

Mixtures and Solutions

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TEKS 5.5C and 5.5D

What is a
mixture?

mixtures

- Two or more things that can be combined
 - Can be easily separated by its properties (color, size, shape...)
 - There do not have to be equal amounts
 - Amount of each substance can change
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Separating a Mixture

1. How would you separate the mixture of hardware (nuts, bolts, etc)?
2. How would you separate the trail mix?
3. How would you separate the m&ms?

If everyone got a handful of the mixture, would everyone get the same serving?



Trail mix: a mixture of raisins, nuts, and chocolate



Types of Mixtures

solid/solid

- Cereal
- Trail mix
- Soil

liquid/liquid

- Oil and vinegar
- Gasoline

solid/liquid

- Kool-Aid in Water
- Cake batter
- Lemonade
- Salt in Water

liquid/gas

- Soda
- Bubbles
- Water vapor in air

What is a
solution?

solutions

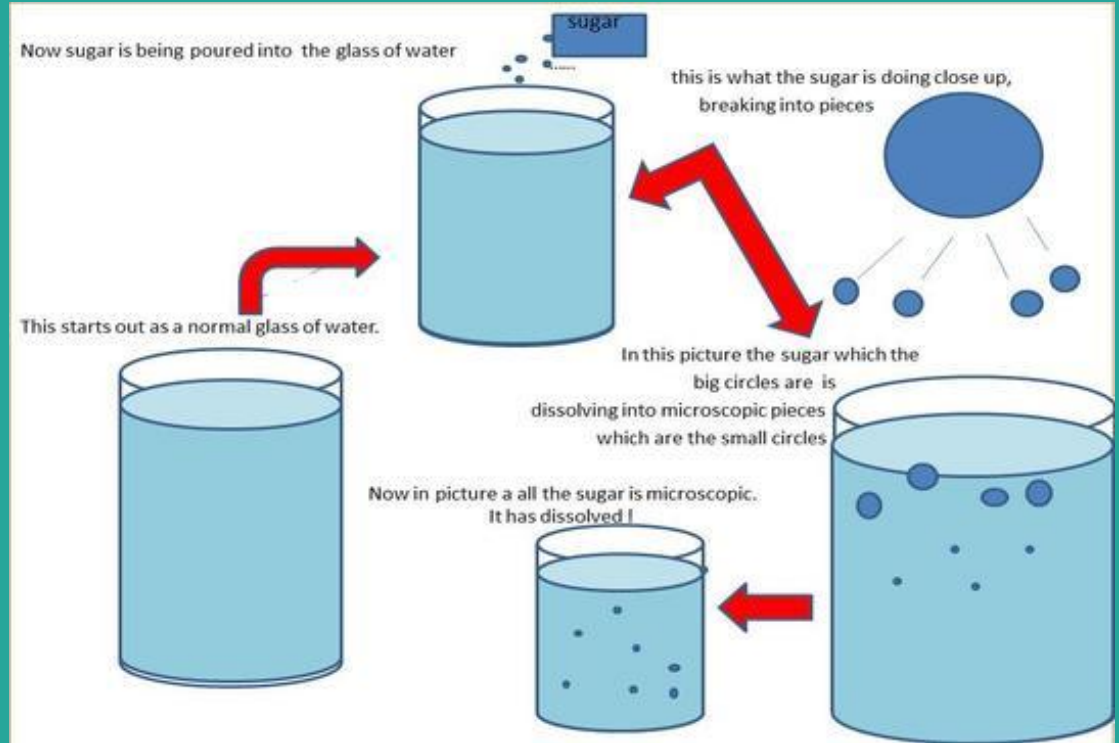
- A special type of mixture
 - Two or more types evenly spread out
 - Not easily separated
 - There do not have to be equal amounts
 - Materials can be in different states
 - You cannot see the particles
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Examples of Solutions

Examples of Solutions

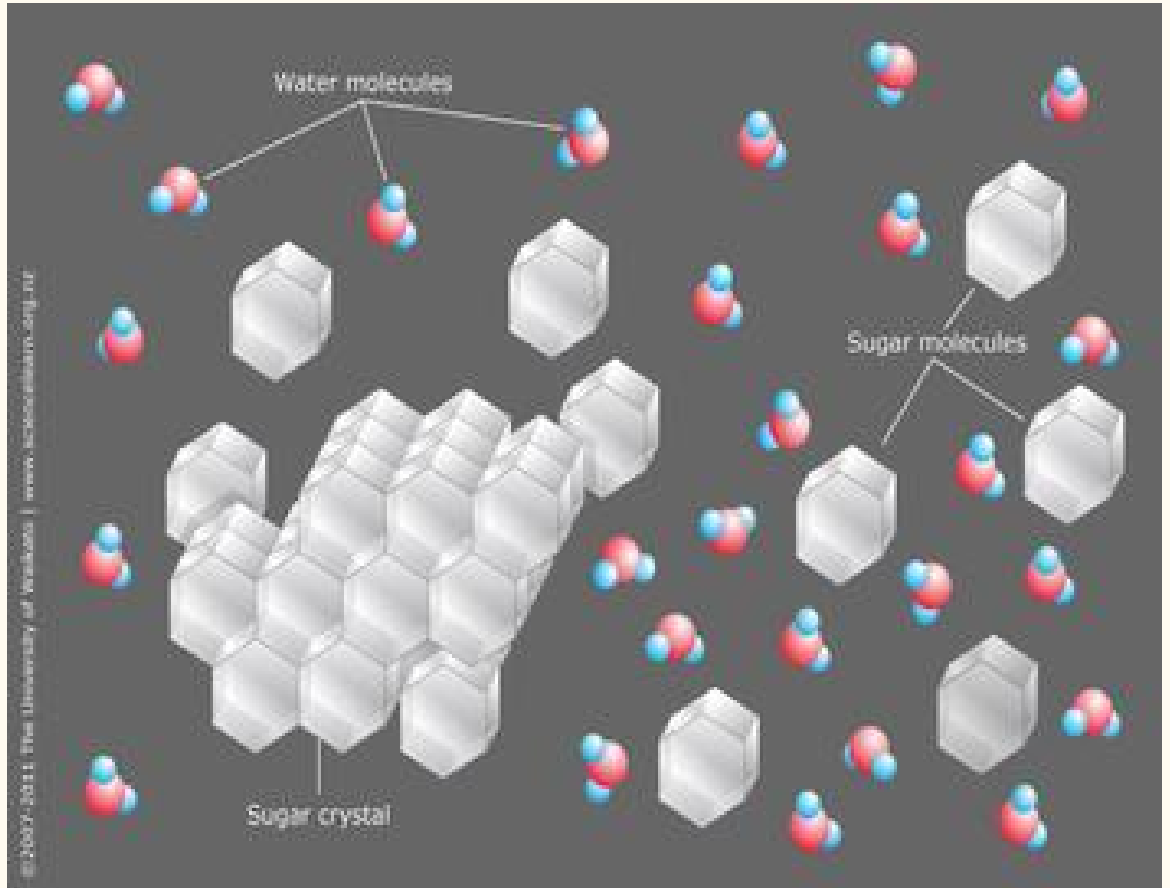
- Saltwater
 - Swimming Pool
 - Juice
 - Hot chocolate
 - Gatorade
 - Lemonade
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Dissolve



Let's find out more
about dissolving
sugar in water.
Click the link!

[https://researchthetopic.wikispaces.com/
What+does+it+mean+to+%E2%80%9Cdis+
solve%E2%80%9D%3F+-+R](https://researchthetopic.wikispaces.com/What+does+it+mean+to+%E2%80%9Cdis+solve%E2%80%9D%3F+-+R)

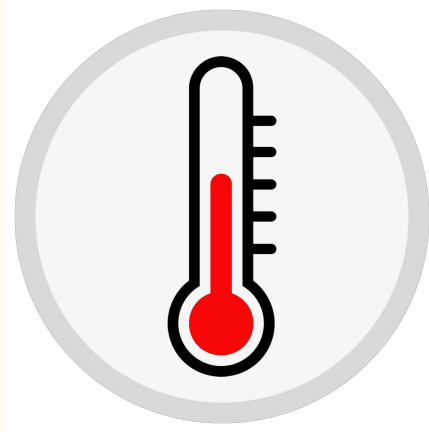


Solubility

- Solubility: the ability to dissolve
- Soluble: able to dissolve
- Solute: the substance that is lesser and it gets dissolved
- Solvent: the part of the the solution that is greater and it does the dissolving

What factors affect how fast a solid will dissolve?

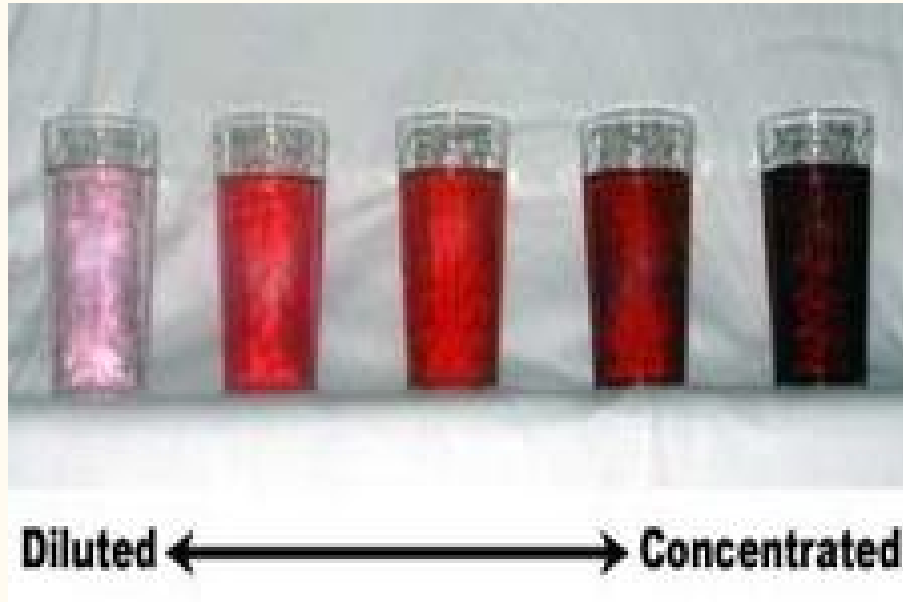
- **SIZE:** smaller pieces will dissolve faster
- **TEMPERATURE:** solids dissolve faster at warmer temperatures
- **STIRRING:** solids dissolve faster when the solution is stirred



Concentration

Scientists Can Classify Solutions Based on Concentration

- A concentrated solution has a lot of the solute in it.
- Diluted means “thinned.” It has less of the solute.



Separating Mixtures

By Hand or Tweezers -
look at color, shape

Is this the most efficient
way?

Size - sieve, strainer

Magnetism - attracted or not
attracted to a magnet

Solutions

- Evaporate water by adding thermal energy
- Solute will be left

When do you use a coffee
filter to separate a mixture?

Questions

- What are the properties of a mixture?
- You are holding a glass of orange juice with ice cubes floating in it. What kind of mixture are you holding?
- What are the parts of a solution?
- How does the amount of a solute in a solvent affect the concentration?