



**MERIDIAN
PRIMARY SCHOOL**



Nurturing Future Learners, Future Citizens, Future Leaders

11 February 2023

Primary 3 and 4 Science Curriculum Sharing & Workshop

Learning & Application of Science Concepts

Resilience · Responsibility · Care · Respect · Integrity · Teamwork ·



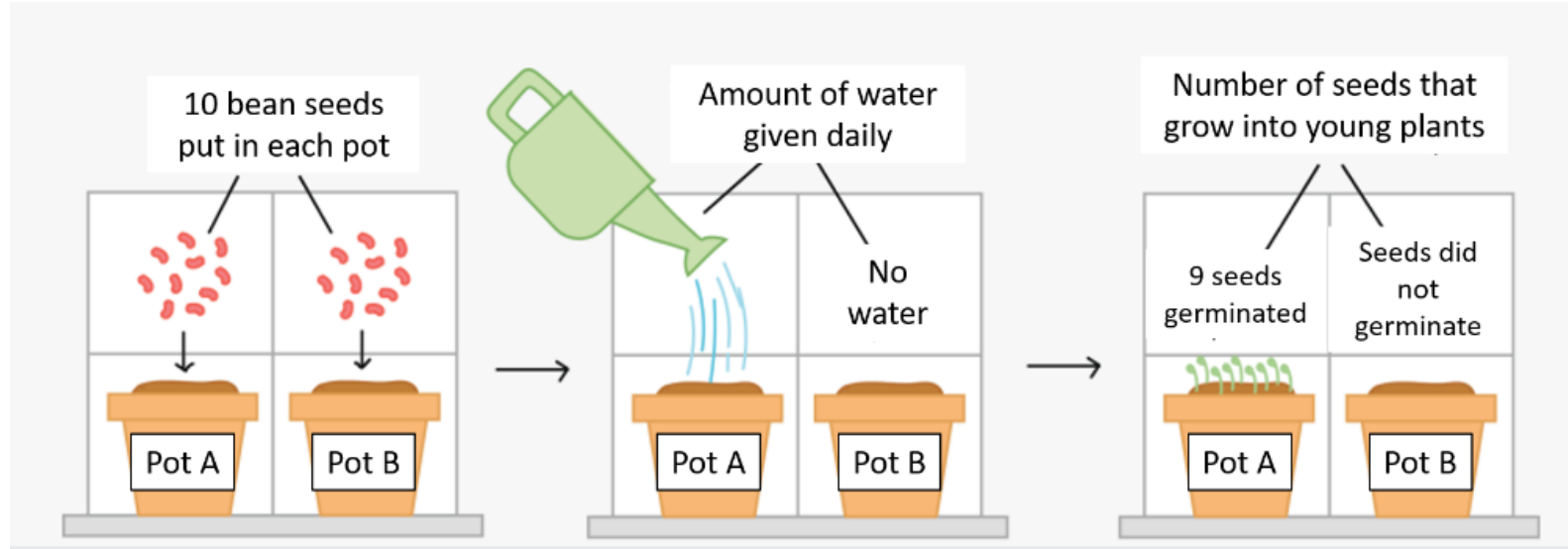
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2. Introduction to the Scientific Method & Concept of Fair Testing

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Application Question



Application Q1

What is the **purpose/aim** of Ali's experiment? He is trying to find out if _____.

- seeds needs water to grow
- seeds need warmth to grow
- plants needs water to grow well
- plants need warmth to grow well

Application Q2

Which of the following variables should Ali keep the **same** to ensure a fair test?

- A) size of each pot
- B) type of seeds put in each pot
- C) amount of water given to the seeds
- D) number of seedlings in each pot after one week
- E) number of seeds in each pot at the start of experiment



Application Q3

What is the variable Ali should **measured** in this experiment?

- Number of seeds in each pot
- Amount of water given to the seeds
- Amount of warmth given to the seeds
- Number of seedlings in each pot at the end of one week



Application Q4

Based on the observations above, Ali can conclude that _____.

- plants need water to grow
- seeds need air to germinate
- seeds need water to germinate
- seeds need warmth to germinate





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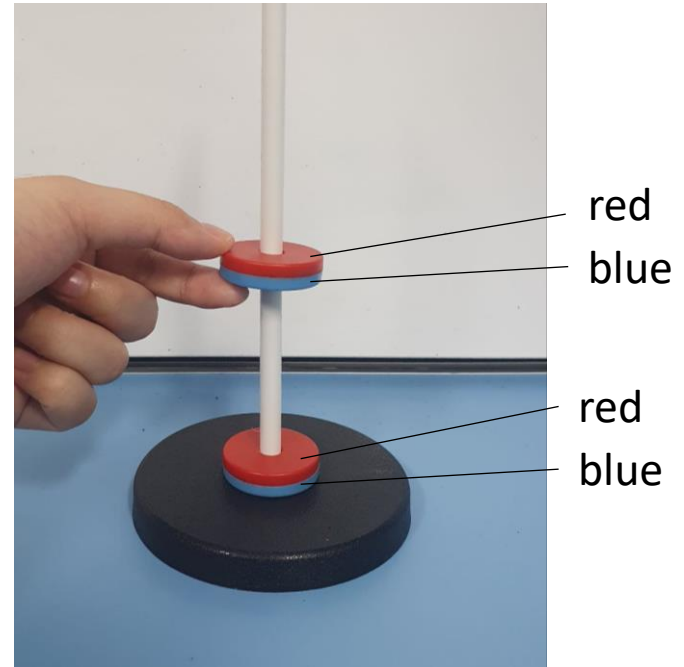
3. Exploring Sparkle Kits (Magnets)

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Magnets on the Move

Let's Inquire:

1. Put a ring magnet through the plastic rod. Make sure that the red side of the magnet is facing up.
2. Put another ring magnet through the plastic rod. Make sure that the blue side of the magnet is facing down.



Magnets on the Move

Let's Inquire:

3a. What do you observe about the two ring magnets?

**Use the
terms
'attract' or
'repel' to
describe**



Magnets on the Move

Let's Inquire:

3b. Explain your observation in 3a.

Concept:
Like poles
repel and
unlike
poles
attract



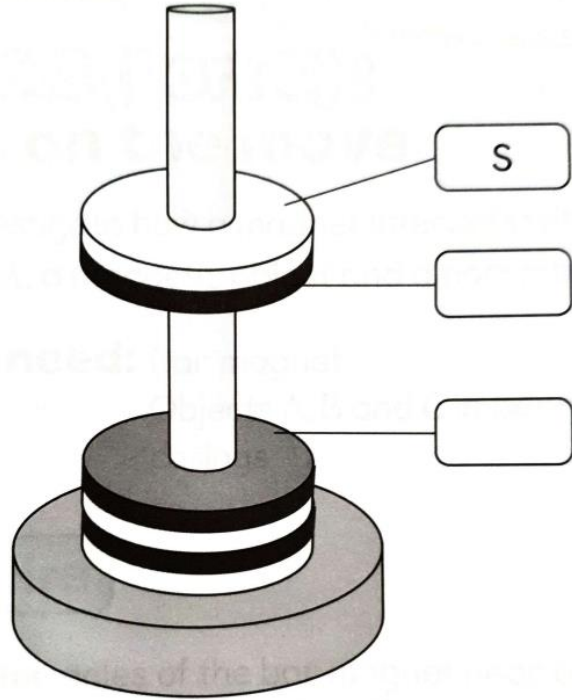
Magnets on the Move

Let's Inquire:

4. Use the same materials and explain how the ring magnets can be pushed apart.



Application



Concept:
Like poles
repel and
unlike poles
attract



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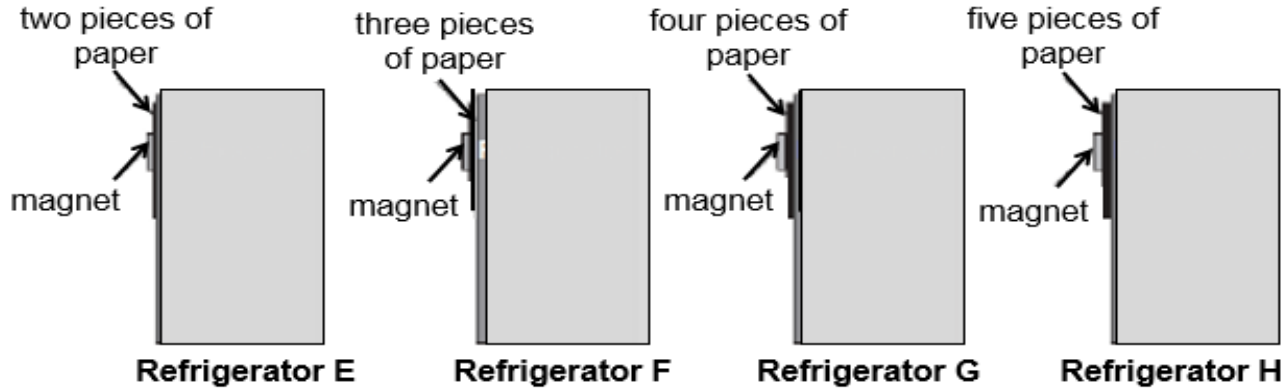
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4. CER Answering Technique

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Example 1

The diagrams below show **four identical magnets** holding pieces of paper onto the door of **four identical refrigerators (E, F, G and H)**.



(i) Referring to **refrigerator E**, explain how the magnet (**Claim, Evidence**) holds the two pieces of paper onto the refrigerator.

Reasoning - Magnetism (magnetic force) from the magnet passes through 2 thin pieces of paper and attracted to the fridge.

(ii) Explain why adding more pieces of paper between the refrigerator and the magnet might cause the magnet to fall off. (*Scientific Reasoning*)

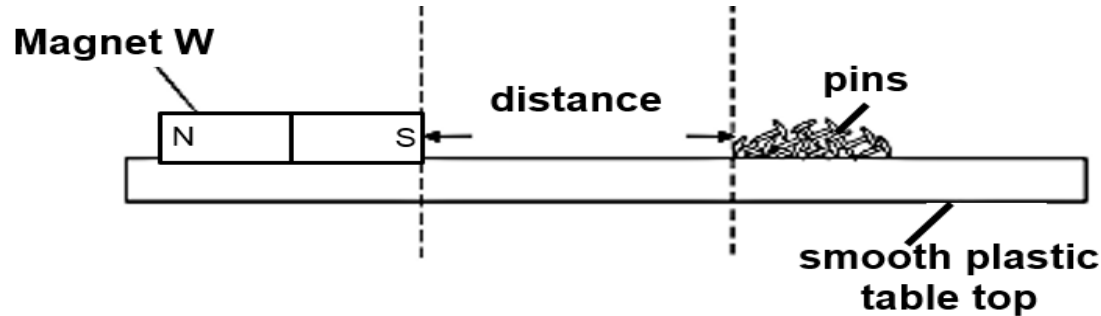
Reasoning - The magnetic force becomes weaker as more paper is placed between the fridge and the magnet. Eventually, the magnet will fall off.

(iii) Besides paper, identify two other non-magnetic materials (**Claim—based on what the child had learned**)

Claim - wood, rubber /plastic/ceramics or any other non-magnetic materials learned.

Example 2

Ali holds a strong bar magnet W at a fixed distance from some pins made of different materials. He observed that the magnet attracted some pins and there were still some remaining



i) Why did the magnet **attract some of the pins?** (Claim and Reasoning)

These pins were made of magnetic materials like steel/iron/cobalt/ nickel.

ii) Why were the other pins not attracted to the strong bar magnet? (Claim and Reasoning)

The other pins were made of non-magnetic materials like plastic, aluminium, silver, copper.

iii) What conclusion can you make about materials and magnetism? (Evidence and Reasoning)

Magnetic materials are attracted by a magnet. Non-magnetic materials are not attracted by a magnet.

Let's Practice

Melissa wanted to find out if five bar magnets, A, B, C, D and E, of the same size, have the same magnetic strength. She moved the bar magnet towards the steel clip until the steel clip was attracted to the magnet. She recorded her findings in the table below.



Bar magnet	Distance when the steel clip was attracted to the magnet (cm)
A	4
B	3
C	1
D	2
E	3

- (i) Can she use an aluminium clip instead of a steel clip?
Give a reason for your answer. (Claim, Evidence and Reasoning)
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- (ii) Which two magnets have the same magnetic strength?
Explain your answer. (Evidence /Reasoning)
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