

PRIMARY 3

BASED ON MOE SCIENCE CURRICULUM

**OPEN-ENDED
QUESTIONS
PRACTICE**

#1

INTERACTIONS

Magnets (15 Questions)



NAME:

Q1

A 3D diagram of a vertical assembly. A central grey plastic rod passes through four stacked grey rings. The rings are labeled from top to bottom: Ring W, Ring X, Ring Y, and Ring Z. The rod is labeled 'Plastic rod'.

In the table below, put a tick (☐) under the correct heading to indicate if the statements are 'True', 'False', or 'Not Possible to Tell'.

	Statements	True	False	Not possible to tell
i)	All four rings are definitely magnets.			
ii)	Ring Z is made of iron.			
iii)	The like poles of Ring W and X are facing each other.			
iv)	Ring Y is made out of plastic.			

**Label the question number(s)
before answering.**

[illegible]

Notes

MAGNETS



Yong Jie was given three objects, X, Y and Z, wrapped in paper. The objects were of similar sizes. He held a magnet about 2cm away from each one of them, as shown in the diagram below. Each object has parts A and B at their ends.

He then recorded his observations in the table below.

Object	Observations
X	It moved away from the magnet.
Y	It moved towards the magnet.
Z	It did not move.

(a) Which one of the objects (X, Y or Z) could be made of aluminium?

(b) Using the letters (A, B, C or D) shown in the diagram above, describe what he could do to make object X move towards the magnet.

ANSWER(S)

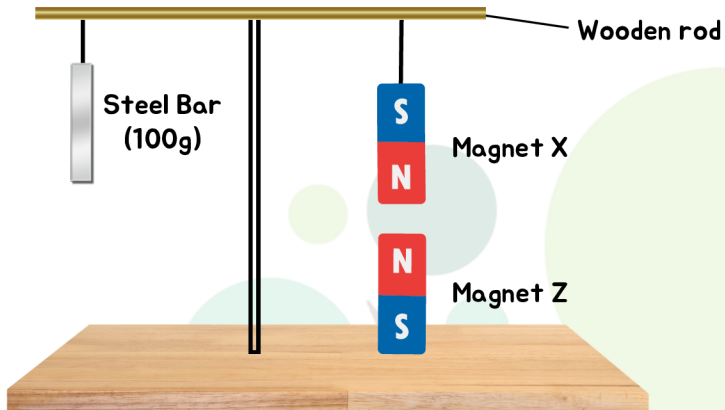
**Label the question number(s)
before answering.**

Notes

MAGNETS

Q3

Linda set up an experiment as shown below. Magnet Z was fixed to the table below Magnet X to balance the wooden rod.



Based on Linda's experiment, indicate if each of the following statements is True, 'False' or 'Not possible to tell' by placing a tick (✓) in the correct column. (4m)

	Statements	True	False	Not possible to tell
i)	Magnet X is heavier than the the steel bar.			
ii)	If the steel bar is removed, the wooden rod will tilt upwards on the right.			
iii)	If Magnet Z is replaced by an iron bar, the wooden rod will be balanced.			
iv)	If Magnet Z is placed below the steel bar instead of below Magnet X, the wooden rod will be balanced.			

ANSWER(S)

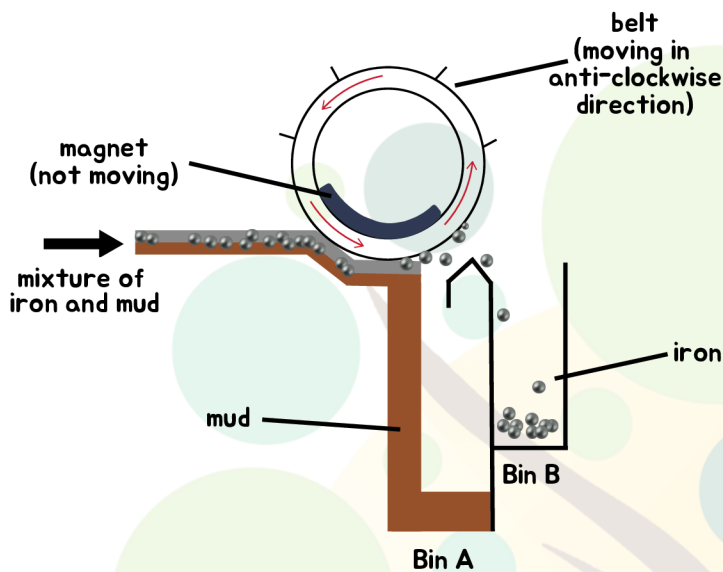
Label the question number(s) before answering.

Notes

MAGNETS

Q4

The diagram below shows a machine used to separate iron from mud. A mixture of the iron pieces and mud was poured into the machine.



(a) The iron pieces in the mud were picked up by the moving belt. Give a reason for this.

(b) When the iron pieces on the moving belt moved away from bin A, the iron pieces dropped and were collected in bin B. Explain why this happened.

One way to fill bin B faster is to pour more mixture into the machine.

(c) Suggest another way to fill bin B faster.

ANSWER(S)

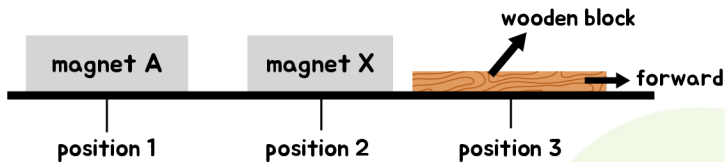
**Label the question number(s)
before answering.**

Notes

MAGNETS

Q5

Eddie used the set-up shown below to investigate the effect of magnetic forces.



Eddie observed that when he placed magnet A at position 1, magnet X moved forward, pushing the wooden block forward as well. He recorded the distance travelled by the wooden block.

(a) Explain how magnet A was able to cause the wooden block to move forward.

He repeated the experiment by placing magnets B, C and D at position 1, one at a time. He then recorded his results as shown in the table below.

Magnet	Distance travelled by the wooden block (cm)
A	5
B	8
C	3
D	0

(b) Which magnet, A, B, or C, has the strongest magnetism? Explain your answer.

(c) Give one possible reason why when magnet D was placed at position 1, the distance travelled by the wooden block was 0 cm.

ANSWER(S)

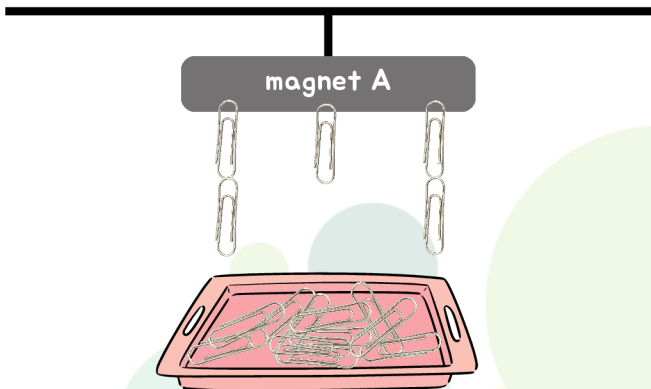
**Label the question number(s)
before answering.**

Notes

MAGNETS

Q6

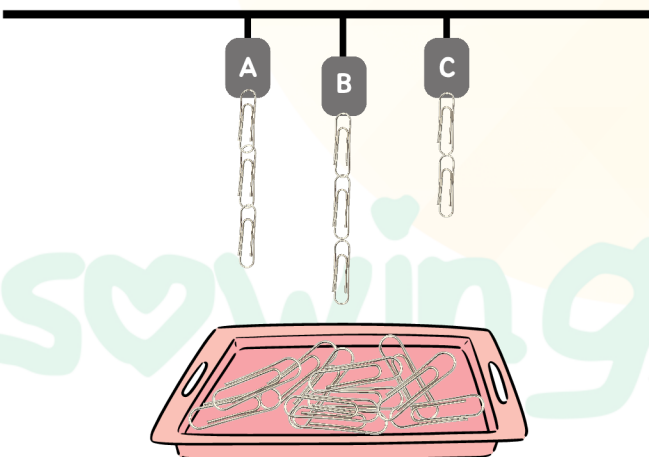
Alice hung magnet A over a tray of plastic, steel and copper paper clips as shown in the diagram below.



(a) Which type(s) of paper clips above would the magnet attract? Give a reason for your answer.

(b) She observed that the poles of magnet A attracted the most number of paper clips. Give a reason to explain her observation.

Alice changed the set up and hung magnets B and C. She then placed a tray of paper clips and observed the number of paper clips attracted by each magnet as shown below



Alice said that magnet A has a weaker pull than magnet B and C.

(c) Explain why her statement is incorrect.

ANSWER(S)

**Label the question number(s)
before answering.**

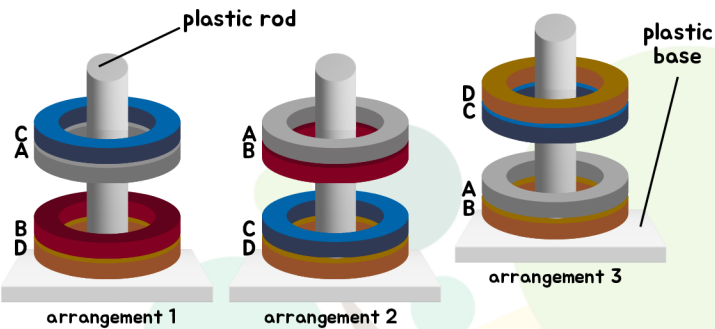
[illegible]

Notes

MAGNETS

Q7

Joo Seng put four metal rings A, B, C and D through a plastic rod in three different arrangements as shown below.



ANSWER(S)

**Label the question number(s)
before answering.**

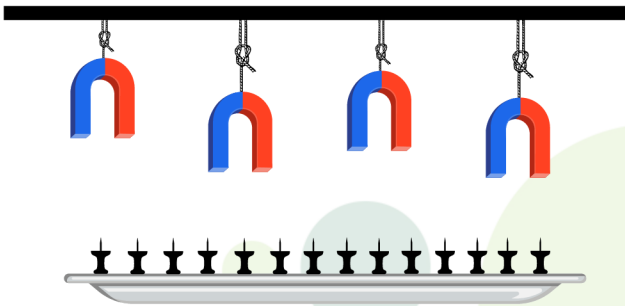
- (a) Based on the observations above, which of the metal rings are definitely magnets.
- (b) Explain your answer in (a) above.
- (c) Name two magnetic materials.

Notes

MAGNETS

Q8

Zhi Wen conducted an experiment to compare the strength of four U-shaped magnets as shown below. He hung the magnets on strings of different lengths over a tray of pins.



He recorded the number of pins attracted to the magnets in the table below.

Magnet	Number of pins attracted
W	10
X	2
Y	4
Z	6

(a) Which was the weakest magnet? Give a reason.

(b) Based on the set-up above, Zhi Wen. was unable to compare the strength of Magnets Y and Z. Give a reason.

(c) Magnet Y was replaced by a very strong magnet. Besides attracting more pins, state another possible observation that could happen.

ANSWER(S)

**Label the question number(s)
before answering.**

[illegible]

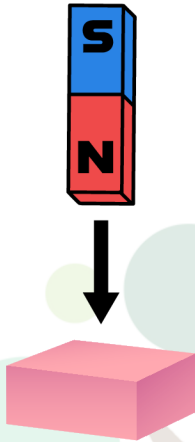
Notes

seedz

MAGNETS

Q9

Joseph lowered a magnet towards an object as shown below.



As the magnet was lowered, the object moved up towards the magnet.

(a) What is the property of the material of the object?

(b) What would Joseph need to do to pick up a heavier object with the same magnet?

ANSWER(S)

**Label the question number(s)
before answering.**

A decorative background featuring horizontal lines and various colored circles (green, yellow, blue) scattered across the page.

Notes:

Q10

ANSWER(S)

paper clips

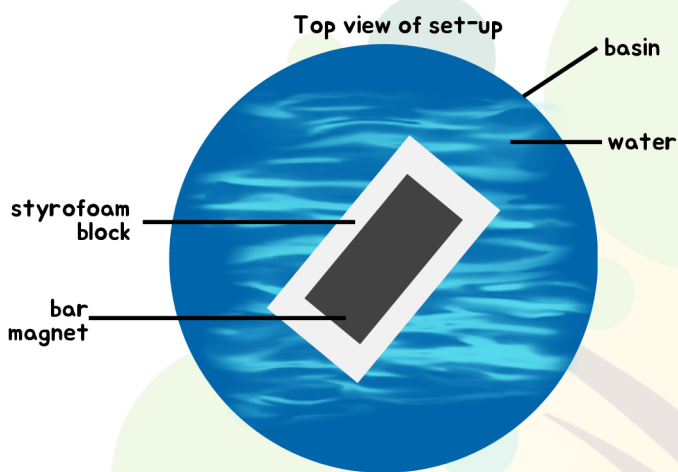
Rod	Number of paper clips attracted when the switch was closed
A	0
B	4
C	6

- ## Notes

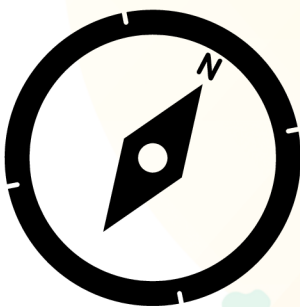
MAGNETS

Q11

Ahmad taped a bar magnet with poles X and Y, onto a piece of styrofoam block and spun it ten times in a basin of water. The diagram below shows the top view of the set-up when the magnet was at rest. The bar magnet always came to rest in the direction as shown in the diagram below.



The direction North is shown in the compass below.



(a) Based on Ahmad's results, which property of magnets is shown in his observation?

ANSWER(S)

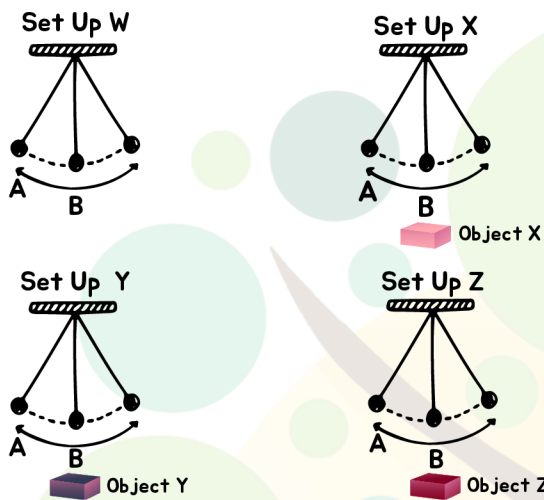
Label the question number(s) before answering.

This image shows a blank sheet of white paper with horizontal black ruling lines. On the left side, there is a decorative graphic element consisting of several large, overlapping circles in light green and pale yellow colors. Interspersed among these circles are stylized, curved grey shapes that resemble leaves or branches, creating a modern, organic design. The entire page is otherwise empty, with no text or other markings.

Notes

Q12

Objects X, Y and Z are placed under position B in set-ups X, Y and Z respectively.



The four steel balls were released from position A and allowed to swing freely till they came to a complete stop. The time taken for the balls to come to a complete stop is shown in the table below.

Set up	Time take for the ball to stop completely (s)
W	20
X	2
Y	5
Z	20

(a) Based on the results above, identify objects X, Y and Z using the categories below.

Magnet with strong magnetism:
Magnet with weak magnetism:
Wooden box:

ANSWER(S)

**Label the question number(s)
before answering.**

Notes

MAGNETS

Q12

Qn 12 Continue ...

Two identical steel balls, P and Q, were placed next to object Y as shown below.



When object Y is lifted, only ball P remained attached to object Y.

(b) Explain why this is so.

(c) After object Y was heated for 5 minutes, ball P could no longer be lifted up together with object Y. Explain why.

(d) What can be done to increase reliability of the results?

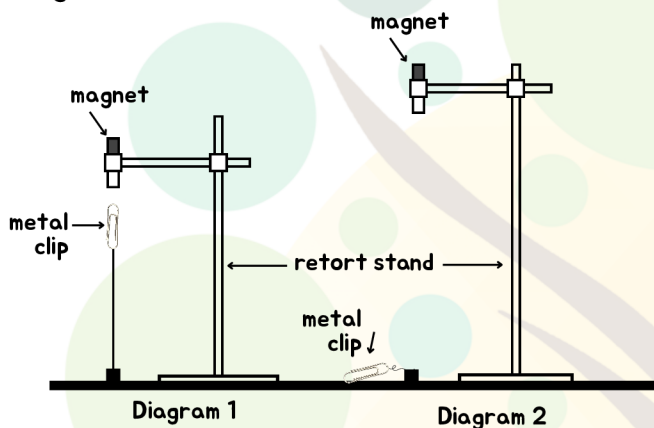
ANSWER(S)

**Label the question number(s)
before answering.**

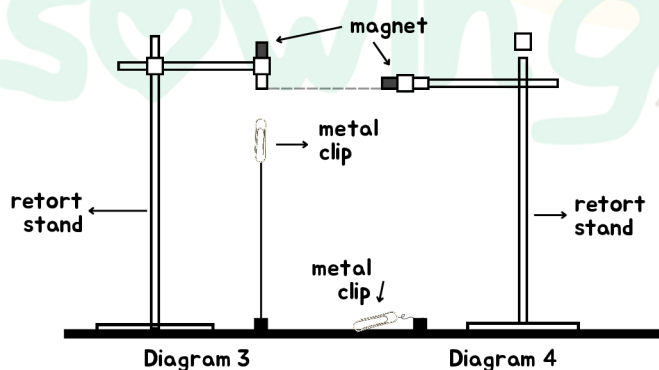
Notes

Q13

The experiment was then repeated by placing the magnet at a higher position above the table and the metal clip did not remain hanging in the air as shown in Diagram 2.



Another experiment was conducted as shown in Diagram 3 where the weight holding the metal clip is placed directly below the magnet. The experiment was repeated by placing the same magnet horizontally as shown in Diagram 4 where the weight holding the metal clip is placed directly below the center of the magnet.



ANSWER(S)

**Label the question number(s)
before answering.**

Notes

Q14

Magnet	Distance d (cm)
W	6
X	8
Y	3
Z	5

(b) Based on the result of his experiment, arrange the magnets according to their strength from the strongest to the weakest.

**Label the question number(s)
before answering.**



Notes

MAGNETS

Q14

Qn 14 Continue ...

(c) In the table, tick (✓) the variable(s) that Herman must keep the same to ensure a fair test?

Variables	Tick
Magnets of different sizes	
Same steel ball for each experiment	
Magnets of the same magnetic strength	

Herman replaced Magnet Y with a bigger sized magnet. It attracted the steel ball from a distance of 3 cm.

(d) What can you conclude about magnetic strength and size of magnet?

Herman dropped Magnet X several times and tested it out again.

(e) Will Magnet X attract the steel ball from a distance of 8 cm, more than 8 cm or less than 8 cm? Explain your answer.

ANSWER(S)

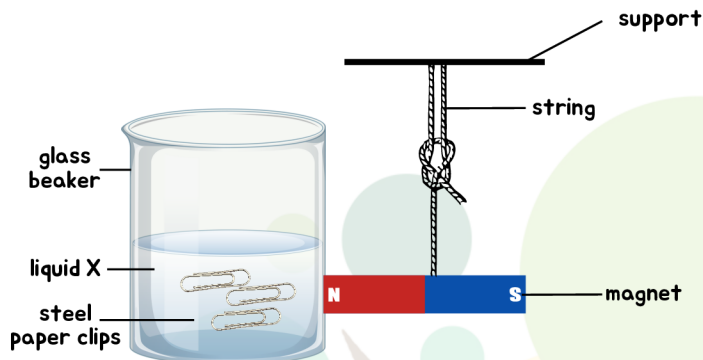
**Label the question number(s)
before answering.**

Notes

MAGNETS

Q15

Kumar placed three steel paper clips into a glass beaker containing liquid X. He used the North pole (N) of the magnet to touch the glass beaker as shown below.



(a) State a property of magnets that Kumar is trying to show? [1]

Kumar repeated the same experiment but he changed the part of the magnet touching the glass beaker. Using the same beaker, steel paper clips and magnet, he observed that the steel paper clips moved slower towards the magnet.

(bi) Which part of the magnet was touching the glass beaker? Explain. [1]

(bii) State another variable that Kumar must keep the same in the above experiment. [1]

ANSWER(S)

**Label the question number(s)
before answering.**

[illegible]

Notes



PRIMARY 3

OPEN-ENDED QUESTIONS PRACTICE #1

INTERACTIONS: MAGNETS

FIND & FOLLOW US ON SOCIAL MEDIA AT



www.sowingseedz.com

