

Class 6 Science / Chapter 7: Temperature and its Measurement

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

1. Garam ya thanda? Chhoone par bharosa nahi

Hum chhoo kar bata dete hain ki cheez garam hai ya thandi, par touch par poora bharosa nahi kar sakte. Activity 7.1 me ek hi paani (B) daayein haath ko thanda aur baayein haath ko garam lagta hai (kyunki daayein haath ne pehle garam paani A me aur baayein ne thande C me rakha tha). Isliye hotness/coldness ka sahi naap temperature hai aur use thermometer se naapte hain.

Temperature kya hai?

- Temperature = kisi cheez ke garam ya thanda hone ka bharosemand naap.
- Jo cheez zyada garam hai uska temperature zyada hota hai.
- Naapne ka yantra = thermometer.

2. Thermometers ke prakaar

	Clinical thermometer	Laboratory thermometer
Kaam	Insaan ka sharir ka temperature	Doosri cheezon ka temperature (paani, hawa)
Range	35 °C se 42 °C	-10 °C se 110 °C
Banawat	Aajkal digital, battery par, heat sensor	Kaanch ki patli nali, neeche bulb, andar laal alcohol ya mercury
Unit	Celsius (°C)	Celsius (°C)

Mercury thermometer ab hat rahe hain kyunki mercury zehreela hai aur toot jaaye to saaf karna mushkil. Digital safe aur padhne me aasaan. Non-contact (infrared) thermometer bina chhue temperature naapta hai (COVID me use hua), isse beemari fail ne ka khatra kam.

3. Digital clinical thermometer kaise use karein

Steps aur precautions

- Pehle manual padho.

- Haath aur thermometer ki nok sabun-paani se dho lo (use se pehle aur baad).
- Reset button dabao, jeebh ke neeche rakho, muh band karo.
- Beep ya light aane tak ruko, phir display padho.
- Dhote waqt digital hissa paani se door rakho; nok se pakdo mat.

Normal body temperature = 37.0°C (98.6°F). Ye bahut saare swasth logon ka average hai, har kisi ka thoda alag ho sakta hai (umar, din ka samay, activity par depend). Insaan ka temperature aam taur par 35°C se neeche ya 42°C se upar nahi jaata. Chhote bachon aur bujurgon me kaanakh (armpit) me bhi naap sakte hain, par wo 0.5 se 1°C kam aata hai.

4. Temperature ki scales

Scale	Unit	Symbol	Note
Celsius	degree Celsius	$^{\circ}\text{C}$	Sabse zyada use
Fahrenheit	degree Fahrenheit	$^{\circ}\text{F}$	Ab science me kam; $37^{\circ}\text{C} = 98.6^{\circ}\text{F}$
Kelvin	kelvin	K	SI unit; $K = ^{\circ}\text{C} + 273.15$

Likhne ke niyam

- Scale ke naam bade letter se: Celsius, Fahrenheit, Kelvin.
- "degree" chhote letter se; kelvin chhote letter se; symbol bade letter me ($^{\circ}\text{C}$, $^{\circ}\text{F}$, K).
- K ke saath degree ($^{\circ}$) nahi likhte.
- Number aur unit ke beech space: 37.0°C .
- 1 se zyada ho to degrees likho.

Absolute zero = sabse kam sambhav temperature = $-273.15^{\circ}\text{C} = 0$ kelvin. Sabse zyada ki koi seema nahi (Surya ke core me 15 million $^{\circ}\text{C}$).

Thermometer banne se pehle bukhaar nabz (pulse rate) se pehchana jaata tha, par kayi aur cheezein bhi nabz badalti hain, isliye ye akela pakka nahi.

5. Laboratory thermometer ka sahi istemaal

Dhyan rakho

- Bulb paani ki tali ya deewar ko na chhue.
- Thermometer seedha (vertical) pakdo, tirchha nahi.

- Reading paani me rakhe hue hi padho (bahar nikalte hi level girta hai).
- Aankh liquid ke level ke bilkul seedh me ho.
- Bulb se mat pakdo; toot sakta hai.

Range = sabse kam se sabse zyada temperature jo wo naap sake. Smallest value (least count) = (do bade marks ka antar) / (unke beech ke divisions). Jaise $10^{\circ}\text{C} / 10 = 1^{\circ}\text{C}$.

Boiling paani aur pighalti barf ka temperature aur samay tak same rehta hai. Room thermometer hawa ka approximate temperature batata hai. Mausam report me roz ka maximum aur minimum temperature batate hain; garmi me badhta aur sardi me ghatta hai. Anna Mani = "Weather Woman of India", jinhone mausam naapne ke kai upkaran banaye.

6. Activities ke Jawab

Q. Activity 7.1 - Teen container (A garam, B normal, C thanda)

Ans. Prediction: daayein haath (A se aaya) ko B thanda lagega, baayein haath (C se aaya) ko B garam lagega. **Observation:** yahi hota hai. **Nishkarsh:** hum touch par bharosa nahi kar sakte.

Q. Activity 7.2 - Body temperature (Table 7.1)

Ans. Zyadatar logon ka temperature 36.5 se 37.5°C ke beech aata hai. Sabka exact 37.0°C nahi hota kyunki normal temperature ek average hai.

Q. "Kya chhote bachon ka body temperature adults se thoda zyada hota hai? Bujurgon ka kam?"

Ans. Aam taur par haan: age aur activity ke hisaab se temperature badalta hai.

Q. Activity 7.3 - Lab thermometer ki range

Ans. Dikhaaya gaya thermometer ki range -10°C se 110°C hai. Apne thermometer par sabse kam aur sabse zyada mark dekh kar likho.

Q. Activity 7.4 - Smallest value

Ans. Do bade marks (0 aur 10) ke beech 10 divisions hain, to $10/10 = 1^{\circ}\text{C}$. Smallest value = 1°C .

Q. Activity 7.5 - Garam paani ka temperature

Ans. Thermometer ka bulb doobo, liquid chadhna band hone par reading note karo.

Example: 60°C . Bahar nikalte hi liquid girne lagta hai, isliye paani me hi reading leni chahiye.

Q. More to do - Barf aur ubalta paani

Ans. Pighalti barf 0°C , ubalta paani lagbhag 100°C (jagah ke hisaab se thoda kam, jaise Shillong me $\sim 98^{\circ}\text{C}$). Dono jab tak pighal/ubal rahe, temperature constant rehta hai.

Q. Activity 7.6 - Boiling water ke alag readings (97.8 se 98.1 °C)

Ans. Alag readings ke karan: kisi ne bulb deewar/tali ko chhua, thermometer tirchha pakda, aankh seedhi nahi rakhi, ya bahar nikal kar padhi. Sahi tareeka sab follow karein to reading lagbhag same aayegi.

Q. Activity 7.7 - 10 din ka max/min temperature

Ans. Roz alag aate hain kyunki mausam kayi baaton par depend karta hai. Garmi aane par badhta, sardi me ghatta hai.

7. Let us enhance our learning - Answers

Q. Q1. Normal temperature

Ans. (ii) 37.0 °C

Q. Q2. 37 °C = ?

Ans. (iv) 98.6 °F

Q. Q3. Fill in the blanks

Ans. (i) temperature. (ii) clinical (clinical thermometer 35 se 42 °C hi naap sakta hai, ice-cold paani uski range se bahar). (iii) Celsius.

Q. Q4. Lab thermometer ki range

Ans. (ii) -10 °C to 110 °C

Q. Q5. Sahi tareeka kisne apnaya? (Fig 7.6)

Ans. (ii) Student 2 - thermometer seedha, beaker ke beech me, bulb na tali ko aur na deewar ko chhu raha. Student 1: tirchha; Student 3: bulb tali ko chhu raha; Student 4: thermometer deewar ko chhu raha.

Q. Q6. Thermometer me laal column rang karo (14 °C, 17 °C, 7.5 °C)

Ans. Laal rang us tick tak bharo jahan reading hai: 14 °C = 10 aur 20 ke beech, 10 se 4 chhote marks upar; 17 °C = 10 se 7 marks upar (15 ke baad 2 marks); 7.5 °C = 0 aur 10 ke beech, beech se thoda kam (7 aur 8 ke beech).

Q. Q7. Fig 7.8

Ans. (i) Laboratory thermometer (range -10 se 40 °C ki scale dikh rahi hai). (ii) Figure me liquid ka level nahi dikh raha, isliye reading liquid ke upar wale mark ko padhkar likhte. (iii) Smallest value = 1 °C (10 °C ke beech 10 chhote divisions).

Q. Q8. Lab thermometer sharir ka temperature kyun nahi naapta?

Ans. Wo kaanch ka hai aur toot sakta hai (mercury zehreela), chhote-bade 1 °C steps me hai jisse thik se nahi padha ja sakta, aur sharir ke temperature (35-42 °C) ke liye bahut badi range hai. Sharir ke liye clinical thermometer hi sahi hai.

Q. Q9. Vaishnavi ka temperature

Ans. (i) 40.0 °C. (ii) Day One, 7 pm. (iii) Day Three (37.0 °C aur neeche).

Q. Q10. 22.5°C ke liye kaun sa thermometer?

Ans. (b), kyunki usme sabse chhote divisions (0.5°C) hain, to 22.5°C seedha padh sakte hain. (a) me 1°C aur (c) me 2°C ke divisions hain.

Q. Q11. Fig 7.10 ka reading

Ans. (ii) 27.5°C (laal column 25 se 30 ke beech aadhe raste par).

Q. Q12. 0 se 100°C ke beech 50 divisions

Ans. Har division = $100 / 50 = 2^{\circ}\text{C}$.

Q. Q13. 0.5°C smallest division wali scale (10 se 20°C)

Ans. 10°C aur 20°C ke beech 20 chhote marks banao ($10 / 0.5 = 20$). Har 2 marks = 1°C . 10, 15, 20 par bade marks aur number likho.

Q. Q14. Komal ka 101°F bukhaar

Ans. Ye Fahrenheit hai, kyunki 101°C insaan ke liye sambhav nahi ($101^{\circ}\text{F} = \text{lagbhag } 38.3^{\circ}\text{C}$, yaani bukhaar).

8. Important Q&A (exam ke liye)

Q. Temperature aur heat me antar? / Temperature kya hai?

Ans. Temperature kisi cheez ke garam ya thanda hone ka naap hai, thermometer se naapte hain.

Q. Clinical aur lab thermometer me 3 antar

Ans. Use (sharir vs doosri cheezein), range ($35-42$ vs $-10-110$), banawat (digital vs kaanch ki nali).

Q. Temperature ki SI unit kya hai?

Ans. kelvin (K).

Chapter ka Naam (copy-paste)

Temperature and its Measurement

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