

INSPIRE GK12 Lesson Plan



Lesson Title	Acids, Bases, & pH
Length of Lesson	50 minutes
Created By	Claire Babineaux
Subject	Chemistry
Grade Level	8 th
State Standards	2.b
DOK Level	2
DOK Application	Categorize, compare, organize, graph
National Standards	B
Graduate Research Element	The use of acids to test identify certain minerals; the use of physical and chemical properties to classify rocks and minerals.

Student Learning Goal:

The students will develop an understanding of acids, bases and pH by observing a demo showing and acid/bases reaction. This lesson will focus on acids and bases, as well as, classification of acids and bases by using physical and chemical properties.

State Standards:

2.b: Predict the properties and interactions of given elements using the periodic table of the elements. Acids and bases

National Standards:

B: Properties and changes of properties of matter: Substances react chemically in characteristic ways with other substances to form new substances (compounds) with different characteristic properties. Substances are often placed in categories or groups if they react in similar ways.

Materials Needed (supplies, hand-outs, resources):

Powerpoint, worksheet, quiz, litmus paper.

Demo: bleach, hair, cups, small jar or cylinder, measuring spoons

Lesson Performance Task/Assessment:

The students will demonstrate their understanding for this lesson by answering questions provided by the worksheet/quiz by using critical thinking and investigations they conduct throughout the demo and lecture.

Lesson Relevance to Performance Task and Students:

Students will be able to recognize the chemical and physical properties of acids and bases. They will demonstrate their understanding by thinking critically and answering questions.



Anticipatory Set/Capture Interest:

Demo: Dissolving fiber: the purpose of this demo is to show an acid/base reaction.

Materials:

- Piece of hair-walnut size (can be obtained from hairbrush or local salon)
- bleach
- small jar or cylinder
- teaspoon

Procedure:

1. Fill jar $\frac{1}{4}$ full of bleach
2. Place the hair in the bleach, using the spoon to make sure it is covered with bleach.
3. Allow jar to sit for approximately 20 minutes

Results: The hair will begin to dissolve. Foam will be produced on the top of the bleach and bubbles will be seen on the hair.

Relevance: Bleach is a base and will dissolve fibers that have acidic properties.

Guided Practice:

The teacher will review acids and bases, pH, and properties of these compounds. The teacher will then hand out the worksheet.

Independent Practice:

The students will complete a worksheet that has a Venn diagram on it. They will demonstrate their understanding for this lesson by comparing and contrasting the properties of acids and bases. They will also demonstrate their understanding of the pH scale by filling in the scale on this worksheet.

For homework, the students will take litmus paper home to test the pH of the household items they wrote on the Venn Diagram.

Remediation and/or Enrichment:

Remediation: Individual IEP, teacher can do demo for each student again

Enrichment: Lesson extension: another demo showing the acid/base reaction with different materials

Check(s) for Understanding:

The students will demonstrate their understanding for this lesson by completing a quiz the next day on classifying compounds using physical and chemical properties.

Closure:

A teacher/student led discussion of real-world applications of classification systems.

Some possible discussion questions include:

1. What can be classified?

INSPIRE GK12 Lesson Plan



2. How can it be classified?
3. Where are classification systems used? (the library is a good example)

Possible Alternate Subject Integrations:

Geology/Earth Science: Identification and classification of rocks and minerals.

Home-Ec: baking with acids: the use of baking soda, baking powder and vinegar for baking as well as other acids and bases.

Teacher Notes: