

# Grade 7 Science Review - Chapter 5 - Solutions

True/False

/25

1. ~~T~~ The change from a liquid to a gas is called evaporation.
2. ~~F~~ Salt is the universal solvent.
3. ~~T~~ The solute is the substance that dissolves or seems to disappear.
4. ~~F~~ Sodium chloride is the scientific name for sugar.
5. ~~T~~ Rainwater before it hits the ground is known as soft water.
6. ~~T~~ Removing salt from salty water is called desalination.
7. ~~F~~ Distillation is an inexpensive way to separate water from salt.
8. ~~T~~ Evaporation is a change from a liquid to a gas.
9. ~~F~~ The solute is the substance that dissolves another.
10. ~~T~~ A dilute solution contains more solvent than solute.
11. ~~F~~ A concentrate solution contains more solvent than solute.
12. ~~T~~ Sugar always dissolves in warm water.
13. ~~T~~ Not all bodies of saltwater have the same amount of salt.
14. ~~F~~ Cold water contains less dissolved oxygen than the same amount of warm water.
15. ~~F~~ Hard water is unsafe to drink.
16. ~~T~~ Solutions may be formed by all combinations of solids, liquids, and gases.
17. ~~T~~ There are undissolved solids in the water in our environment.
18. ~~T~~ A dilute solution contains relatively little solute.
19. ~~F~~ Soft water contains more dissolved minerals than hard water.
20. ~~F~~ Burning toast is not an example of a chemical change.
21. ~~F~~ Settling is an expensive method used to separate undissolved solids.
23. ~~T~~ Distillation can be used to separate dissolved solids from a solution.
24. ~~T~~ Freshwater lakes and rivers contain a small amount of salt.
25. ~~F~~ Particles at a higher temperature move slower than particles at a lower temperature.

Short Answer

/27

Use particle theory of matter to explain how sugar particles dissolve in a cup of water.

• the attraction between particles (sugar) is overcome by their attraction to water.

Use particle theory of matter to explain why some materials dissolve, while others do not.

• some materials molecules have a very strong (don't diss) attraction to each other. • other particles do not. (diss.)

Use particle theory of matter to explain how distillation works.

• Heat speeds up molecules, breaking the force of attraction between them  
• leaving the solute behind. • cool the molecules and they then slow down - condensing

Use particle theory of matter to explain why a detergent removes a stain from clothing better than plain water does.

The stain molecules are attracted to the detergent more powerfully than to the clothes. • the det. is soluble in water & helps carry the stain away.

Use particle theory of matter to explain when water seems to disappear.

• particles are always moving, the attraction between molecules can be broken



Use particle theory of matter to explain why cold water contains more dissolved gases than warm water does.

• Particles move slower at lower temperatures.

• This leaves more "space" for dissolved gases in cold water.

A solution is made by dissolving one substance in another. The dissolving process can be represented by a word equation. Complete the spaces below with the words solution, solute and solvent.

Solute + solvent = solution

The substance that dissolves is the solute. The substance that does the dissolving is the solvent.

Not all mixtures are solutions, because not all substances are soluble. A substance that does not dissolve in a particular solvent is said to be insoluble.

Imagine you are making iced tea. You take the powder, put in some water, stir it and the iced tea is ready.

Identify the solution. iced tea Identify the solvent. water

Identify the solute. iced tea powder

List an example of two substances that, when mixed, are insoluble.

oil/water, metal/water, sand/water

What percentage of Earth's water is actually usable freshwater. 1%

What is the name of the process that could recover pure water from dirty water? distillation

What two changes of state does this process involve? evaporation / condensation

Give the name of the process that removes salt from salty water. desalination

Which idea of the particle theory of matter explains why water evaporates? particles are always moving, attraction can be broken

What is the difference between hard water and soft water? a amount of dissolved minerals e.gases

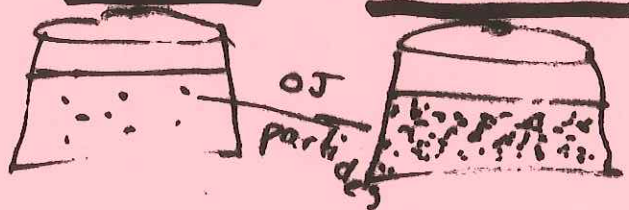
What is desalination? Why is it not widely done? purifying salt water, very expensive

As water increases in temperature, what happens to the oxygen dissolved in it? the amount decrease.

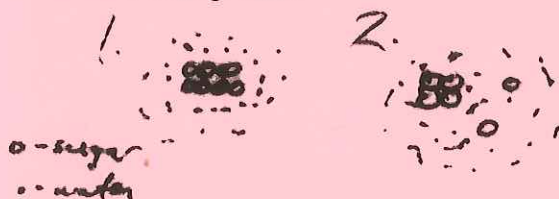
What does it mean if a solution is concentrated? a high ratio of solute to solvent

List a product that is sold as a concentrate. JS, soup mix, drink powders, coffee, tea

Draw and label a diagram to show a particle model of... a dilute solution a concentrated solution



Draw and label a diagram to show how the particle theory can be used to explain sugar dissolving in water - before, during, after.



How does river or well water become "hard"? as it runs to streams and rivers the water dissolves minerals and carries them

List 3 examples of solutes and 3 examples of solvents.

solutes

sugar, salt  
copper

solvents

water, nitrogen  
silver

Name all 5 parts of the Particle Theory of Matter.

- all matter is made of small particles
- particles are always moving
- particles are attracted to each other
- particles move faster as temp. increases.
- pure substances have their own distinct particles.