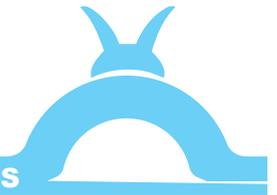
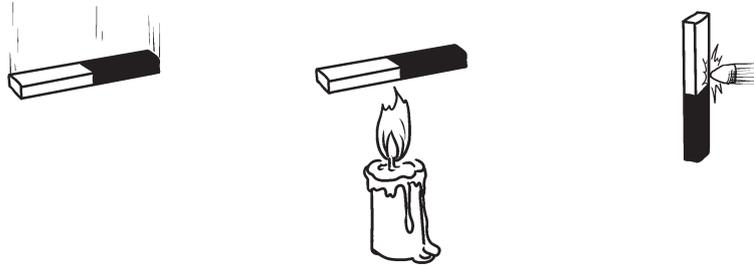


Making Magnets



For questions 1 – 4, write down your answers in the spaces provided.

1. Study the diagrams below.



(a) What do the diagrams represent? [1m]

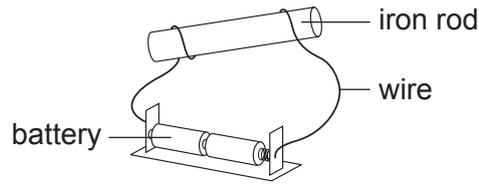
(b) How should we store magnets so as to preserve their magnetism? [1m]

2. John went trekking in the jungle. He did not bring a compass but only had a magnet, a map and a ball of string in his pocket. He realised he was lost.

(a) What can he do to find his way out of the jungle? [1m]

(b) Why is the method suggested in (a) able to work? [1m]

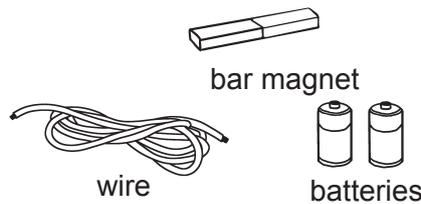
3. Study the diagram below.



(a) Harry built the above set-up but the iron rod could not attract any iron nails at all. The batteries were new. Why was the iron rod unable to attract any nails? [1m]

(b) What can be done to improve the set-up so that the iron rod would be magnetised? (Use only the components in the diagram.) [1m]

4. Natalie was given an iron nail along with the objects shown below. Mr Jones, her science teacher, asked her to magnetise the nail.



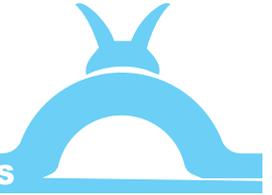
(a) What are the two methods that Natalie can use to magnetise the nail? [1m]

(b) Briefly describe both methods. [2m]

Method 1: _____

Method 2: _____

(c) How do the two methods magnetise the nail? [1m]



1. (a) They represent ways in which a magnet can lose its magnetism.
(b) We should store them using keepers and not let them be hit, heated, dropped or exposed to an alternating current.
2. (a) He can suspend the magnet by tying a piece of string around the middle of the bar and wait for the magnet to come to a rest. After determining where North and South is, he can use the map to find his way out.
(b) The poles of a magnet will always point to the North-South direction.
3. (a) The iron rod was not magnetised at all as there was too little wire coiled around it.
(b) Harry can coil more rounds of wire around the iron rod.
4. (a) They are the stroking method and the electrical method.
(b) Method 1: In the stroking method, the iron nail is stroked several times with the bar magnet in the same direction, using the same pole.
Method 2: In the electrical method, the wire is coiled around the iron nail at least 25 times. A current is passed through the wire by connecting both ends to the batteries.
(c) They cause the magnetic particles in the nail to line up neatly in the same direction.