

NAME:

DATE:

CLASS:

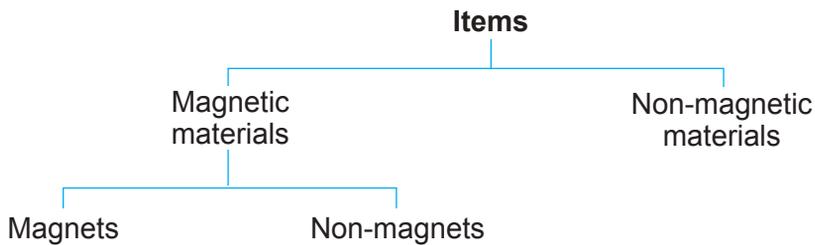
MARKS

10

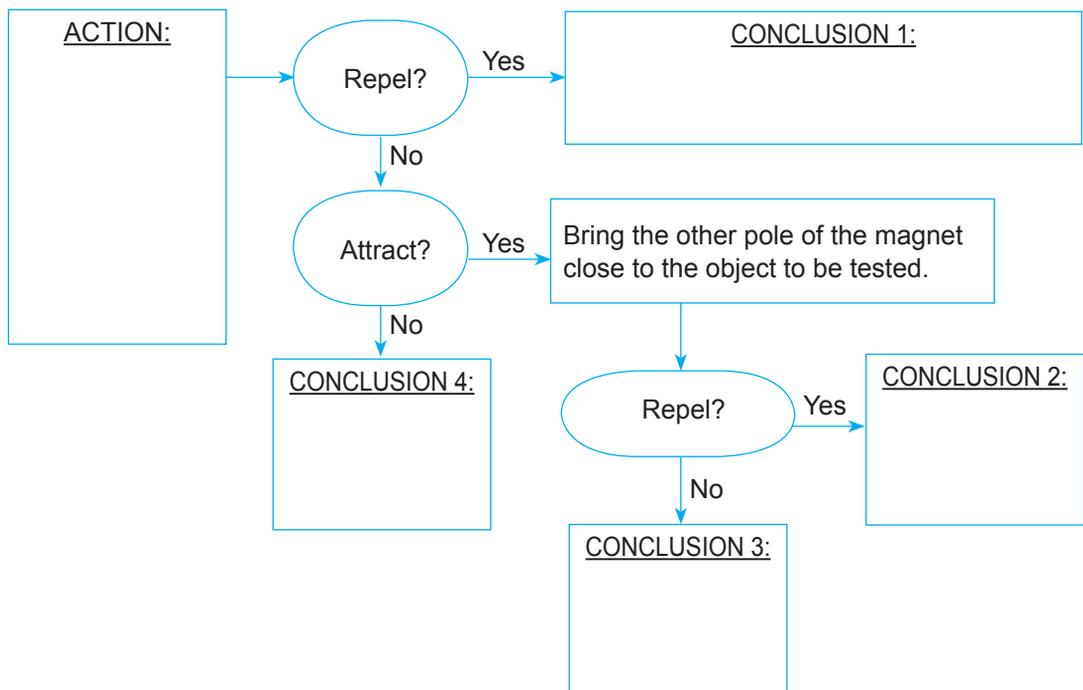
Forces



1. Sally had a box of items which she wanted to classify into the following categories.



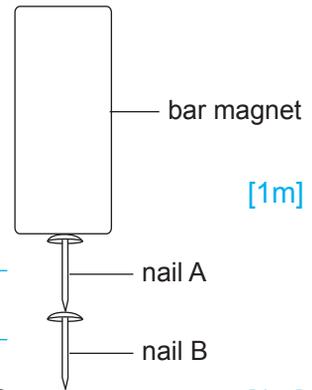
(a) Armed with only a bar magnet, how would Sally decide which category to place each item in? Fill in the boxes in the flow chart below to help her come to a decision. [5m]



A bar magnet is made to pick up two nails as shown in the diagram.

- (b) Although nail A is not a magnet, it is able to pick up nail B. Explain why this is so.

- (c) What will be observed when the bar magnet is removed?

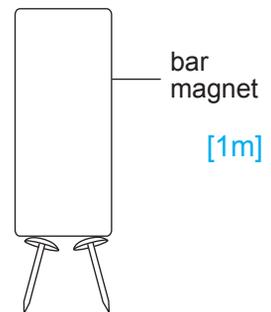


[1m]

[1m]

The two nails are now arranged side by side at each end of the bar magnet as shown.

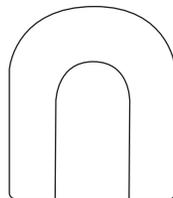
- (d) Explain why the two nails tilt away from each other.



[1m]

- (e) The two nails are now placed on each end of a U-shaped magnet. In the diagram below, draw how the two nails would be positioned.

[1m]



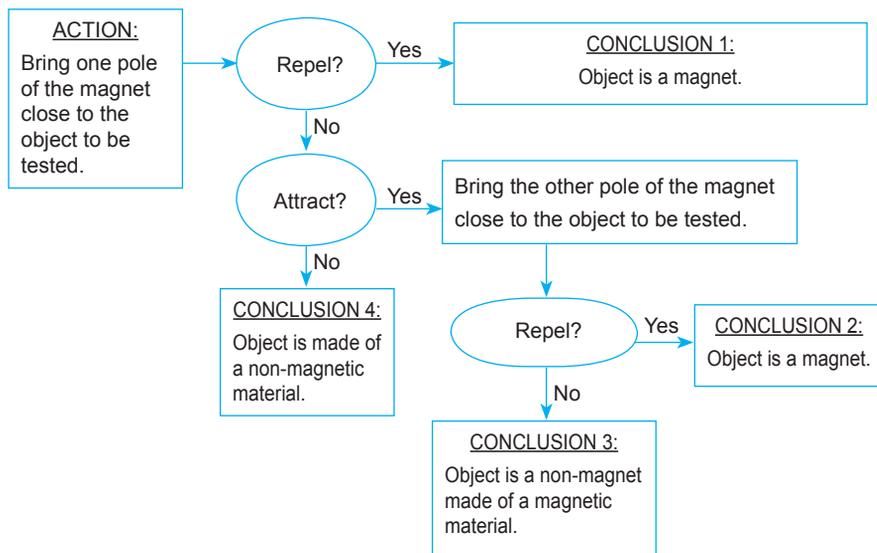
- (f) Explain why the two nails are in the positions shown in (e).

[1m]

Answers to Forces

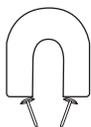


1. (a)



- (b) When nail A is in contact with the bar magnet, it becomes an induced magnet and is able to pick up nail B.
- (c) When the bar magnet is removed, nail A is no longer an induced magnet, so it will no longer be able to attract nail B.
- (d) The two nails have become induced magnets having the same polarity. Since like poles repel, the nails tilt away from each other.

(e)



- (f) Since the two nails are at opposite poles of the magnet, they become induced magnets having opposite polarities. Since unlike poles attract, the nails will tilt inwards towards each other.