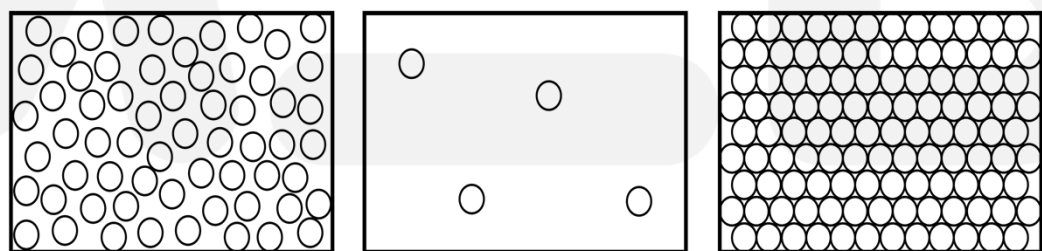


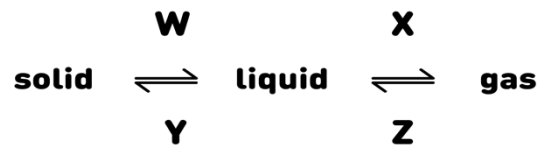
SOLUCIONARIO: CHANGES OF STATE

- 1) Which of the following changes involves the absorption of energy by the particles of matter?
- a) Freezing
 - b) Melting**
 - c) Condensing
 - d) None of the above.
- 2) In which process do particles move closer together but remain in motion?
- a) Melting
 - b) Diffusion
 - c) Evaporation
 - d) Freezing**
- 3) The diagrams show the arrangement of particles in three different physical states of substance X. Which statement about the physical states of substance X is correct?

**State 1****State 2****State 3**

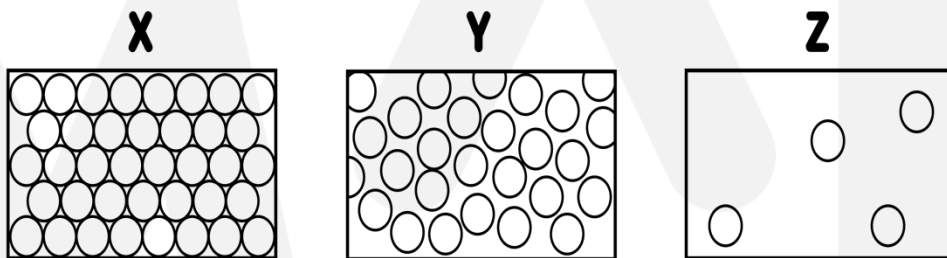
- a) Particles in state 1 vibrate about fixed positions.
- b) State 1 changes to state 2 by diffusion.
- c) State 2 changes directly to state 3 by condensation.
- d) The substance in stage 3 has a fixed volume.**

4) What are the processes W, X, Y and Z in the following diagram?



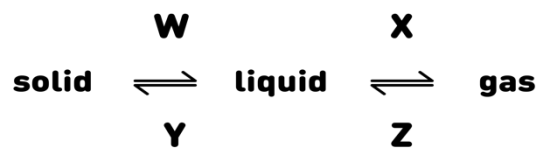
	W	X	Y	Z	
a)	condensing	boiling	freezing	melting	
b)	condensing		freezing	melting	boiling
c)	melting		boiling	freezing	condensing
d)	melting		freezing	condensing	

5) Diagrams X, Y and Z represent the three states of matter. Which change occurs during boiling?



- a) X to Y
- b) **Y to Z**
- c) Z to X
- d) Z to Y

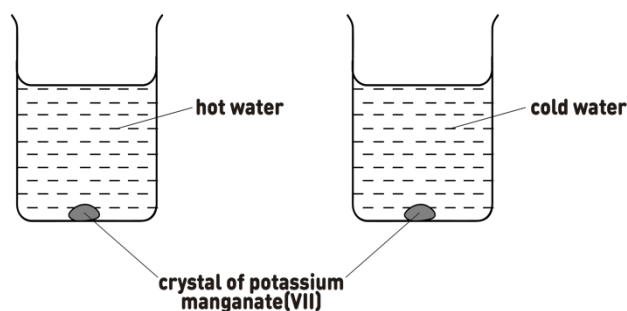
- 6) The changes that occur when a substance changes state are shown below. Which process, W, X, Y or Z, is occurring in the following four situations?



- 1: Butter melts on a warm day
- 2: Water condenses on a cold surface
- 3: The volume of liquid ethanol in an open beaker reduces
- 4: Ice forms inside a freezer

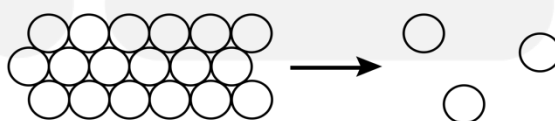
	1	2	3	4
a)	W	X	Y	Z
b)	W	Z	X	Y
c)	X	Y	Z	W
d)	X	Z	Y	W

- 7) A crystal of purple potassium manganate (VII) was added to each of the beakers shown in the diagram. One beaker contained hot water and the other beaker contained cold water. In both beakers the purple colour of the potassium manganate (VII) spreads out. Which result and explanation are correct?



	Result	Explanation
a)	Colour spreads faster in cold water	Particles move faster at higher temperature
b)	Colour spreads faster in cold water	Particles move slower at higher temperature
c)	Colour spreads faster in hot water	Particles move faster at higher temperature
d)	Colour spreads faster in hot water	Particles move slower at higher temperature

- 8) The diagram shows how the arrangement of particles changes when a substance changes state. Which change of state is shown?

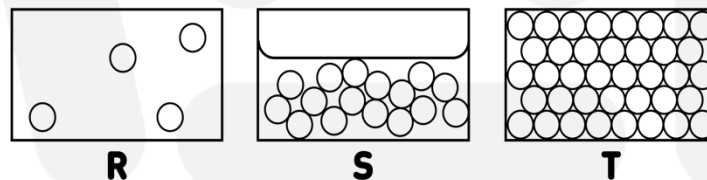


- a) Boiling
- b) Condensation
- c) Evaporation
- d) Sublimation

- 9) The melting points and boiling points of four elements are shown. In which elements do the particles vibrate about fixed positions at 0 °C?

Element	Melting point /°C	Boiling point /°C
W	-7	60
X	-101	-34
Y	114	184
X	39	688

- a) W and X
b) W and Z
c) X and Y
d) Y and Z
- 10) Diagrams R, S and T represent the three states of matter. Which change occurs during freezing?



- a) $R \rightarrow S$
b) $S \rightarrow T$
c) $T \rightarrow R$
d) $T \rightarrow S$