

SAINIK SCHOOL NALANDA
CLASS 6 A & B
VACATION HOMEWORK
SCIENCE BY PK VERMA

Answer the following questions: -

Case 1: Attraction of Magnetic Materials *Anu places a magnet near various objects on her desk, such as a pencil, a paper clip, and a plastic spoon. She notices that only the paper clip is attracted to the magnet.*

1. Why is the paper clip attracted to the magnet while the pencil and plastic spoon are not? Explain the difference between magnetic and non-magnetic materials.
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Case 2: Uses of Magnets *Rahul is playing with his toy train set, which uses magnets to connect the train cars. He wonders how the magnets hold the train cars together without glue or tape.*

2. How do magnets help in connecting the train cars? Describe how magnets are used in everyday objects to make things work or stay together.
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Case 3: Magnetic Poles *Neha conducts an experiment where she brings two magnets close to each other. She observes that sometimes the magnets pull towards each other, and at other times they push away.*

3. What causes the magnets to attract or repel each other? Explain the concept of magnetic poles and how they interact.
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Case 4: Earth as a Magnet *Ravi's teacher explains that Earth acts like a giant magnet, which is why a compass needle always points north. Ravi is curious about how this happens.*

4. How does the Earth behave like a magnet? Explain the role of Earth's magnetic field in helping a compass work.
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Case 5: Magnetic Induction *In science class, Meera rubs a needle with a magnet and notices that the needle can now pick up small iron filings.*

5. How did the needle become magnetic after rubbing it with the magnet? Explain the process of magnetic induction and how it can turn certain materials into temporary magnets.

Case 6: Attraction of Magnetic Materials *Anu places a magnet near various objects on her desk, such as a pencil, a paper clip, and a plastic spoon. She notices that only the paper clip is attracted to the magnet.*

6. Why is the paper clip attracted to the magnet while the pencil and plastic spoon are not? Explain the difference between magnetic and non-magnetic materials.
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Case 7: Uses of Magnets *Rahul is playing with his toy train set, which uses magnets to connect the train cars. He wonders how the magnets hold the train cars together without glue or tape.*

7. How do magnets help in connecting the train cars? Describe how magnets are used in everyday objects to make things work or stay together.
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Case 8.: Magnetic Poles *Neha conducts an experiment where she brings two magnets close to each other. She observes that sometimes the magnets pull towards each other, and at other times they push away.*

8. What causes the magnets to attract or repel each other? Explain the concept of magnetic poles and how they interact.
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Case 9: Earth as a Magnet *Ravi's teacher explains that Earth acts like a giant magnet, which is why a compass needle always points north. Ravi is curious about how this happens.*

9. How does the Earth behave like a magnet? Explain the role of Earth's magnetic field in helping a compass work.
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Case 10: Magnetic Induction *In science class, Meera rubs a needle with a magnet and notices that the needle can now pick up small iron filings.*

10. How did the needle become magnetic after rubbing it with the magnet? Explain the process of magnetic induction and how it can turn certain materials into temporary magnets.
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Case 11: Identifying Magnetic and Non-Magnetic Materials *Ria finds a variety of objects, such as an iron nail, a plastic button, and a wooden stick, at home. She wants to know which of them will be attracted to a magnet.*

11. Why is the iron nail attracted to the magnet while the plastic button and wooden stick are not? Explain the difference between magnetic and non-magnetic materials.
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Case 12: Directional Property of Magnets *Ayan uses a bar magnet to find out directions while camping. He notices that the magnet always points in a particular direction.*

12. Why does the magnet always point in the same direction? Explain how the directional property of magnets is used in a compass.

Case 13: Magnetic Repulsion and Attraction *During an experiment, Maya brings the north poles of two magnets together and notices that they push each other away, but when she brings a north and a south pole together, they stick.*

13. Why do like poles repel and unlike poles attract? Explain the behavior of magnetic poles in this scenario.

Case 14: Magnets in Daily Life *Sumit notices that the door of his refrigerator stays closed tightly because of magnets placed inside the door.*

14. How do magnets help in closing the refrigerator door tightly? Describe other common uses of magnets in everyday life.

Case 15: Temporary Magnets *During a class activity, Sahil rubs a magnet on a steel pin and finds that the pin now attracts small iron filings.*

15. How did the steel pin become a temporary magnet? Explain the process of magnetization and how a material can become magnetized.
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