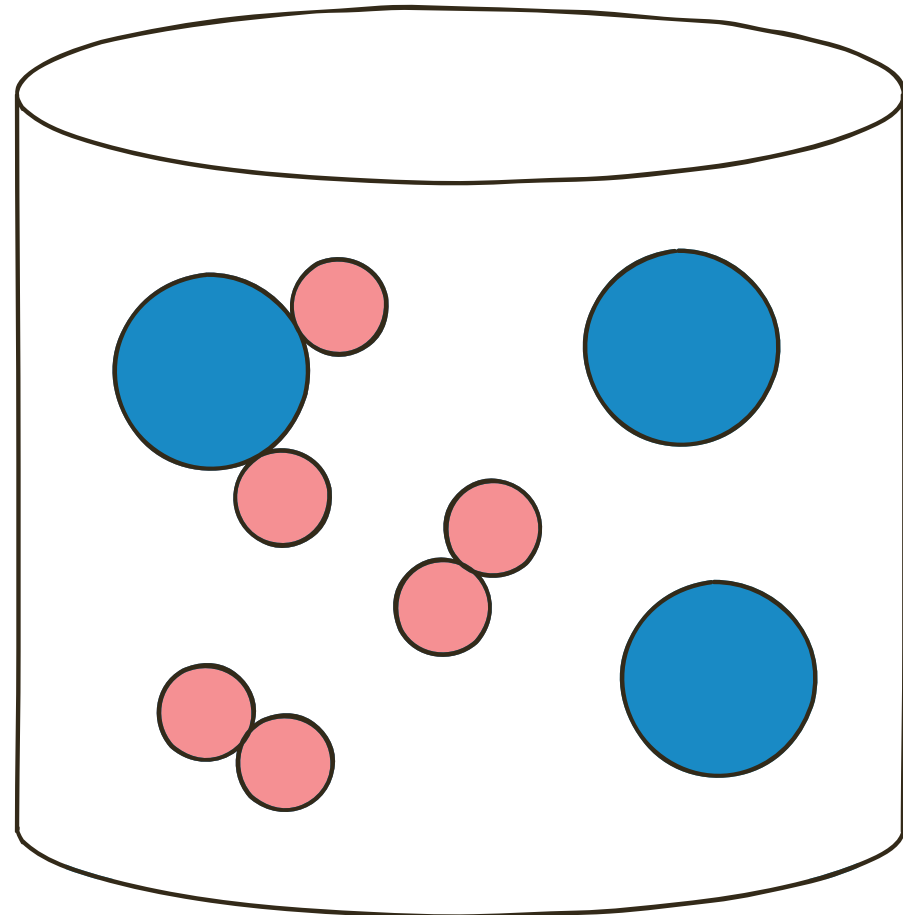


Solutions and Mixtures Unit

- **Covers: Solutions, Solvents, Solutes, Solubility, Dilute vs. Concentrated, and Saturation**
- **Lesson & Engaging Activities**
- **Daily Teaching Schedule**



Solutions and Mixtures



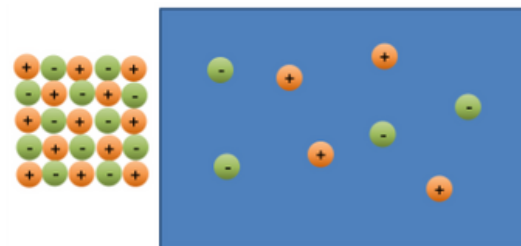
Unit - Solutions and Mixtures

- 3 Lessons & 4 Activities

Solubility and Concentration

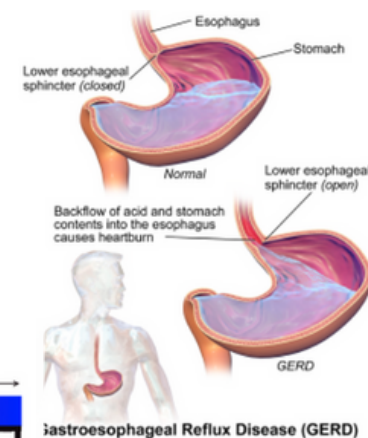
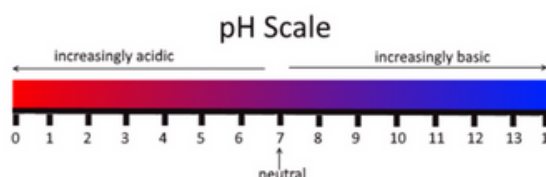
- Solutions, Solvents, and Solutes Dilute vs.
- Concentrated Saturated, Supersaturated,
- & Unsaturated Solubility Polar Water,
- Ionization, and Electrolytes Temperature
- and Solubility Calculating % Solution by
- Mass Mass/Volume % Concentration Mole
- Equations Calculating Ion Concentrations
- Preparation of Solutions

$$\begin{array}{ccccc}
 \text{Mass} & \longleftrightarrow & \text{Moles} & \longleftrightarrow & \text{Molecules} \\
 n = \frac{\text{mass}}{M} & & & & n = \frac{\# p}{Av \#} \\
 & & \updownarrow & & \\
 & & \text{Concentration} & & \\
 & & c = \frac{n}{v} & &
 \end{array}$$



Acids, Bases, and pH

- pH
- Acid and Base Properties
- Acid Precipitation & Ocean Acidification
- Neutralization Reactions
- Cleaning Up Chemical Spills
- Acid Reflux and GERD
- Indicators

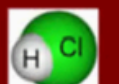
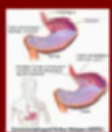
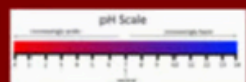


Gastroesophageal Reflux Disease (GERD)

Lesson Includes Teacher and Student Versions - Videos Embedded in Lessons

Acids, Bases, and Neutralization Reactions

- pH
- Acid Properties
- HCl
- Acid Precipitation
- Ocean Acidification
- Base Properties
- Neutralization Reactions
- Cleaning Up Chemical Spills
- Acid Reflux and GERD
- Indicators

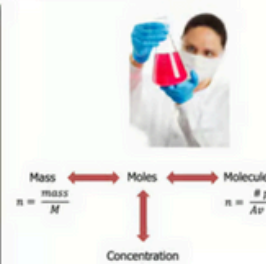


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This digital presentation includes both Google and Office resources and is Google Classroom Ready

Calculating Concentration and Molarity

- Solutions, Solvents, and Solutes
- Concentration
- Calculating % Solution by Mass
- Mass/Volume % Concentration
- Calculating Molarity (mol/L $\rightarrow$ M)
- Mole Equations
- Calculating Molarity
- Calculating Ion Concentrations
- Preparation of Solutions



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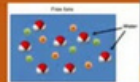
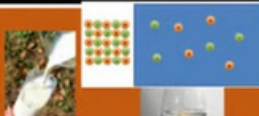
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Solutions and Solubility

- Solutions
- Solvents and Solutes
- Dilute vs. Concentrated
- Saturated & Unsaturated
- Supersaturated
- Solubility
- Polar Water
- Ionization
- Electrolytes
- Hydration
- Temperature and Solubility



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Application - Acid Reflux

- Occurs when acid exits the upper part of your stomach and comes in contact with your esophagus
- Results in a burning sensation often called heartburn
- _____



Application - Acid Reflux

- Occurs when acid exits the upper part of your stomach and comes in contact with your esophagus
- Results in a burning sensation often called heartburn
- Gastroesophageal reflux disease (GERD) is a chronic, more severe form of acid reflux



Student and Teacher version presentations

Solvents and Solutes

- The solvent is the fluid medium in which all of the solutes are dissolved
- A solvent can be a solid, liquid or a gas but the most common solvent is water (aqueous solutions)
 - It is present in the greatest amount
- Solutes are any substance dissolved in the solvent (solid, liquid or gas)



Videos embedded directly into the slides. One-click access.

Engaging Activities

Ocean Acidification Scientific Reading Comprehension Article and Extension Activity



Cleaning up Acid Spills Scientific Reading Comprehension Article



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Improve your student
Skills, use as an Extension
create Applications

Device-Based Scavenger Hunt Acids, Bases and pH



- Includes
- 5 Unique Locations
 - Online form submission
 - Answer Key

Works on all smartphones, tablets, Chromebooks and laptops

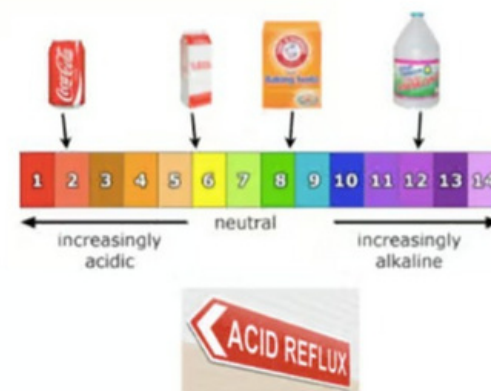
• 100% Digital

- Simulations
- Quizzes
- Videos
- Games
- Word Scramble
- and more



Students So
use as an E
Applicabili

Acids, Bases and Neutralization Lab Station Activity



7 Lab Station Activities to get your kids
out of their seats and engaged in their
learning

Daily Teaching Schedule

UNIT – Solutions and Mixtures - **9 DAYS TOTAL**

Solubility and Concentration – 2 - 4 days			
Number of Day(s)	Course Content	Teaching Resources	NGSS
1-2	• Solutions • Solvents and Solutes • Dilute vs. Concentrated • Saturated & Unsaturated • Supersaturated • Solubility • Polar Water • Ionization • Electrolytes • Hydration • Temperature and Solubility	Solutions and Solubility - Lesson	
1-2	• Solutions, Solvents, and Solutes • Concentration • Calculating % Solution by Mass • Mass/Volume % Concentration • Calculating Molarity (mol/L à M) • Mole Equations • Calculating Molarity • Calculating Ion Concentrations • Preparation of Solutions	Calculating Concentration and Molarity - Lesson	
Assessments	There are multiple assessments included throughout this unit.		

Acids and Bases – 6 days

pH scale

Number of Day(s)	Course Content	Teaching Resources	NGSS
2	- pH - Acid Properties - HCl - Acid Precipitation - Ocean Acidification - Base Properties - Neutralization Reactions - Cleaning Up Chemical Spills - Acid Reflux and GERD - Indicators	Acid, Bases, and Neutralization Reactions - Lesson	HS-PS1-1 HS-PS1-2 HS-PS1-5 HS-PS1-6 HS-PS1-7 HS-ESS2-6 HS-ESS3-6
1	Hands-on review activity	Acids, Bases, and Neutralization Reactions - Lab Station Activity	
1	Hands-on review activity	Acids, Bases and pH – Digital Scavenger Hunt Activity	
1	Review activity	Cleaning up Acid Spills - Science Reading Article	
1	Review activity	Ocean Acidification - Science Reading Article	
Assessments	There are multiple assessments included throughout this unit. UNIT TEST		

The Following Resources are Included

Solubility and Concentration

- [Solutions and Solubility - Lesson](#)
- [Calculating Concentration and Molarity - Lesson](#)

Acids, Bases, and pH

- [Acid, Bases, and Neutralization Reactions - Lesson](#)
- [Acids, Bases, and Neutralization Reactions - Lab Station Activity](#)
- [Acids, Bases and pH – Digital Scavenger Hunt Activity](#)
- [Cleaning up Acid Spills - Science Reading Article](#)
- [Ocean Acidification - Science Reading Article](#)

Who's It For?

- High School Physical Science Teachers
- Teachers using NGSS
- Teachers who want to increase their student's engagement and retention
- Teachers not looking to reinvent the wheel

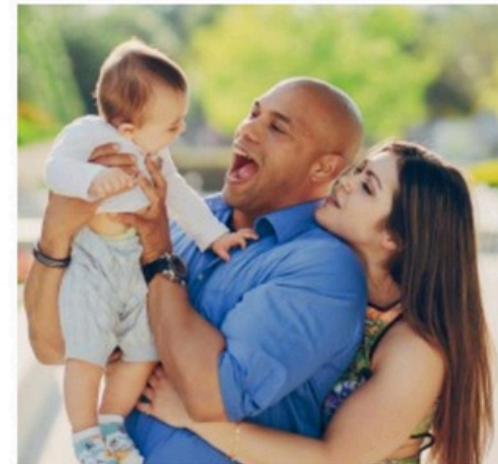


Save yourself the **STRESS AND TIME**



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Spend your time WISELY



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