

Class 6 Science / Chapter 5: Measurement of Length and Motion

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

1. Hum length kaise naapte hain?

Pehle log hath ki baalisht (handspan), kadam (stride), pair, ungli (angula), baanh se naapte the. Par ye sabke alag-alag hote hain, isliye ek hi table ki length sabko alag aati hai (Anish ko 13 se thoda zyada, Padma 13, Hardeep 14). Naap = number + unit (jaise 13 handspan: 13 number, handspan unit).

Isliye sab ke liye ek jaisi (standard) unit chahiye. Bharat me angula, dhanusa, yojana units the aur Harappa se scales bhi mile hain. Angula ko aaj bhi tailor aur carpenter use karte hain.

2. Standard Units (SI Units)

Duniya ke desh milkar International System of Units (SI) bane. Length ki SI unit = metre (m).

Zaroori conversions (yaad karo)

- 1 km = 1000 m
- 1 m = 100 cm
- 1 cm = 10 mm (1 mm = 0.1 cm)
- 1 inch = 2.54 cm

Kya naapna hai	Unit
Do shehron ki doori, rail track	kilometre (km)
Kamre ki height, school ground	metre (m)
Pencil, eraser	centimetre (cm)
Paper ya sikke ki motai	millimetre (mm)

Likhne ke niyam: units chhote letter me (km, m, cm, mm); plural me "s" nahi; symbol ke baad full stop nahi; number aur unit ke beech space. Jaise 5 cm, 5cm nahi.

3. Sahi tareeka length naapne ka

Dhyan rakho

- *Sahi scale chuno:* pencil ke liye 15 cm scale; kamre ke liye metre scale/tape; ped ya chhaati ke liye lachila tape (tailor ka).
- *Scale ko object ke saath chipka kar, poori length ke saath rakho.*
- *Aankh seedhi oopar (object ke sare ke theek upar) rakhtar padho, tirchi nahi.*
- *Agar scale ka sira toota ho, koi aur poori mark (jaise 1.0 cm) lo aur ghata do. Jaise $10.4 - 1.0 = 9.4$ cm.*
- *Number ke saath unit zarur likho.*

Tedhi (curved) line: dhaaga ya lachila tape se naapo. Dhaage ko line par rakho, phir seedha karke scale se naapo. (Nabeena students ke liye ubhare hue markings wale scales hote hain.)

4. Position batana - Reference point

Alag logon ko school ya garden alag door lagta hai kyunki wo apne-apne ghar se dekhte hain. Agar sab ek hi point (jaise bus stand) se dekhein to jawab same aayega. Jis fixed point se doori batai jaaye use reference point kehte hain. Jaise "Delhi 70 km" me Delhi reference point hai. Kabaddi court banane ke liye bhi pehle reference point chunte hain.

5. Motion (Gati) aur Rest

Pehchaan

- *Motion:* jab object ki position reference point ke hisaab se samay ke saath badle.
- *Rest:* jab position nahi badle.
- *Reference point zaroori hai:* bus me baithe yatri bus ke hisaab se rest me, par bahar ki building ke hisaab se motion me.

6. Motion ke prakaar

Type	Matlab	Example
Linear	Seedhi line me	Seedhi sadak par car, girta santra, dhakela gaya box
Circular	Gol raste par	Merry-go-round, dhaage se ghumaya gaya eraser
Oscillatory	Ek jagah ke aas-paas aage-peeche	Jhoola, latka hua pendulum, scale ka hilna
Periodic	Ek tay samay baad apna raasta dohraye	Circular aur oscillatory dono periodic hain

Trick / Yaad rakhne ka tareeka

• **L-C-O**: Linear (seedha), Circular (gol), Oscillatory (idhar-udhar).

7. Activities ke Jawab

Q. Activity 5.1 - Cheezon ki length (Table 5.2)

Ans. Apni cheezein naapkar likho (unit ke saath), jaise comb 14 cm, pen 15 cm, pencil 17 cm, eraser 4 cm. Doston ke result thoda alag aa sakte hain kyunki aankh ki position, scale ka galat rakhna, ya sirf toota hua scale jaise karan hote hain.

Q. Activity 5.2 / Table 5.3 - Motion aur rest

Ans. Motion: chalti gaay (position badal rahi hai), udta pakshi, chalti car, ghadi ki sui, behta paani. **Rest:** ped, table, building, kitaab (position nahi badal rahi). **Justification:** reference point (jaise ground) ke hisaab se position badli ya nahi.

Q. Activity 5.3 - Girta eraser/orange, parade

Ans. Girta eraser aur santra seedhi line me girte hain = linear motion. Parade me students bhi seedhi line me chalte hain.

Q. Activity 5.4 - Dhaage se ghumata eraser

Ans. Eraser gol raste par ghumta hai, merry-go-round jaisa = circular motion.

Q. Activity 5.5 - Latka eraser chhodna

Ans. Wo aage-peeche hilta hai, jhoole jaisa = oscillatory motion.

Q. Activity 5.6 - Metal strip

Ans. Free sira oopar-neeche hilta hai = oscillatory motion.

Q. Activity 5.7 / Table 5.4 - Park ki motion

Ans. Linear: slide par fisalna, daudte bachche. **Circular:** merry-go-round. **Oscillatory:** jhoola (swing), see-saw.

8. Let us enhance our learning - Answers

Q. Q1. Match

Ans. Delhi-Lucknow ki doori: kilometre. Sikke ki motai: millimetre. Eraser ki length: centimetre. School ground ki length: metre.

Q. Q2. True/False

Ans. (i) T (ii) T (iii) F ($1 \text{ km} = 1000 \text{ m} = 100000 \text{ cm}$)

Q. Q3. Standard unit nahi hai?

Ans. (iv) handspan - kyunki wo sabke liye alag hota hai.

Q. Q4. Scales ki smallest value

Ans. Table: 15 cm scale = 1 mm; metre scale = 1 mm; tailor ka tape = 1 mm ya 1/8 inch; school ka tape = 1 cm ya 1 mm (apne scale ke chhote marks dekho).

Q. Q5. 1.5 km metres me

Ans. 1 km = 1000 m, to 1.5 km = $1.5 \times 1000 = 1500$ m.

Q. Q6. Glass/bottle ke curved base ki length

Ans. Dhaaga bottle ke base ke chaaro taraf lapeto, nishaan lagao, dhaage ko seedha karke scale se naapo (ya tape lagao). Example: 25 cm (bottle par depend).

Q. Q7. Dost ki height

Ans. Example: 140 cm = 1.40 m = 140 cm = 1400 mm. (m me: cm ko 100 se bhaag, mm me: cm x 10)

Q. Q8. Sikke se notebook ki side

Ans. Pehle sikke ki size naapo (jaise 2.5 cm), notebook ki side (jaise 20 cm). Estimate = $20 / 2.5 = 8$ sikke. Phir sikke rakhkar check karo.

Q. Q9. Linear, circular, oscillatory ke 2-2 examples

Ans. Linear: seedhi sadak par bus, girta phal. Circular: merry-go-round, ghadi ki sui. Oscillatory: jhoola, pendulum.

Q. Q10. mm, cm, m me naapi jaane wali cheezein (Table 5.6)

Ans. mm: sikke ki motai, kaagaz ki motai, pen ki nib. cm: pencil, eraser, kitaab ki length. m: darwaze ki height, class ki chaudai, table.

Q. Q11. Rollercoaster (Fig 5.19)

Ans. A se B: seedhi dhalu track = linear motion. B se C, D, E (loop): gol track = circular motion. E se F: seedhi track = linear motion.

Q. Q12. Metre scale ke liye kaun si cheez nahi?

Ans. Cloth aur stretchable rubber nahi, kyunki wo kheench jaate hain aur length badal jaati hai. Paper bhi theek nahi (mud jaata hai, geela ho to badal jaata hai). Plywood aur steel theek hain kyunki kadak hain aur size nahi badalta.

Q. Q13. Card game

Ans. Cards par likho: 1 km, 1000 m, 100 cm, 10 mm aadi. Match karne wale ko point milte hain.

9. Important Q&A (exam ke liye)

Q. Reference point kya hai?

Ans. Wo fixed point jiske hisaab se kisi object ki position ya doori batai jaati hai.

Q. Motion aur rest me antar

Ans. Motion me position reference point ke hisaab se badalti hai; rest me nahi badalti.

Q. Hum standard unit kyun use karte hain?

Ans. Taaki alag-alag logon ke naap same aayein aur confusion na ho.

Chapter ka Naam (copy-paste)

Measurement of Length and Motion

– Teacher: Abhishek Sir / MERIT SPRING

