NCERT Solutions for Class 6 Science (Curiosity) Chapter 4 Exploring Magnets

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Class 6 Science Curiosity Chapter 4 Exploring Magnets

Question 1. Do magnets stick to objects made of certain materials only?

Answer: Yes, magnets stick only to certain materials like iron, nickel, and cobalt. They do not stick to materials like aluminium, copper, brass, gold, silver, and lead.

Question 2. Do all parts of a magnet attract magnetic materials equally?
Answer: No, all parts of a magnet do not attract equally. The ends or poles of the magnet attract more strongly than the middle part.

Question 3. Can we find a magnet with a single pole?
Answer: No, we cannot find a magnet with a single pole. Every magnet always has both a North Pole and a South Pole, even if it is broken into pieces.

Let us enhance our learning.

Question 1. Fill in the blanks
(i) Unlike poles of two magnets _____ each other, whereas like poles _____ each other.
(ii) The materials that are attracted towards a magnet are called _____.
(iii) The needle of a magnetic compass rests along the _____ direction.
(iv) A magnet always has _____ poles.
Answer:
(i) attract, repel
(ii) magnetic materials
(iii) north-south
(iv) two

Question 2. State whether the following statements are True (T) or False (F).
(i) A magnet can be broken into pieces to obtain a single pole.
Answer: False

(ii) Similar poles of a magnet repel each other.
Answer: True

(iii) Iron filings mostly stick in the middle of a bar magnet when it is brought near them.
Answer: False

(iv) A freely suspended bar magnet always aligns with the north-south direction.
Answer: True

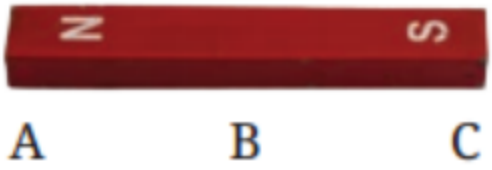
Question 3. Column I shows different positions in which one pole of a magnet is placed near that of the other. Column II indicates the resulting action between them for each situation. Fill in the blanks.

Column I	Column II
N – N	----------
N – ----------	Attraction
S – N	----------
---------- – S	Repulsion

Answer:

Column 1	Column 2
N -N	Repulsion
N - S	Attraction
S - N	Attraction
S - S	Repulsion

Question 4. Atharv performed an experiment in which he took a bar magnet and rolled it over a heap of steel U-clips



According to you, which of the options given in Table is likely to be his observation?

Table: Number of pins attracted by the magnet at its various positions

	Position A	Position B	Position C
(i)	10	2	10
(ii)	10	10	2
(iii)	2	10	10
(iv)	10	10	10

Answer: From the figure, it is clear that the ends of the magnet have more iron fillings attached to them. This is because the magnet's strength lies more at the ends of the magnet. Hence option (i) is correct.

Question 5. Reshma bought three identical metal bars from the market. Out of these bars, two were magnets and one was just a piece of iron. How will she identify which two amongst the three could be magnets (without using any other material)?
Answer:

Reshma can bring the bars close to each other and observe. If two bars repel each other, they are magnets. The iron bar will only be attracted but will not repel. This way, she can find the two magnets.

Question 6. You are given a magnet that does not have the poles marked. How can you find its poles with the help of another magnet that has its poles marked?
Answer: Bring the marked magnet close to the unmarked one. If the ends attract, the poles are opposite. If they repel, the poles are the same. This will help you find the poles of the unmarked magnet.

Question 7. A bar magnet has no markings to indicate its poles. How would you find out near which end its North Pole is located without using another?
Answer: Suspend the bar magnet freely. It will turn and settle in the north-south direction. The end that points to the north is the North Pole. The end pointing towards the south is the South Pole.

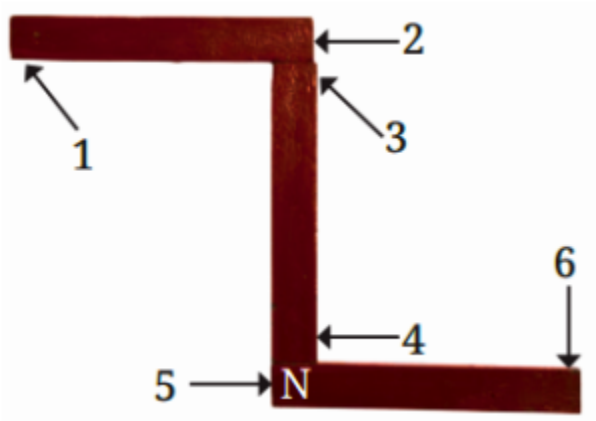
Question 8. If the earth is itself a magnet, can you guess the poles of the earth's magnet by looking at the direction of the magnetic compass?
Answer: Yes, we can guess the Earth's magnetic poles using a compass. The north end of the compass needle points to the Earth's geographic North Pole, which means that place is the magnetic South Pole.

Question 9. While a mechanic was repairing a gadget using a screwdriver, the steel screws kept falling. Suggest a way to solve the problem of the mechanic based on what you have learnt in this chapter.
Answer: The mechanic can rub a magnet along the screwdriver to make it magnetic. Then the screwdriver will hold the steel screws and stop them from falling.

Question 10. Two ring magnets X and Y are arranged as shown in Fig. (below). It is observed that the magnet X does not move down further. What could be the possible reason? Suggest a way to bring the magnet X in contact with magnet Y, without pushing either of the magnets.

Answer: Magnet X is not moving down because its pole is facing the same pole of magnet Y, and like poles repel each other. To bring them together, rotate magnet X so that opposite poles face each other. Then they will attract and come in contact.

Question 11. Three magnets are arranged on a table in the form of the shape shown in Fig. (below). What is the polarity, Nor S, at the ends 1, 2, 3, 4, and 6 of the magnets? The polarity of one end (5) is given to you.



Answer:

Based on the image and the given polarity at point 5 (N - North Pole), we can determine the polarities at the other points by using the rule that opposite poles attract and like poles repel.

Here's how the polarity at each point can be determined:

- **Point 5 is marked as North (N).**
- **The magnet continues from 5 to 4, so Point 4 will be the South (S) pole (opposite end of the same magnet).**
- **The magnet at 4 is attracting the magnet going from 4 to 3. Since 4 is South, the end connected at 3 must be North, and thus:**
  - **Point 3 = North (N)**
  - **Point 2 (other end of same magnet) = South (S)**
- **The magnet going from 2 to 1 is joined such that it attracts the South Pole at 2, so the end at Point 1 must be North (N)**
- **The other end of the magnet starting at 5 (already known North) extends to Point 6, which will be South (S).**

Final Polarities:

- **Point 1: North (N)**
- **Point 2: South (S)**

- **Point 3: North (N)**
- **Point 4: South (S)**
- **Point 5: North (N)** ***(Given)***
- **Point 6: South (S)**