

Class 6 Science / Chapter 8: A Journey through States of Water

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

1. Barf aur paani - ek hi cheez

Thirav ko lagta tha barf aur paani alag cheezein hain. Aavi sahi thi: barf aur paani ek hi padarth ke do rup (states) hain. Barf rakhne par wo paani ban jaati hai (Activity 8.1). Paani behta aur chhitakta hai par barf nahi.

2. Paani gayab kaise hota hai? - Evaporation

Gadhdhon ka paani sham tak kam ho jaata hai. Kuch paani mitti me samata hai, par bartan par bhi paani sookh jaata hai jabki steel me paani nahi ghus sakta. To paani water vapour (gas) ban gaya. Paani ke vapour banne ki prakriya evaporation hai. Ye room temperature par bhi chalti rehti hai.

Evaporation ke examples

- Geele kapde sookhna
- Pocha lagi zameen sookhna
- Pasina sookhna
- Tawe par chhidka paani gayab hona
- Hand sanitiser ka sookhna

Water vapour dikhti nahi (invisible). Bhaap (steam) me jo safedi dikhti hai wo vapour ki chhoti boondein hain.

3. Dusra rahasya - Condensation

Thande paani aur barf wale glass ke bahar paani ki boondein aa jaati hain. Ye paani glass se baahar nahi nikla (level kam nahi hota). Ye hawa ki water vapour hai jo thandi sateh se milkar boondein ban gayi. Is prakriya ko condensation kehte hain.

Condensation ke examples

- Thande glass ke bahar boondein
- Subah os (dew) ki boondein patton par
- Ubalte paani ke bartan ke dhakkan ke neeche boondein
- Atmospheric Water Generator (hawa se paani banana)

Evidence - Activity 8.4

- Thanda paani + barf wala glass, upar steel plate, digital balance par weigh karo.
- Mass badhta hai kyunki hawa ki vapour paani ban kar glass par judti hai.
- Glass par paani ka level nishan lagao: level kam nahi hota par bahar extra paani aata hai. To paani glass se seep nahi hua, ye condensation hai.

Humidity = hawa me water vapour ki matra.

4. Paani ke teen states

Property	Ice (Solid)	Paani (Liquid)	Water vapour (Gas)
Shape	Fixed (container se nahi badalta)	Container jaisa, par volume fixed	Fixed nahi
Behna (flow)	Nahi behta	Behta hai	Behta/phailta hai
Phailna (spread)	Nahi	Thoda phailta hai	Poori jagah me phail jaata hai

Solid: pathar, lakdi, kaanch. Liquid: doodh, tel, sirka, shahad, nariyal tel. Gas: oxygen, carbon dioxide, rasoi ki khushboo jo hawa me phailti hai.

5. States kaise badalte hain?

Prakriya	Kya hota hai	Heat
Melting	Solid se liquid (barf se paani, mom pighalna)	Garmi do
Freezing	Liquid se solid (paani se barf, nariyal tel sardi me jam jaana)	Garmi hatao (thanda karo)
Evaporation	Liquid se gas	Garmi do
Condensation	Gas se liquid	Thanda karo

Trick / Yaad rakhne ka tareeka

- Solid -> (Melts) -> Liquid -> (Evaporates) -> Gas
- Gas -> (Condenses) -> Liquid -> (Freezes) -> Solid

6. Evaporation tez ya dheema kaise hota hai?

Evaporation tez hota hai jab:

- Zyada surface area khula ho (plate me, bottle cap se jaldi).

- Garmi/dhoop ho.
- Hawa chal rahi ho (pankha, hawa).
- Humidity kam ho.

Baarish me kapde der se sookhte hain kyunki hawa me pehle se zyada vapour hai (humidity zyada). Jaldi sukhane ke liye pankhe ke neeche, phaila kar sukhao.

7. Cooling effect

Evaporation hone par paani garmi (heat) leta hai, isse thandak milti hai. Isi se matka/surahi ka paani thanda rehta hai, hum pankhe ke neeche thanda mehsoos karte hain (pasina sookhta hai), chhat par paani chhidakne se thandak aati hai. **Pot-in-pot cooler:** do matke, beech me geeli ret, upar geela jute ka kapda; evaporation se andar thandak.

8. Baadal aur baarish, Water cycle

Garam hawa me water vapour oopar uthti hai (halki hai), oopar thandi hoti hai, dhool ke kano ke aas-paas condense hokar boondein ban jaati hain. Ye boondein milkar baadal banati hain. Jab bhaari ho jaati hain to baarish (ya ole ya barf) banke girti hain.

Water cycle: samundar aur zameen se paani evaporate hota, baadal banta (condensation), baarish/barf girti, nadiyon se wapas samundar me. Dhyan rakho: poore paani me se bahut kam hi hamare use ka hai, isliye paani bachao.

9. Activities ke Jawab

Q. Activity 8.1 - Barf ka cup

Ans. Barf paani me badal jaati hai. Isliye barf aur paani ek hi padarth ke do states hain.

Q. Activity 8.2 - Steel plate par paani

Ans. Paani plate ke doosri taraf nahi aata. Paani vapour banke hawa me chala jaata hai (evaporation). Sirf ye activity kaafi nahi, kyunki ek hi surface par ki gayi hai.

Q. Tawe par chhidka paani kahan jaata hai?

Ans. Bhaap (steam/water vapour) ban kar hawa me chala jaata hai. Ye evaporation hai.

Q. Activity 8.3 - Table 8.1 (I observe / I wonder)

Ans. **I observe:** glass ke bahar boondein, glass thanda. **I wonder:** ye paani kahan se aaya? Kya andar se aaya?

Q. Fig 8.3 - Boondon ke karan ke sujhaav

Ans. Galat: barf bahar aakar pighal gayi; paani glass se seep hua. Sahi: hawa ki vapour thande glass par condense hui.

Q. Activity 8.4 - Mass kaise badla? (Table 8.2)

Ans. Mass badhta hai (jaise 0 min: 400 g, 30 min: 401 g) kyunki vapour paani ban kar judta hai. Ye condensation ka saboot hai. Par seep na hone ka pakka saboot ke liye level mark wali activity karte hain: level kam nahi hota.

Q. Activity 8.5 - Table 8.3

Ans. Ice: shape fixed, flow nahi, spread nahi. Paani: shape container jaisa, flow, spread (volume fixed). Water vapour: shape fixed nahi, flows aur poori jagah me phail jaati hai.

Q. Activity 8.6 - Diagram poora karo (Fig 8.5)

Ans. A = Solid, B = Liquid, C = Gas. 1 = Melts (solid se liquid). 2 = Evaporates (liquid se gas). 3 = Freezes (liquid se solid). 4 = Condenses (gas se liquid).

Q. Activity 8.7 - Bottle cap vs plate

Ans. Same rakha: paani ki matra, jagah. Badla: khula surface area. Naapa: sookhne me samay. Plate me paani jaldi sookhta hai kyunki zyada area hawa ke sampark me. Doodh lene par bhi yahi hoga par doodh me dusre padarth bache rahenge (malai).

Q. Doosri conditions ka experiment (Table 8.5)

Ans. Example: Same: paani aur plate. Badlo: pankha chalu/band. Pankhe wali plate jaldi sookhegi.

Q. Activity 8.8 - Dhoop aur chhaon

Ans. Dhoop wale cap ka paani jaldi sookhta hai. Hawa chalne par aur jaldi. Baarish me der se.

Q. Kapde baarish me jaldi kaise sukhaein?

Ans. Pankhe ke neeche, phaila kar, kamre me garm jagah, hawadar jagah.

Q. Activity 8.9 - Pot-in-pot cooler

Ans. Geeli ret ka paani evaporate hota hai, garmi leta hai, isse andar thandak. Sabzi-phal kai din (jaise 5-7 din) taaza rehte hain. Ret ki jagah geela kapda, kela ke patte ya mitti use ho sakte hain.

Q. Activity 8.10 - Plastic bottle me baadal

Ans. Dabane aur chhodne par bottle me dhundh (baadal) sirf jalte kaagaz ke dhool-kano ke saath banti hai, kyunki vapour dhool ke aas-paas condense hoti hai.

Q. Activity 8.11 - Water cycle labels (Fig 8.9)

Ans. Ocean/Lake/River se Evaporation (oopar jaate arrow) -> Cloud (Condensation) -> Rain/Snow -> River, Lake, Groundwater -> wapas Ocean.

10. Let us enhance our learning - Answers

Q. Q1. Condensation kya hai?

Ans. (iv) Water vapour ka liquid state me badalna.

Q. Q2. Evaporation kahan zaroori?

Ans. (i) (b) water colours (paani sookhne par rang sookhta). (ii) (b) ink pen (ink ka paani sookhta hai; pencil aur ball pen me nahi).

Q. Q3. Asli ghaas ke paas thandak kyun?

Ans. Asli ghaas ke patton se paani evaporate hota hai (cooling effect) aur zameen me bhi nami hoti hai. Plastic ghaas me paani nahi, wo garam ho jaati hai.

Q. Q4. Paani ke alawa evaporate hone wale liquids

Ans. Petrol, alcohol, nail polish remover, perfume, sanitiser, tel (dheere).

Q. Q5. Pankhe se kapde kyun sookhte hain?

Ans. Pankha geele kapde ke paas ki nami wali hawa hata deta hai aur sookhi hawa laata hai, isse evaporation tez ho jaata hai. Kapde jaldi sookhte hain. (Hawa chalne se humidity kam hoti hai.) Pankha khud thanda nahi karta, hamare sharir ka pasina evaporate karwa kar thandak deta hai.

Q. Q6. Sludge 3-4 din rakhna kyun?

Ans. Is dauran sludge ka paani evaporate ho jaata hai, wazan kam ho jaata hai, to transport sasta aur sookha hone se sambhalna surakshit (kam gandagi, kam badbu).

Q. Q7. Ghar me evaporation wale kaam

Ans. Kapde sukhana, pochha, badi (pappad) sukhana, mehendi/paint sookhna, pasina sookhna, anaaj sukhana, achaar sukhana. Samajh se hum kaam jaldi aur sahi kar sakte hain.

Q. Q8. Nature me paani solid kaise?

Ans. Barf, glacier, ola (hail), snow, barfeeli chotiyan.

Q. Q9. "Water is our responsibility before it is our right"

Ans. Paani use karna hamara adhikar hai par usse pehle use bachana, saaf rakhna aur barbaad na karna hamari zimmedari hai. Nal band rakho, baarish ka paani bachao.

Q. Q10. Dhoop me garam seat kaise thandi karein?

Ans. Seat par geela kapda ya paani daalo (evaporation se thandi hogi) ya chhaon me rakho / dhaank do.

11. Important Q&A (exam ke liye)

Q. Evaporation aur condensation me antar

Ans. Evaporation: liquid se vapour. Condensation: vapour se liquid.

Q. Evaporation ko prabhavit karne wale factors

Ans. Surface area, temperature (garmi), hawa ki gati, humidity.

Q. Matke ka paani thanda kyun?

Ans. Matke ki sateh se paani seep hokar evaporate hota hai aur garmi leta hai, isse paani thanda rehta hai.

Chapter ka Naam (copy-paste)

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— Teacher: Abhishek Sir / MERIT SPRING

