLOW** 70-72
		(ii)	(-)13 (cpm) ✓	1	3.1a	**ALLOW** their b(i) – 58 correctly calculated

Question			Answer	Marks	AO element	Guidance
6	(a)	(i)	Points plotted correctly ✓ 1 – 0.20 2 – 0.42	1	2.2	**ALLOW** +/- half a square
		(ii)	Straight line of best fit drawn ✓	1	2.2	At least one point above **AND** at least one below (Use ruler to check single straight line) **IGNORE** line beyond the plotted points
		(iii)	(As number of cells increases) the current increases ✓ Linearly / proportionally / at a constant rate ✓	2	3.2b	If no marks awarded**:** **ALLOW** for 1 mark positive correlation **ALLOW** for 2 marks directly proportional
		(iv)	Cells may not be identical ✓	1	3.1b	**ALLOW** reasons for cells not being identical e.g. some cells may have been partly used. **ALLOW** random error **IGNORE** outliers/anomalous results
	(b)	(i)	The total current equals the sum of the currents in R1 and R2✓ The total resistance is less than in the series circuit. ✓	2	3.2b	
		(ii)	**First check the answer on the answer line.** **If answer = 2 (A) award 3 marks** Select: potential difference = current x resistance ✓ Rearrange: I = V/R ✓ I = 3/1.5 = 2 A ✓	3	**1 x 1.1** **2 x 2.2**	**ALLOW** 3 = I x 1.5

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>AO element</th><th>Guidance</th></tr>
<tr><td>7</td><td>(a)</td><td></td><td>
<table>
<tr><th></th><th>Increases</th><th>Decreases</th><th>Stays the same</th></tr>
<tr><td>Gravitational potential energy store of the trolley</td><td></td><td>✓</td><td></td></tr>
<tr><td>Kinetic energy store of the trolley</td><td>✓</td><td></td><td></td></tr>
</table>
✓✓</td><td>2</td><td>2.1</td><td></td></tr>
<tr><td></td><td>(b)</td><td>(i)</td><td>First check the answer on the answer line.
If answer = 1.26 (J) OR 1.3 (J) award 3 marks

Select:
GPE = mass x gravitational field strength x height ✓

GPE = 0.6 x 10 x 0.21 ✓

= 1.26 (J) ✓</td><td>3</td><td>1.1

2 x 2.2</td><td></td></tr>
<tr><td></td><td></td><td>(ii)</td><td>First check the answer on the answer line.
If answer = 0.9 (J) award 4 marks

Select: KE = ½ x mass x speed^2 ✓
= ½ x 0.6 x 1.7^2 ✓
= 0.867 (J) ✓
= 0.9 (J) ✓</td><td>4</td><td>1.1
2 x 2.2

1.2</td><td>ALLOW for 4 marks their b(i) to 1 decimal place and reason that it is equal to GPE at the top of a frictionless slope

ALLOW 1 mark for clear evidence of incorrect answer correctly rounded to 1 decimal place.</td></tr>
<tr><td></td><td>(c)</td><td></td><td>First check the answer on the answer line.
If answer = 1.2 J award 4 marks

Select and apply: Work Done = force x distance ✓
= 0.8 x 1.5 ✓
= 1.2 ✓
Unit = J OR Nm ✓</td><td>4</td><td>1.1
2 x 2.2

1.1</td><td></td></tr>
</table>

Question			Answer	Marks	AO element	Guidance
	(d)		Due to the force of friction ✓ Energy is transferred to the thermal energy store (of surroundings)✓	**2**	**2.1**	**ALLOW** a named/described frictional force (e.g. air resistance) **ALLOW** dissipated/released to the surroundings/atmosphere as heat
	(e)		Measure the time taken for the trolley to travel between two points **OR** measure the time taken for the trolley to travel down the ramp (with a stopwatch/clock) ✓ Measure the distance between the two points **OR** measure length of the ramp (with the tape measure). ✓ Use (average) speed = distance / time ✓	**3**	**3.3a**	**IGNORE** distance measured beyond ramp **ALLOW** s = d/t or v = s/t

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>AO element</th><th>Guidance</th></tr>
<tr><td>8</td><td>(a)</td><td></td><td>One arrow drawn outwards perpendicularly to the surface at X (does not need to touch box)</td><td>1</td><td>2.1</td><td>ALLOW arrow originating inside box if direction correct</td></tr>
<tr><td></td><td>(b)</td><td></td><td>80 000 / 8 x 10^4 in PV column ✓

Select and apply Pressure x volume = constant OR 0.2 x pressure = 800 00 ✓

Rearrange e.g. 80 000 ÷ 0.2 ✓

= 400 000 / 4 x 10^5 (N/m^2) ✓</td><td>4</td><td>2.2</td><td><table><tr><th>Volume (m^2)</th><th>Pressure (N/m^2)</th><th>Pressure x Volume</th></tr><tr><td>0.8</td><td>100 000</td><td>80 000</td></tr><tr><td>0.4</td><td>200 000</td><td>80 000 ✓</td></tr><tr><td>0.2</td><td>400 000 ✓✓✓</td><td>80 000</td></tr></table>ALLOW alternative using ratio of volume and pressure
ALLOW answers written in table or in working space</td></tr>
<tr><td></td><td>(c)</td><td></td><td>Any two from:

Less space for particles to move/AW ✓

Particles travel a shorter distance between collisions ✓

Time between collisions decreases / there are more collisions <u>per second</u> / the <u>frequency</u> of collisions increases✓</td><td>2</td><td>1.1</td><td>IGNORE collisions between particles

IGNORE less <u>volume</u>
DO NOT ALLOW particles have <u>no</u> space

DO NOT ALLOW hit (the wall) more often</td></tr>
</table>

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>AO element</th><th>Guidance</th></tr>
<tr><td>9</td><td>(a)</td><td></td><td>
<table>
<tr><th></th><th>True</th><th>False</th></tr>
<tr><td>Both the forces are acting on the person</td><td></td><td>✓</td></tr>
<tr><td>They are the same kind of force</td><td>✓</td><td></td></tr>
<tr><td>The forces are opposite in direction</td><td>✓</td><td></td></tr>
<tr><td>The normal reaction force equals 700 N</td><td>✓</td><td></td></tr>
</table>
✓✓✓</td><td>3</td><td>2.1</td><td>All Four ticks correct = 3 marks
Two or three correct = 2 marks
One correct = 1 mark</td></tr>
<tr><td></td><td>(b)</td><td></td><td>Friction ✓</td><td>1</td><td>1.1</td><td></td></tr>
<tr><td></td><td>(c)</td><td></td><td>The iron bar <u>attracting</u> a magnet. ✓

The piece of paper attracting the <u>positively</u> charged rod. ✓

The gravitational force of the <u>Moon</u> on the <u>Earth.</u> ✓✓</td><td>4</td><td>2.1</td><td></td></tr>
</table>

Question			Answer	Marks	AO element	Guidance
10	(a)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5–6 marks)** Explanation of the process in which atoms change due to exposure to UV radiation and connects this to damage to human tissue **AND** Links to why sunscreen is used to protect the skin *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3–4 marks)** Explanation of the process in which atoms change due to exposure to UV radiation and connects this to damage to human tissue **OR** Explanation of why using sunscreen is used to protect the skin *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1–2 marks)** Statement of the process in which atoms change due to exposure to UV radiation **OR** Statement of how/why using sunscreen is important *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** No response or no response worthy of credit.	**6**	**4 x 1.1** **2 x 2.1**	**AO1.1** Knowledge of changes in atoms from exposure to EM radiation • Negative electrons orbit the nucleus of atoms • Ionisation is the removal of an electron from an atom • UV is absorbed by atoms/electrons/cells • UV has enough energy to cause an electron to be emitted • UV can be absorbed by atoms in cells causing the atom to increase in energy and changing the arrangement of the electrons around the nucleus • Atom is ionised and becomes an ion • UV has enough energy to cause an electron to be emitted / ionisation. • UV is absorbed by human cells causing mutations (DNA) / changes / damage to the cell **AO2.1** Explain why sunscreen is important • Exposure to UV radiation causes sunburnt skin • Damaged cells may grow in an uncontrolled way • Which leads to cancer • Sunscreen reduces the intensity of radiation reaching the skin, reducing the chance of damage to cells • Prevents skin from absorbing UV radiation

Question			Answer	Marks	AO element	Guidance
	(b)	(i)	Any **two** from: Use a measured amount/volume/mass of sunscreen ✓ Use more SPF's✓ Use same brand of sunscreen ✓ Place in the same place (outside)/carry out at the same time✓ Use UV lamp (in the lab) ✓ Repeat reading for each SPF **and** calculate the mean✓ Record the time for each bead to change **and** calculate the mean (for the same SPF) ✓ Add a control with no suncream✓	**2**	**3.3a**	 **ALLOW** same thickness of layer of sunscreen **ALLOW** same size of bead **ALLOW** use higher SPF's **IGNORE** multiple brands of sunscreen **IGNORE** put all the beads in the same petri dish **IGNORE** use more beads **IGNORE** experiments investigating another factor (e.g. test all SPFs at different times of day)
		(ii)	No units (for time) ✓ Inconsistent number of decimal places / significant figures ✓	**2**	**3.3b**	**IGNORE** ref to repeat values and mean **ALLOW** values are not to the same rounding or precision/resolution **IGNORE** 3.25 unqualified

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