1. In a solid, the particles:

   ☐ slide past each other

   ☐ are closely packed and only vibrate in place

   ☐ are far apart and move fast

   ☐ do not exist

2. The change from solid to liquid is called:

   ☐ condensing

   ☐ melting

   ☐ subliming

   ☐ freezing

3. Gas pressure is caused by particles:

   ☐ colliding with the container walls

   ☐ joining together into larger molecules

   ☐ melting into the container walls

   ☐ staying still in the middle

4. Graham found that lighter gases escape faster than heavier ones.

   ☐ True ☐ False

5. A gas spreads to fill its container because its particles are:

   ☐ fixed in place and vibrating about one position

   ☐ far apart and moving quickly in all directions

   ☐ packed tightly and sliding past each other

   ☐ not moving until the container is opened

6. The change from gas to liquid is called:

   ☐ melting

   ☐ condensing

   ☐ subliming

   ☐ evaporating

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   ☐ True ☐ False

8. Calculate the M_r of hydrogen chloride, HCl (A_r H = 1, Cl = 35.5).

   _____

9. Ice, water and steam are made of the same particles.

   ☐ True ☐ False

10. A pure solid at fixed pressure keeps rising in temperature throughout melting.

    ☐ True ☐ False

1. **are closely packed and only vibrate in place**

   Solids have closely packed, vibrating particles.

2. **melting**

   Solid → liquid is melting.

3. **colliding with the container walls**

   Collisions with the walls create pressure.

4. **True**

   Hydrogen escaped about four times as fast as oxygen.

5. **far apart and moving quickly in all directions**

   Fast, widely spaced particles fill the available space.

6. **condensing**

   Gas → liquid is condensing.

7. **False**

   False. The gas is compressed: volume decreases, the particles are closer together and wall collisions are more frequent.

8. **36.5**

   1 + 35.5.

9. **True**

   Only the arrangement and energy differ, not the substance.

10. **False**

    False. Temperature stays constant while solid and liquid coexist during melting; supplied energy overcomes attractions between particles.

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