WOODLANDS RING PRIMARY SCHOOL

Every Child Is Unique and Able to Excel

2024 Parents Engagement (Science)

Organised by Science Department

Woodlands Ring Primary School

20 April 2024

https://go.gov.sg/wrps2024pewa

Please scan the QR code for your attendance.
Thank you.

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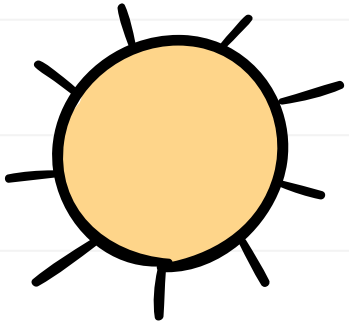
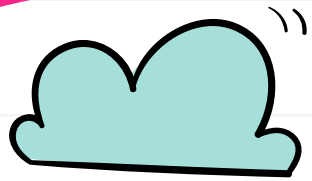
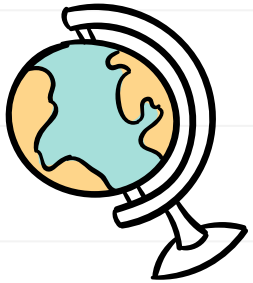
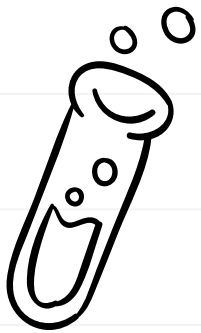




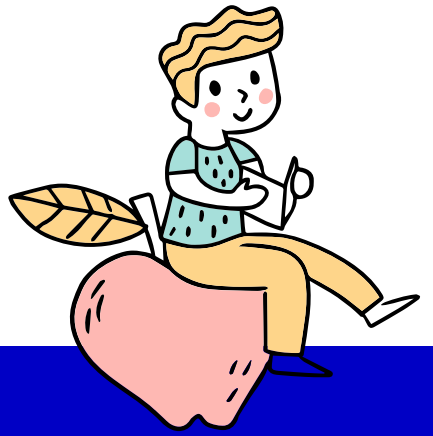




"Parents as Partners in Science Education" is an essential approach to fostering students' interest and success in science.

Objective:

Promote active parental engagement in their child's science education through continuous monitoring and fostering a collaborative partnership with their Science teachers.



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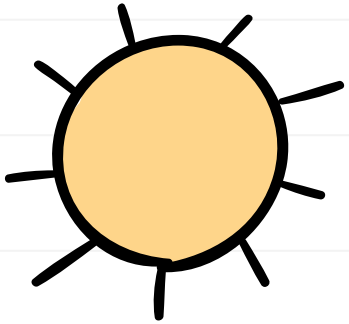
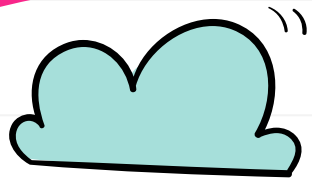
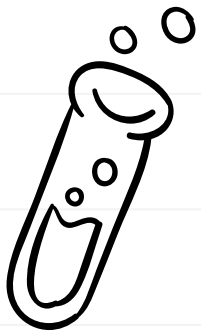
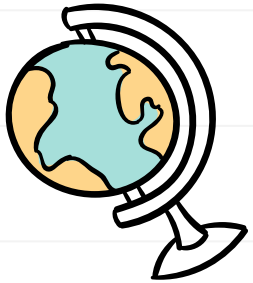
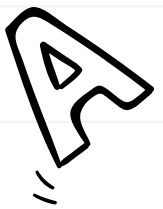










WOODLANDS RING PRIMARY SCHOOL

Every Child Is Unique and Able to Excel

Science Answering Techniques C-E-R

C: Claim

E: Evidence

R: Reasoning

"Inquiring Learner, Ethical Practitioner"

What is a claim?

A claim is:

- a choice that you make
- a phrase / sentence

When do we use a claim?

to answer a question that requires you to make a choice out of a two or more options

Example of a claim...

Which is the worst effective detergent in removing stains from clothes?

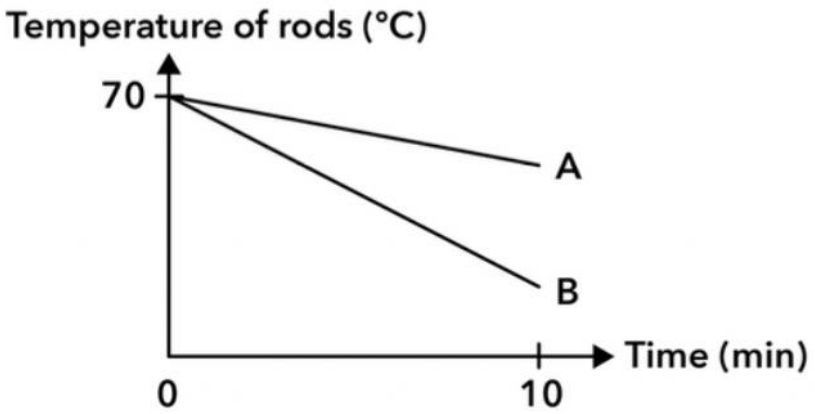
Claim: Brand X

What is Evidence?

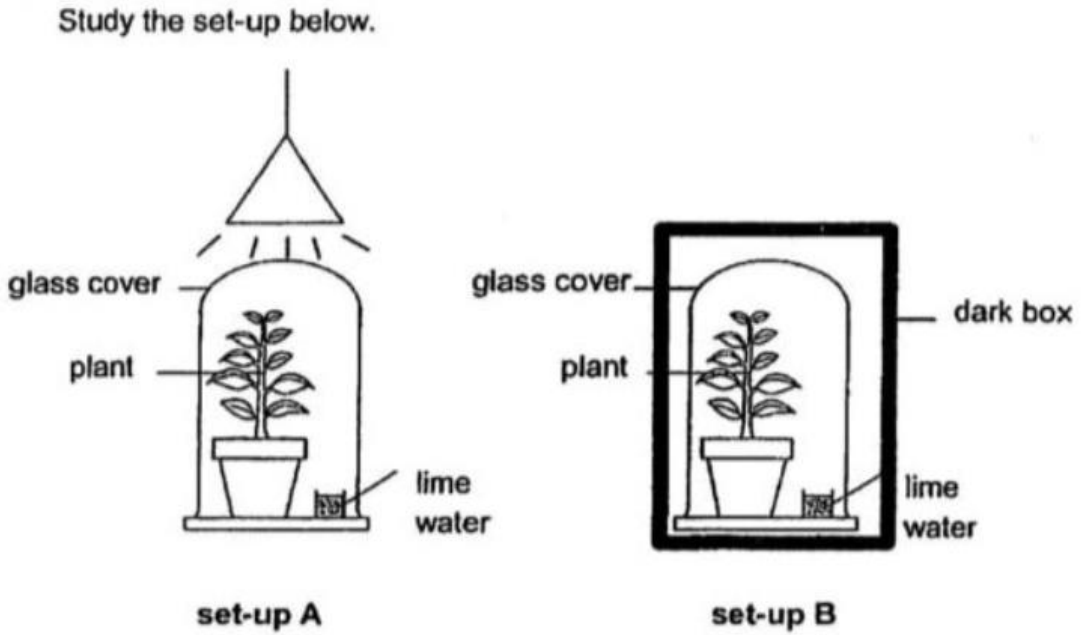
Information gathered from an experiment /observation.

Material around the cup	Temperature of Milo (°C)				
	At the start	After 5 min	After 10 min	After 15 min	After 20 min
Food wrap	70	63	25	45	30

Table showing data



Graph interpretation



Diagrams

Evidence can be gathered from the above parts of the question.

What is a Reason?

A reason contains an explanation based on the evidence gathered.

It is the part where concepts learned are applied to the context of the question.

Example:

The material is the strongest and it is thus able to hold all the weight of all the books.

What is a scientific explanation?

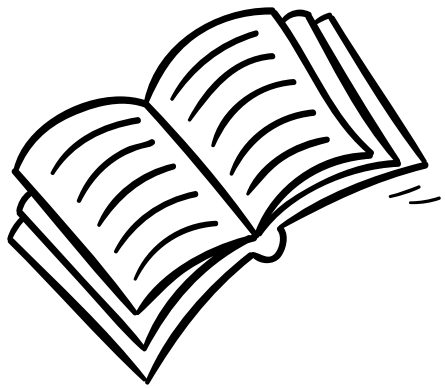
A scientific explanation using C-E-R has three parts:

(a) Claim – a ***statement or choice*** from a few options.

(b) Evidence- interpretation of **data to *support*** your claim

(c) Reason – a ***scientific principle or concept*** that ***links <u>why</u> the evidence supports the claim***

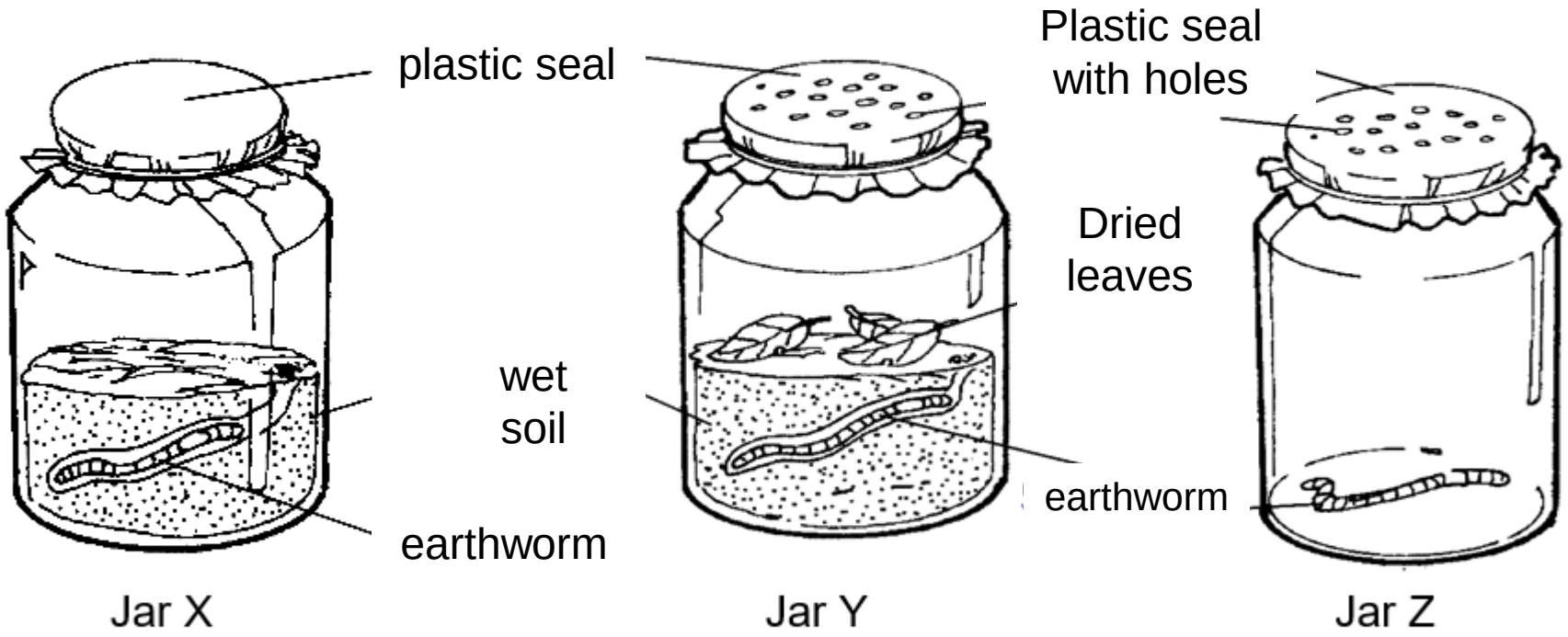
Worked example



Example

Bernard wanted to investigate the condition needs for living things to survive. He put an earthworm each in three similar jars under different conditions.

Earthworm eats dried leaves and prefers dark ad wet places.



After one week, which jar(s) will the earthworm be able to survive? Explain your answer. [2]

Example

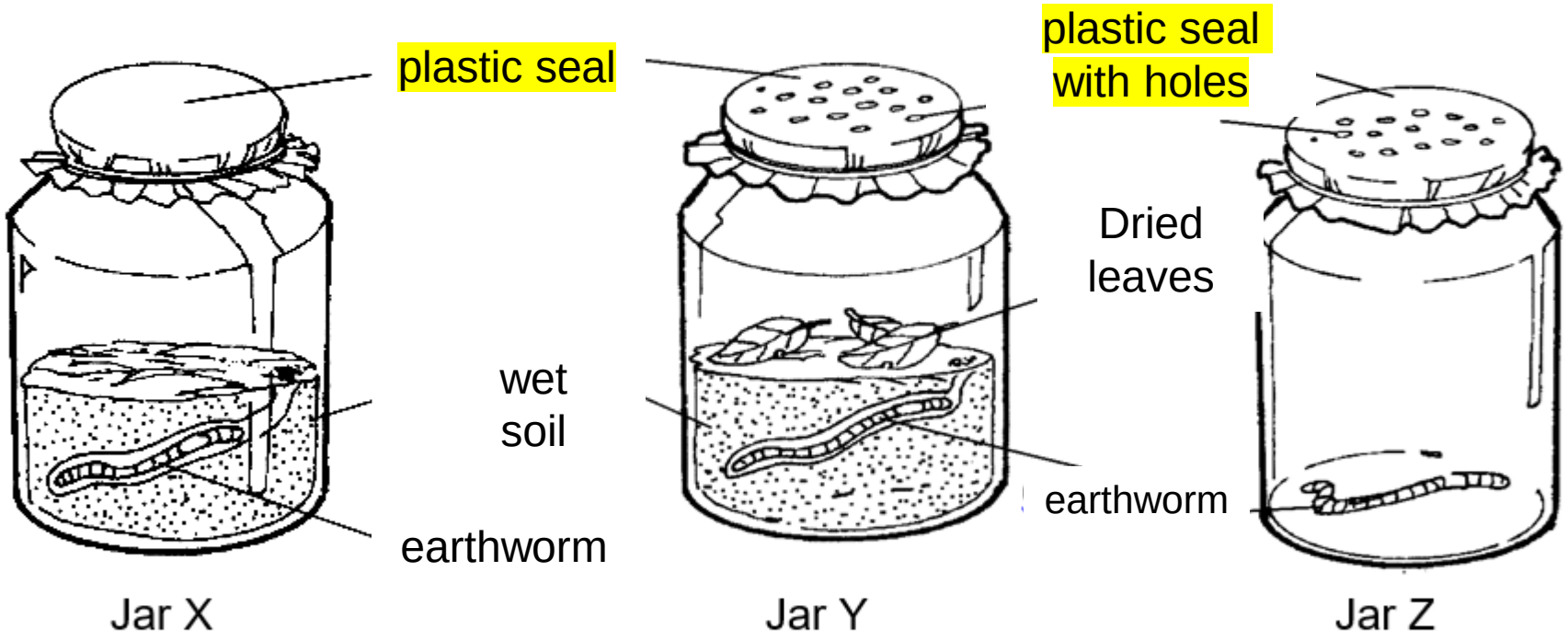
Concept: Conditions for survival for living things

Bernard wanted to investigate the condition needed for living things to survive. He put an earthworm each in three similar jars under different conditions.

aim

Variable changes

Earthworm eats dried leaves and prefers dark and wet places.



After one week, which jar(s) will the earthworm be able to survive? Explain your answer. [2]

Answering with C.E.R.

Claim	
Evidence	
Reason	

 Taken from the diagram

Ans:

C	
E	
R	

Answering with C.E.R.

Claim	Jar Y
Evidence	
Reason	

 Taken from the diagram

Ans:

C	✓
E	
R	

Answering with C.E.R.

Claim	Jar Y
Evidence	In Jar Y, there is air, food and water for the earthworm to survive. In Jar X, there is no air and food. In Jar Z, there is no water and food.
Reason	

 Taken from the diagram

Ans:

C	✓
E	✓
R	

Answering with C.E.R.

Claim	Jar Y
Evidence	In Jar Y, there is air, food and water for the earthworm to survive. In Jar X, there is no air and food. In Jar Z, there is no water and food.
Reason	Living things need air, food and water to survive.

 Taken from the diagram

Ans:
[C] Jar Y. [E] In Jar Y, there is air, food and water for the earthworm to survive. In Jar X, there is no air and food. In Jar Z, there is no water and food. [R] Living things need air, food and water to survive.

C	✓
E	✓
R	✓

Let us look at some common wrong answers.

Answer	Reason
Jar Y. Living things need air, food and water to survive.	
Jar Y. It has air, food and water.	

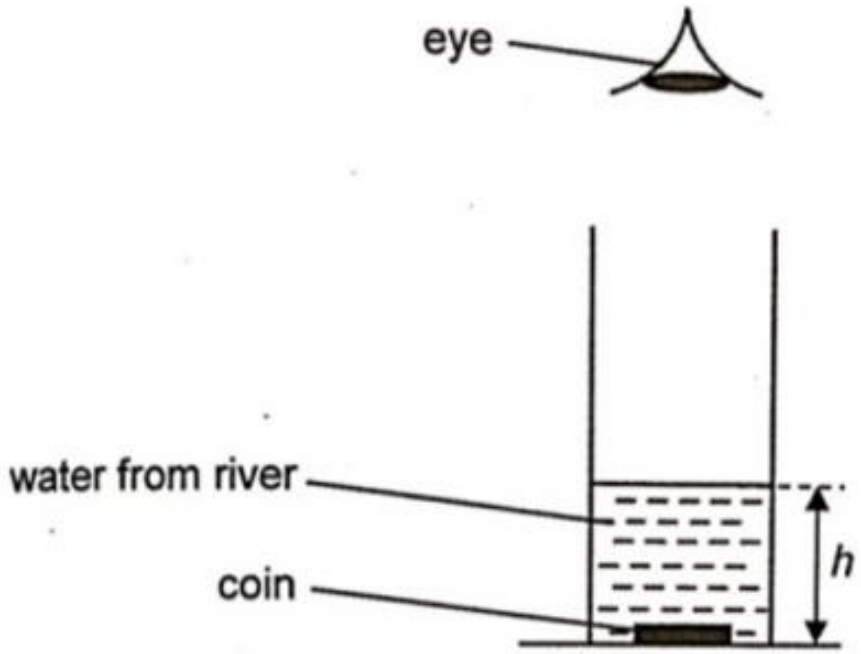
Let us look at some common wrong answers.

Answer	Reason
Jar Y. Living things need air, food and water to survive.	- Only has claim and reason - No evidence from diagram to prove why earthworm will survive in Jar Y and not in Jars X and Z.
Jar Y. It has air, food and water.	- Only has claim and evidence - No reason (no science concept) to link evidence to the importance of having air, water and food for the survival of the earthworm.

Let's Practise

Example

Veron conducted an experiment using muddy water from different parts of a river, P, Q, R and S. She placed a coin at the bottom of a container and poured in the water taken from P until the coin could no longer be seen as shown in the set-up below. Then she recorded the height, h, of the water.



She repeated the experiment with the water taken from Q, R and S. The results are shown below.

Part of river	Height of water, h, in which the coin could no longer be seen (cm)
P	15
Q	5
R	30
S	18

Veron learnt that plants in the water grew well when there was sunlight. At which part of the river would there be the least amount of plants in the water? Explain your answer.

Answering with C.E.R.

Claim	
Evidence	
Reason	

 Taken from the table

Ans:

C	
E	
R	


3:00

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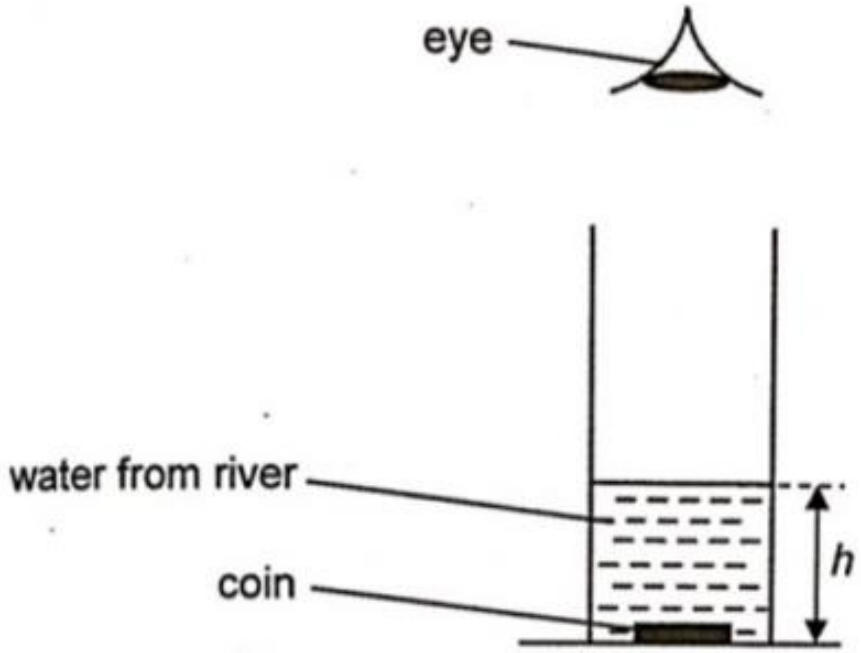

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P	15
Q	5
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S	18

Veron learnt that plants in the water grew well when there was sunlight. At which part of the river would there be the least amount of plants in the water? Explain your answer.

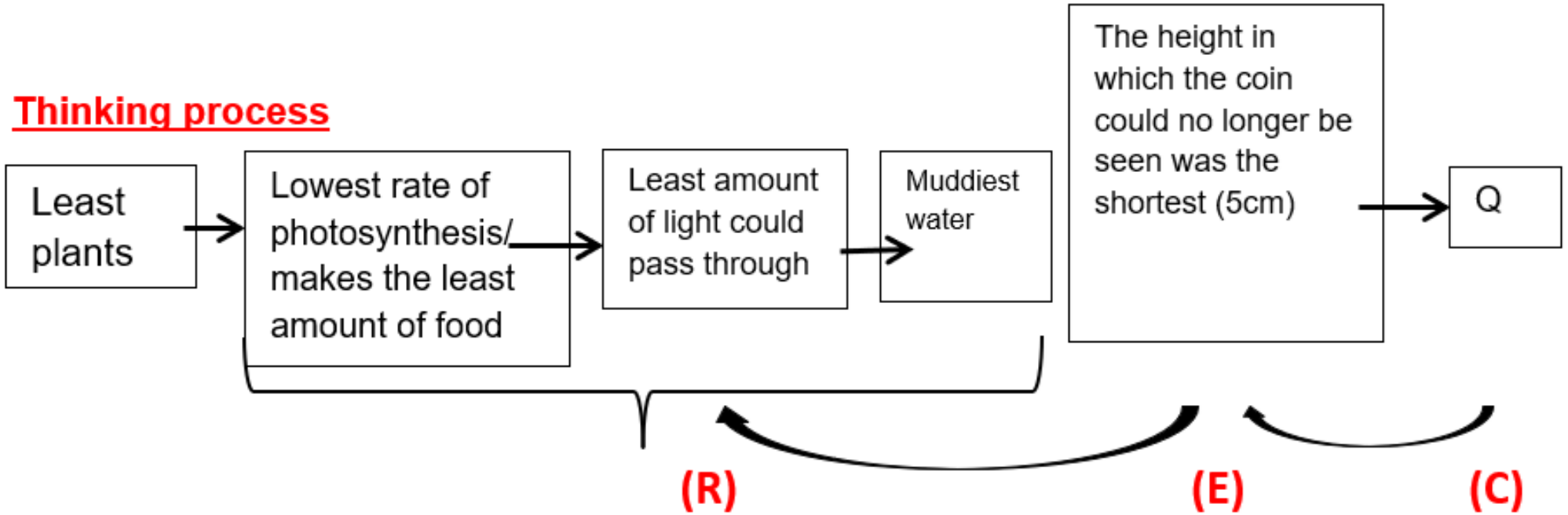
Let us think about it…

Example

Topic: Light

Key concept: An object can be seen <u>when it reflects light</u> from a light source into the eye

Key question: How does the amount of water affect the height of water, h in which the coin can no longer be seen?



Answering with C.E.R.

Claim	Q
Evidence	The coin could not be seen at the shortest height.
Reason	The water was the murkiest as the least amount of light could pass through. The plants will have the lowest rate of photosynthesis and there would be least amount of plants.

 Taken from the table

C	✓
E	✓
R	✓

Ans:

[C] Q. [E] The coin could not be seen at the shortest height. [R] The water was the murkiest as the least amount of light could pass through. The plants will have the lowest rate of photosynthesis and there would be least amount of plants.

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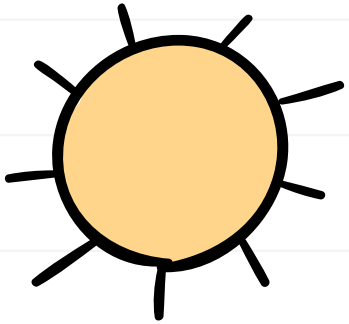
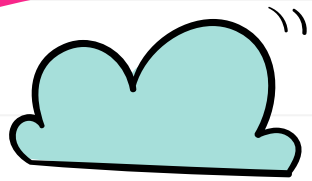




01

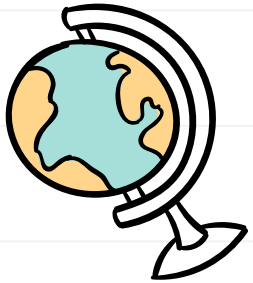
C-E-R Answering Technique

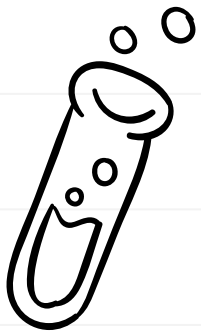
02

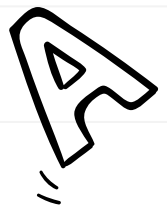
Topic: Condensation Answering Technique

03

Q & A







Condensation Examples Common in Real Life

Morning Dew on the Grass

Clouds in the Sky

Fog in the Air

Visible Breath in Cold Conditions

Fogging on a Mirror

Eyeglasses That Cloud Over

Condensation **is the scientific term for the process that occurs when a gas (vapour) changes into liquid**

Water vapour → ***water droplets***

Answering technique

S

C

C

E

E

Answering technique

Starting form of water :

Cause (Gain / Lose Heat) :

Condition :

Effect:

Ending form of water :

Condensation in Real Life!

Example

Example 1: 'Sweaty' Bottle Drink

It was a hot day. Joe bought a bottle of cold drink and placed it on the canteen table. After some time, he noticed that water droplets were formed on the outside of the cold bottle drink.

Explain how the water droplets were formed.

Answering technique

Starting forms of water :

Cause (Gain / Lose Heat) :

Condition :

Effect :

Ending forms of water :

Answer:

Condensation in Real Life!

Example

Example 1: 'Sweaty' Bottle Drink

It was a hot day. Joe bought a bottle of cold drink and placed it on the canteen table. After some time, he noticed that water droplets were formed on the outside of the cold bottle drink.

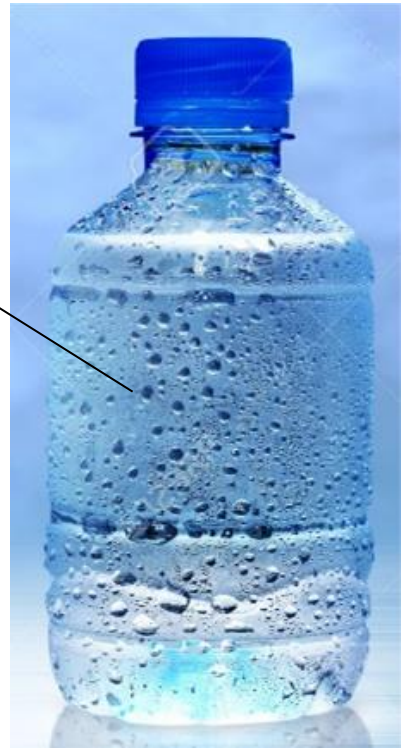
Warmer water vapour

cooler surface

Concept: Condensation

Explain how the water droplets were formed.

Water droplets on the outside of the bottle



Answering technique

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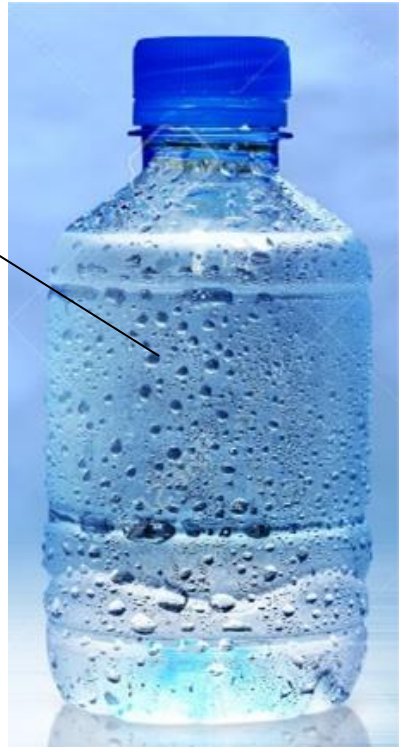

Answering technique

Starting forms of water : Warmer water vapour in the surrounding air
Cause (Gain / Lose Heat) : loses heat
Condition : the cooler outer surface of the bottle
Effect : condenses
Ending forms of water : into water droplets

Answer:

Warmer water vapour in the surrounding air touches the cooler surface of the bottle, loses heat and condenses into water droplets.

Let’s Practise

Practice 1: Bathroom Mirror

Charles stepped out of a hot shower and looked into the bathroom mirror.

He observed water droplets on the mirror.

Why was the mirror wet?

Answering technique

Starting forms of water :

Cause (Gain / Lose Heat) :

Condition :

Effect :

Ending forms of water :

Answer:


3:00

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Warmer water vapour

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Concept: Condensation

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Starting forms of water :

Cause (Gain / Lose Heat) :

Condition :

Effect :

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Practice 1: Bathroom Mirror

Charles stepped out of a hot shower and look into the bathroom mirror. He observed water droplets on the mirror. Why is the mirror wet?

Concept: Condensation

Warmer water vapour

cooler surface

Water droplets formed on the mirror.

Answering technique

Starting forms of water : Warmer water vapour in the surroundings

Cause (Gain / Lose Heat) : loses heat

Condition : the cooler outer surface of the mirror

Effect : condenses

Ending forms of water : into water droplets

Answer:

Warmer water vapour in the surroundings touches the cooler surface of the mirror, loses heat and condenses into water droplets.

Practice 2: Cloudy spectacles

Susan was travelling in an air-conditioned bus. When she stepped out of the bus into the warm outdoors, there is fogging on her spectacle frames as shown.

Explain why the fogging was observed on the Spectacle frame?

Answering technique

Starting forms of water :

Cause (Gain / Lose Heat) :

Condition :

Effect :

Ending forms of water :

Answer:


3:00

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Susan was travelling in an air-conditioned bus. When she stepped out of the bus into the warm outdoors, there is fogging on her spectacles as shown.

Concept: Condensation

Warmer water vapour

cooler surface

Answering technique

Starting forms of water :

Cause (Gain / Lose Heat) :

Condition :

Effect :

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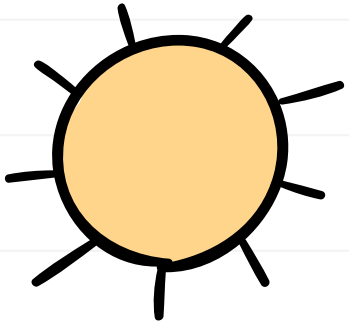

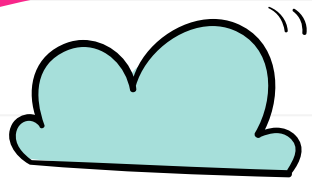

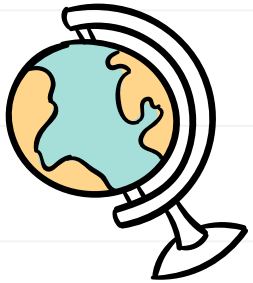

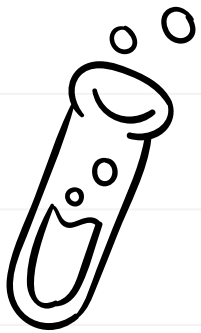

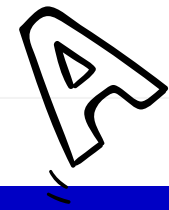

https://go.gov.sg/wrps2024pew

We value your feedback. Do give us your feedback through this link. Thank you

Thank You