

Class 6 Science / Chapter 4: Exploring Magnets

Curiosity Grade 6 / Notes + Activities ke Jawab / Notes by Abhishek Sir

1. Magnet kya hai?

Purane samay me sailors raat me taare dekhkar disha dhoondte the. Taare na dikhne par wo **magnetic compass** use karte the. Pehle ke magnets **lodestone** (prakritik magnet) ke bane the. Aajkal **artificial magnets** (pencil box, sticker, toys, school lab) use hote hain. Magnet kai shapes ke hote hain: **bar, U-shaped, ring, disc, cylindrical, spherical**.

2. Magnetic aur Non-magnetic materials

Pehchaan

- **Magnetic materials:** jo magnet se chipakte (attract hote) hain. Jaise iron, nickel, cobalt aur unke kuch mishran.
- **Non-magnetic materials:** jo nahi chipakte. Jaise lakdi, plastic, glass, rubber, kaagaz, cloth.

3. Magnet ke Poles

Magnet ke siron par **sabse zyada iron filings** chipakti hain. In sirdon ko **poles** kehte hain: **North pole** aur **South pole**. Beech me bahut kam filings chipakti hain.

Poles ka niyam

- Magnet ke poles hamesha **jodi me** hote hain.
- Magnet ko **todo to har tukde me N aur S** dono aa jaate hain.
- **Akela N ya akela S pole** nahi ho sakta.

4. Disha pata karna

Agar bar magnet ko **dhaage se beech me latka do** (freely suspended), to wo hamesha **North-South disha** me rukta hai. Jo sira **uttar (North)** ki taraf rukta hai wo **North pole** (North-seeking), doosra **South pole**. **Karan:** Prithvi khud ek bada magnet hai.

Magnet pehchanne ka tareeka

- Latka hua magnet hamesha **N-S** me rukta hai.
- Latki hui loha ki chhad kisi bhi disha me ruk sakti hai.
- Isse pata chalta hai ki wo magnet hai ya nahi.

Magnetic compass: chhota gol dibba, andar sui jaisa magnet pin par ghoomta hai, neeche disha wala dial. Needle ka laal sira North batata hai. Compass ko rakho, needle ruk jaaye, phir dibba ghumao taaki dial ke N-S needle se mil jaayein.

Matsya-yantra: bharat me prachin samay me samundar me disha jaanne ke liye use hota tha. Magnetised machhli jaisa loha tel ke bartan me rakha jaata tha.

5. Attraction aur Repulsion

Do magnets ke poles	Result
N - S (unlike)	Attraction (khinchte hain)
S - N (unlike)	Attraction
N - N (like)	Repulsion (door dhakelte hain)
S - S (like)	Repulsion

Trick / Yaad rakhne ka tareeka

- Like repel, Unlike attract (jaise = door bhagate hain, alag = paas aate hain).
- Sirf repulsion se pakka pata chalta hai ki wo magnet hai. Loha dono poles se attract hota hai.

Magnetic effect non-magnetic cheezon ke aar-paar bhi kaam karta hai (lakdi, cardboard, plastic, glass beech me rakhne par compass needle ka deflection nahi badalta).

6. Magnets ki dekhbhal

Magnet ko aise rakho

- Do magnets jodi me, unlike poles ek taraf, beech me lakdi ka tukda, aur sire par soft iron ke 2 tukde rakho.
- Garam mat karo, gira mat, hathode se mat peeto.
- Mobile phone, remote ke paas mat rakho.

Magnet ke N pole ko kabhi safed dot, "N" likh kar, ya laal rang se dikhate hain; S ko neela.

7. Activities ke Jawab

Q. Activity 4.1 - Kaun si cheezein magnet se chipakti hain? (Table 4.1)

Ans. Pencil (wood) - No; Eraser (rubber) - No; Paper clip (steel) - Yes; Sui/needle (iron) - Yes; Coin (kai baar) - kuch Yes; Plastic scale - No; Glass - No. **Conclusion:** sirf iron, nickel, cobalt wali cheezein magnetic hain.

Q. Activity 4.2 - Iron filings

Ans. Sabse zyada filings magnet ke siron (poles) par chipakti hain, beech me bahut kam. Doosre shape ke magnet me bhi yahi hota hai.

Q. Activity 4.3 - Latka hua bar magnet

Ans. Wo har baar ek hi N-S line me rukta hai. Loha ki chhad kisi bhi disha me ruk jaati hai. Isse magnet ki pehchaan hoti hai.

Q. Activity 4.4 - Apna compass banao

Ans. Sui par magnet ka ek hi pole ek hi disha me 30-40 baar ragdo, sui magnet ban jaati hai (pins attract karegi). Use cork me pirokar paani me tairao. Needle hamesha N-S me rukti hai.

Q. Activity 4.5 - Do magnets ka attraction/repulsion

Ans. Magnet B ka ek sira paas laane par A paas aata hai (attract); doosra sira laane par A door jaata hai (repel). Matlab unlike poles attract, like poles repel. Iron bar ke dono sire dono poles se attract hote hain.

Q. Activity 4.6 - Compass aur bar magnet

Ans. Magnet ka North pole, compass ke N pole se door ghumata (repel) hai; magnet ka South pole paas laane par needle ka N sira us taraf ghoomta (attract) hai. Compass needle bhi ek magnet hai.

Q. Activity 4.7 / Table 4.2 - Beech me lakdi, cardboard, plastic, glass

Ans. Sabme needle ka deflection lagbhag waisa hi rehta hai. Conclusion: magnetic effect non-magnetic cheezon ke aar-paar kaam karta hai.

8. Let us enhance our learning - Answers

Q. Q1. Fill in the blanks

Ans. (i) Unlike poles attract, like poles repel. (ii) Magnetic materials. (iii) North-South. (iv) Two.

Q. Q2. True/False

Ans. (i) F (ii) T (iii) F (siron par chipakti hain) (iv) T

Q. Q3. Column I / II

Ans. N-N: Repulsion. N-S: Attraction. S-N: Attraction. S-S: Repulsion.

Q. Q4. Atharv ka observation (Table 4.3)

Ans. Option (i): $A = 10$, $B = 2$, $C = 10$. Kyunki clips siron (poles) par zyada chipakti hain, beech (B) me kam.

Q. Q5. Teen identical bars: 2 magnet, 1 loha. Kaise pehchane?

Ans. Do bars ke sire paas laao. Jo do bars kabhi repel karein, wo magnets hain (repulsion sirf magnets me). Agar kisi jodi me sirf attraction ho to ek loha ho sakta hai. Ek aur tareeka: ek bar ko doosre ke beech me laao; magnet ke beech me attract nahi hoga, loha

beech me bhi attract hota hai.

Q. Q6. Bina marked magnet ke poles marked magnet se kaise pata karein?

Ans. Marked magnet ka **N pole** unmarked ke ek sire ke paas lao. Jo sira attract kare wo **S pole**, jo repel kare wo **N pole**.

Q. Q7. Bina doosre magnet ke North pole kaise pata?

Ans. Bar magnet ko dhaage se latka do. Jo sira North disha (jahan se Surya nikalta hai uske baayein) ki taraf rukta hai wo **North pole**. Ya compass paas laao.

Q. Q8. Prithvi ke magnet ke poles compass se?

Ans. Compass ka **N sira geographic North** ki taraf rukta hai. Isliye Prithvi ke magnet ka **South pole North** ki taraf (Earth ke north me) hai, kyunki unlike poles attract karte hain.

Q. Q9. Mechanic ke screws gir rahe hain

Ans. Screwdriver ko magnet se ragdo (ya uske sire par magnet lagao). Steel screwdriver magnet ban jaayega aur screws chipke rahenge.

Q. Q10. Ring magnets X aur Y

Ans. X neeche nahi jaa raha kyunki X ka neeche wala pole aur Y ka upar wala pole same (like) hain, isliye repel kar rahe hain. Upay: X ko ulta karke (flip) ghuma do taaki unlike poles aamne-saamne aayein, phir wo attract hokar chipak jaayega.

Q. Q11. Teen bar magnets ke poles (figure)

Ans. Pole 5 = N. Jo sira touch karte hain unlike hote hain: 4 = S (5 ke saath wale magnet ka), uske doosre sire 3 = N, ussey judne wala 2 = S, aur 1 = N. Neeche wale magnet ka doosra sira 6 = S. **Answer: 1-N, 2-S, 3-N, 4-S, 6-S.**

9. Important Q&A (exam ke liye)

Q. Magnetic aur non-magnetic me antar

Ans. Magnetic: magnet se chipakte (iron, nickel, cobalt). Non-magnetic: nahi chipakte (lakdi, plastic, glass).

Q. Magnet ke 3 gun

Ans. Iron ko attract karta hai; poles hote hain jo hamesha jodi me; latka hua N-S me rukta hai; like poles repel aur unlike attract.

Q. Compass kaise kaam karta hai?

Ans. Andar ka chhota magnetic needle Prithvi ke magnet ke karan N-S me rukta hai, dial se disha pata chalti hai.

Chapter ka Naam (copy-paste)

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