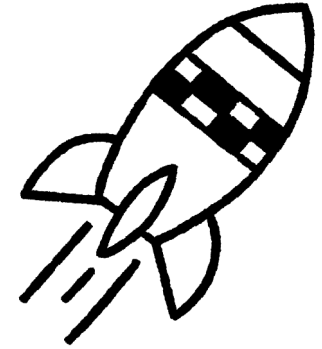


Dhalaalid (Melting): dhibic dhalaalid iyo dhibic qaboojin (melting and freezing points)



Sayniska

Cutub: Adag (Solid), dareere (liquid), gaas (gas) xaalado iyo isbeddel xaalad (states and changes of state)

Natiijo

Waxaan qiyaasi karaa dhibic dhalaalid (melting point) iyo dhibic qaboojin (freezing point) ee walax (substance).

xaalad dareere (liquid state)

xaalad adag (solid state)

dhibic dhalaalid (melting point)

dhibic qaboojin (freezing point)

Erayada muhiimka ah

Walxaha (Substances) xaalad dareere (liquid state) ah waxay qaadanayaan qaabka weelka ay ku jiraan.

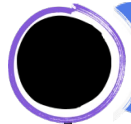
Qaybaha (Particles) walaxda xaalad adag (solid state) ah waxay ku jiraan meel go'an oo kaliya way gariiri karaan.

Dhibic dhalaalid (melting point) ee walax (substance) waa heerkulka (temperature) ay ku beddelanto xaalad adag (solid state) ilaa xaalad dareere (liquid state).

Dhibic qaboojin (freezing point) waa heerkulka (temperature) ay walax (substance) ku beddelanto xaalad dareere (liquid state) ilaa xaalad adag (solid state).

Qaabka casharka

Dhalaalid (Melting): dhibic dhalaalid iyo dhibic qaboojin (melting and freezing points)



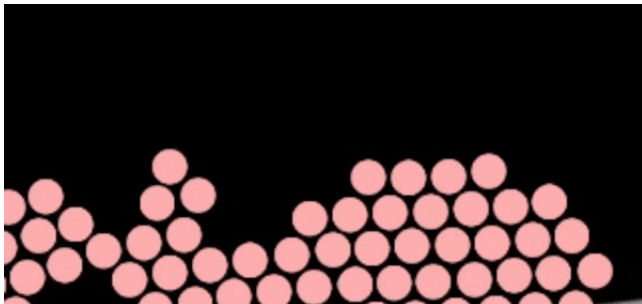
Qaboojin (Freezing)



Dhibic qaboojin (Freezing point)

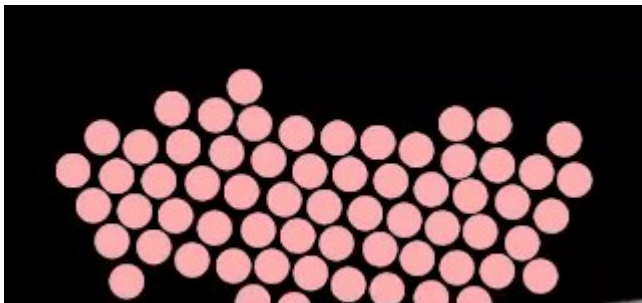


Isbarbardhigga dhalaalid (melting) iyo qaboojin (freezing)



dhalaalid (melting)

Marka walax (substance) xaalad adag (solid state) ah la dhalaaliyo waxay isbeddeshaa xaalad dareere (liquid state).



qaboojin (freezing)

Marka walax (substance) xaalad dareere (liquid state) ah la qaboojiyo waxay isbeddeshaa xaalad adag (solid state), tan waxaa loo yaqaan qaboojin (freezing).

Qaboojin (Freezing)

Aqoonsi walaxda qabowday (frozen).



a ✓



b



c

Sharax sababta walaxdu u qabowday ama aan u qabowin walax kasta.

1.



shumac aan shidan (unlit candle)

2.



casiir liin (orange juice)

3.



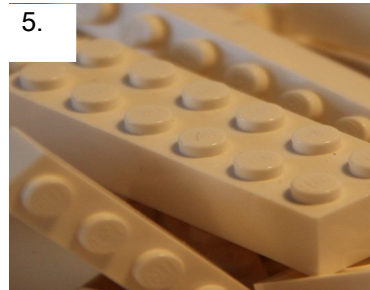
lollo baraf (ice lolly)

4.



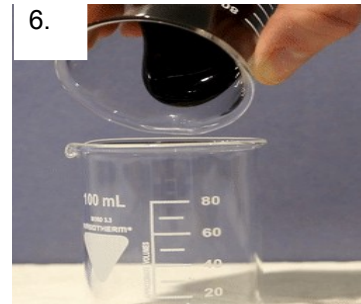
fudge (fudge)

5.



baloogyad caag ah (plastic blocks)

6.



dareere madow oo cufan (black treacle)

Sharax sababta walaxdu u qabowday ama aan u qabowin walax kasta.

1.



qabowday - wax (wax) waa
xaalad adag (solid state)

shumac aan shidan (unlit candle)

2.



aan qabowin - casiirku (juice) waa
xaalad dareere (liquid state)

casiir liin (orange juice)

3.

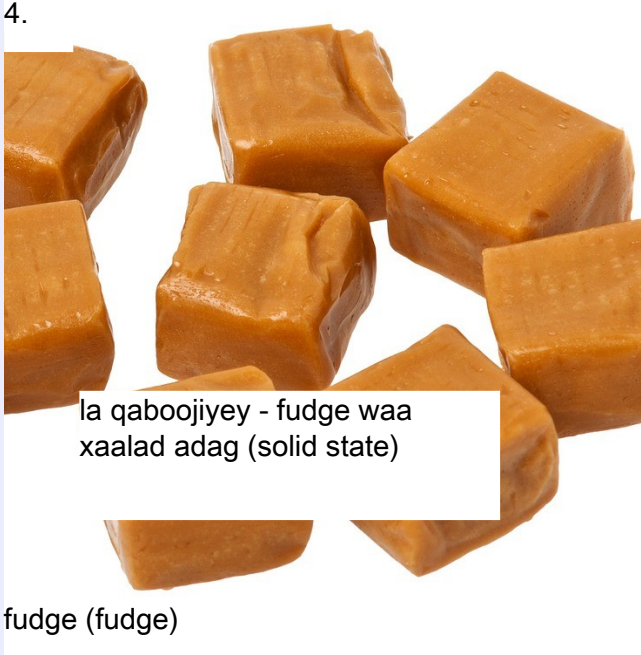


qabowday - lolligu (lolly) waa
xaalad adag (solid state)

loli baraf (ice lolly)

Sharax sababta walaxdu u qabowday ama aan u qabowin walax kasta.

4.



la qaboojiyey - fudge waa
xaalad adag (solid state)

fudge (fudge)

5.



la qaboojiyey - plastic waa xaalad
adag (solid state)

baloogyad caag ah (plastic blocks)

6.



aan la qaboojin - treacle waa
xaalad dareere (liquid state)

malaas madow (black treacle)

Qaabka casharka

Dhalaalida: heerkulka dhalaalida iyo qaboojinta (Melting: melting and freezing points)



Qaboojin (Freezing)



Heerkulka qaboojinta (Freezing point)



Isbarbardhigga dhalaalida iyo qaboojinta (Comparing melting and freezing)

Heerkulka qaboojinta (Freezing point)

Heerkulka uu walax ku beddelo xaalad dareere ah xaalad adag waxaa loo yaqaan heerkulka qaboojinta (freezing point).

Heerkulka uu walax ku beddelo xaalad adag xaalad dareere ah waxaa loo yaqaan heerkulka dhalaalida (melting point).



Heerkulka dhalaalida iyo heerkulka qaboojinta waa isku heerkul walaxda.



heerkulka dhalaalida baraf =
 0°C

heerkulka qaboojinta baraf =
 0°C



heerkulka dhalaalida
shukulaato = 30°C

heerkulka qaboojinta
shukulaato = 30°C



heerkulka dhalaalida silver =
 962°C

heerkulka qaboojinta silver =
 962°C

Heerkulka qaboojinta (Freezing point)



Run mise been?

Heerkulka qaboojinta iyo heerkulka dhalaalida waa isku heerkul walaxda.



Run



Been

Sabab u sheeg jawaabtaada

a

Biyuhu waxay noqdaan baraf 0°C waxayna dhalaalaan 0°C . 

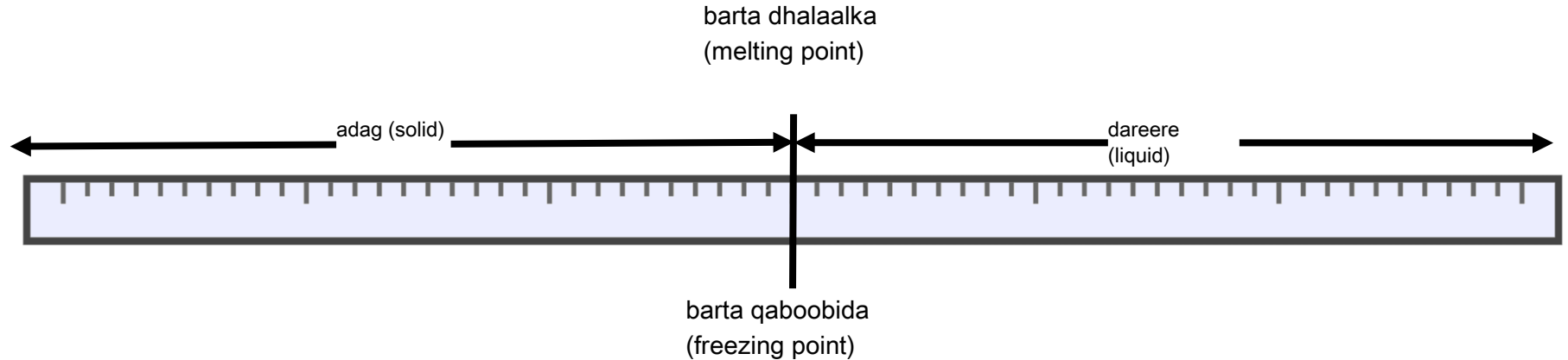
b

Qalinka (Silver) wuxuu ku dhalaalaa (melts) heerkul ka duwan kii uu ku qaboobo (freezes).

Barta qaboobida (Freezing point)

Heerkulka ka hooseeya barta dhalaalka (melting point), walaxdu waxay ku jirtaa xaalad adag (solid state).

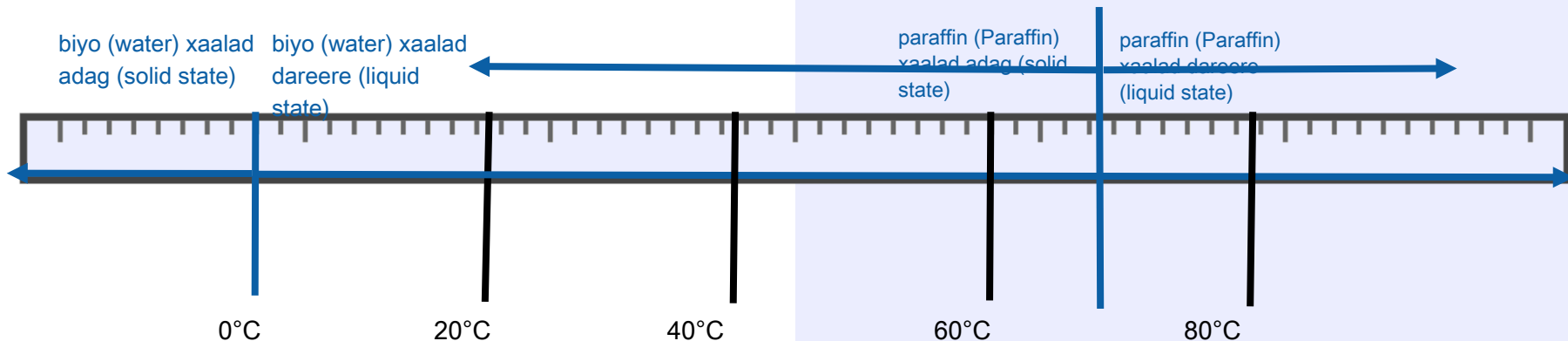
Heerkulka ka sarreeya barta qaboobida (freezing point), walaxdu waxay ku jirtaa xaalad dareere (liquid state).



- Biyo (Water) waxay leeyihiin barta qaboobida (freezing point) 0°C .
- Hoosta 0°C , biyo (water) waa baraf (frozen) sida baraf (ice) xaalad adag (solid state).
- Korka 0°C , biyo (water) waa dhalaalay (melted) oo ku jira xaalad dareere (liquid state).
- Heerkulka qolku waa 20°C , biyo (water) waxay ku jiri lahaayeen xaalad dareere (liquid state).

- Paraffin (Paraffin) waxay leedahay barta dhalaalka (melting point) 67°C

Waa maxay xaaladda walaxda (state of matter) ee paraffin (Paraffin) ku jirto heerkulka qolka?



barta dhalaalka (melting point) ee biyo (water)

barta dhalaalka (melting point) ee paraffin (Paraffin)

Heerkulka qaboojinta (freezing point) ee walaxda A waa 15°C . Heerkulka qolku waa 20°C . Waa nooc ee xaaladda (state) ee walaxda A heerkulka qolka?

a

xaalad adag (solid state)

b

xaalad dareere (liquid state) ✓

c

midna ma aha xaalad dareere (liquid state) iyo xaalad adag (solid state) midna

Heerkulka qaboojinta (freezing point)

Heerkulka qaboojinta (freezing point) ee walaxda B waa 30°C . Heerkulka qolku waa 20°C .

Waa nooc ee xaaladda (state) ee walaxda B heerkulka qolka?

- a** xaalad adag (solid state) 
- b** xaalad dareere (liquid state)
- c** midna ma aha xaalad dareere (liquid state) iyo xaalad adag (solid state) midna

Heerkulka qolka oo ah 20°C , walxahan soo socda ma ahaan doonaan xaalad adag (solid state) ama xaalad dareere (liquid state)?

Gallium wuxuu leeyahay heerkulka qaboojinta (freezing point) oo ah 30°C

Walaxda C waxay leedahay heerkulka dhalaalida (melting point) oo ah 45°C

Walaxda D waxay leedahay heerkulka dhalaalida (melting point) oo ah 19°C

Walaxda E waxay leedahay heerkulka qaboojinta (freezing point) oo ah 21°C

Iron wuxuu leeyahay heerkulka dhalaalida (melting point) oo ah 1003°C

Ice cream waxay leedahay heerkulka qaboojinta (freezing point) oo ah -3°C

Waa nooc ee xaaladda (state) ay walxuhu ahaan doonaan heerkulka qolka oo ah 20°C ?

1. Gallium wuxuu leeyahay heerkulka qaboojinta (freezing point) oo ah 30°C
2. Walaxda C waxay leedahay barta dhalaalka (melting point) 45°C
3. Walaxda D waxay leedahay barta dhalaalka (melting point) 19°C
4. Walaxda E waxay leedahay barta qaboobida (freezing point) 21°C
5. Birta (Iron) waxay leedahay barta dhalaalka (melting point) 1003°C
6. Jalaatada (Ice cream) waxay leedahay barta qaboobida (freezing point) -3°C

Jawaabaha:

adag	adag	dareere	adag	adag	dareere
(solid)	(solid)	(liquid)	(solid)	(solid)	(liquid)

Qaabka casharka

Dhalaalida (Melting): barta dhalaalka (melting point) iyo barta qaboobida (freezing point)



Qaboobida (Freezing)

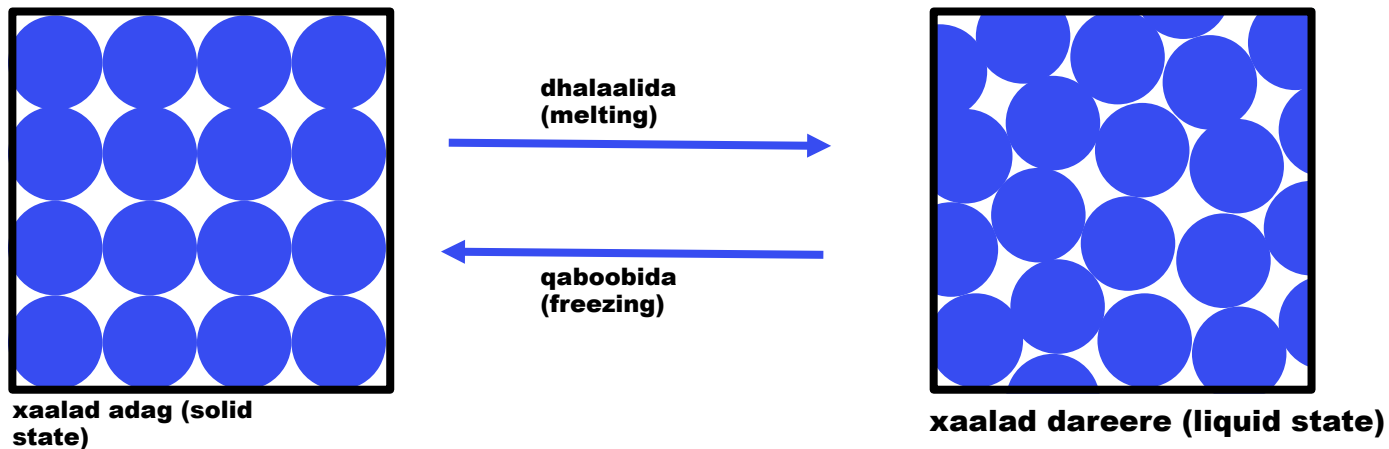


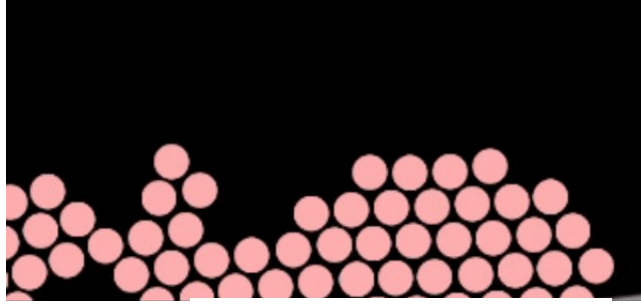
Barta qaboobida (Freezing point)



Isbarbardhigga dhalaalka iyo qaboobida (Comparing melting and freezing)

Marka walaxdu dhalaasho, walaxdu waxay ka beddeshaa xaalad adag (solid state) oo ay u gasho xaalad dareere (liquid state), waa lidkeeda qaboobida (freezing).

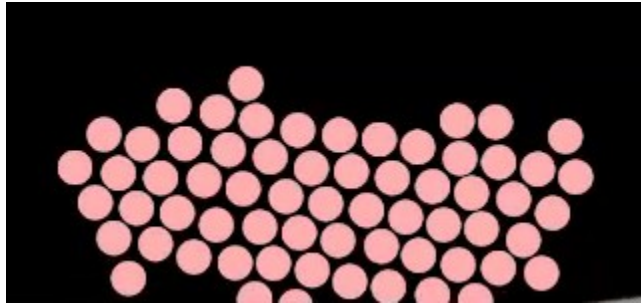




dhalaalid (melting)

Jilitaanka PhET Interactive Simulations,
University of Colorado Boulder,
shativavsan CC-BY-4.0
(<https://phet.colorado.edu>).

Marka uu walixu dhalaalo (melts),
qaybuhu waxay ka tagaan meelaha
go'an, hab joogto ah, waxayna u
gudbaan hab aan kala sooc lahayn
iyagoo qaybuhu is dhaafsiisanaya.

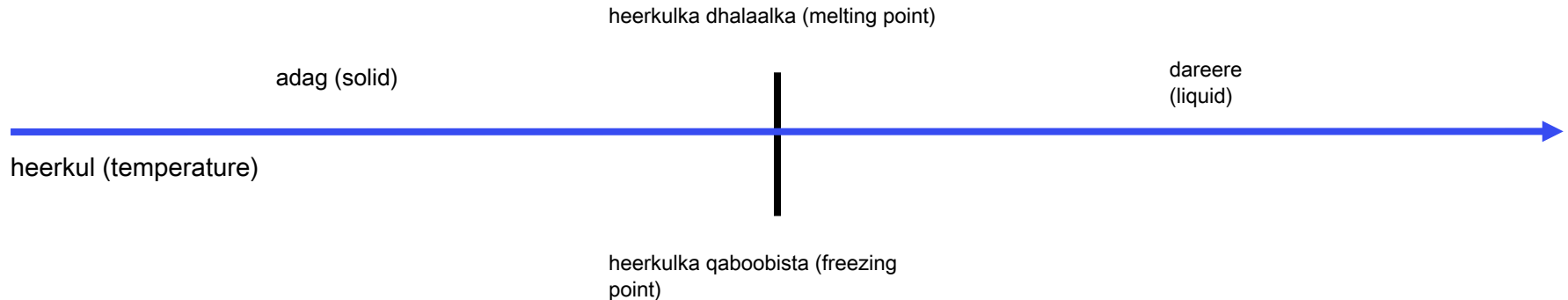


qaboobis (freezing)

Jilitaanka PhET Interactive
Simulations. University of Colorado
Boulder. shativavsan CC-BY-4.0
(<https://phet.colorado.edu>).

Marka uu walixu qaboobo (freezes),
qaybuhu waxay ka tagaan is dhaafsiinta
hab aan kala sooc lahayn, waxayna u
gudbaan meelo go'an hab joogto ah.

Walixu wuxuu ku jiraa xaalad adag (solid) hoos ka hooseeya heerkulka qaboobista/dhalaalka, wuxuuna ku jiraa xaalad dareere (liquid) kor ka sarreeya heerkulka qaboobista/dhalaalka.



Isbarbardhigga dhalaalka (melting) iyo qaboobista (freezing)



Hubi

Marka dhalaalidu dhacdo, isbeddelka xaaladdu waa...

a

laga soo xaalad adag (solid) una gudub  xaalad dareere (liquid).

b

laga soo xaalad dareere (liquid) una gudub xaalad adag (solid).

c

ma jiro.

Run mise been?

Kadib marka uu walixu dhalaalo, qaybuhu waxay ku kala yaalliin si aan kala sooc lahayn.

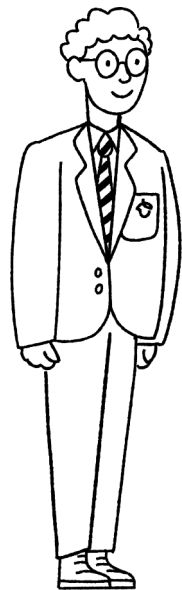


Sabab u sheeg jawaabtaada

- a** Qaybaha xaaladda adag (solid) waxay kaliya gariiri karaan laakiin waxay ku go'an yihiin meel.
- b** Walxaha (Particles) ee xaaladda dareeraha (liquid state) waxay dhaafsan karaan walxaha (particles) ku xiga.



Kaalay Axmed u kala saar weedhaha miis leh cinwaannada dhalaalidda (melting) iyo barafka (freezing)



Axmed

xaaladda adag (solid state)
→ xaaladda dareeraha
(liquid state)

walxaha (particles) waxay ku
go'aan booska

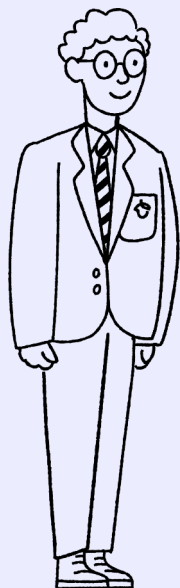
xaaladda dareeraha (liquid
state) → xaaladda adag
(solid state)

walxaha (particles) waxay xor u noqdaan inay
ku dhaafsan karaan midba midka kale

walxaha (particles) waxay ku
dhamaanayaan habayn joogto ah (regular
arrangement)

walxaha (particles) waxay ku
dhamaanayaan habayn aan kala
sooc lahayn (random arrangement)

dhalaalidda (melting)	barafka (freezing)



Axmed

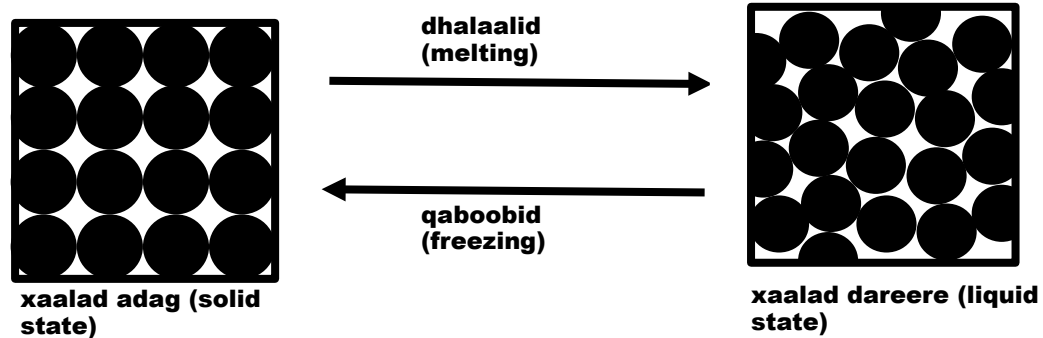
dhalaalidda (melting)	barafka (freezing)
xaaladda adag (solid state) → xaaladda dareeraha (liquid state)	xaaladda dareeraha (liquid state) → xaaladda adag (solid state)
walxaha (particles) waxay xor u noqdaan inay ku dhaqaaqaan midba midka kale	walxaha (particles) waxay ku go'aan booska
walxaha (particles) waxay ku dhamaanayaan habayn aan kala sooc lahayn (random arrangement)	walxaha (particles) waxay ku dhamaanayaan habayn joogto ah (regular arrangement)

Soo koobid

Dhalaalid (Melting): barta dhalaalidda (melting point) iyo barta qaboobidda (freezing point)

Markay dhalaasho, walaxdu waxay ka beddeshaa xaalad adag (solid state) una beddeshaa xaalad dareere (liquid state).

Markay qaboojiso, walaxdu waxay ka beddeshaa xaalad dareere (liquid state) una beddeshaa xaalad adag (solid state).



Heerkulka hooseeya ee barta dhalaalidda (melting point), walaxdu waxay ku jirtaa xaalad adag (solid state).

Heerkulka sareeya ee barta qaboobidda (freezing point), walaxdu waxay ku jirtaa xaalad dareere (liquid state).

