

ACIDS & BASES



**For
Special
Ed**



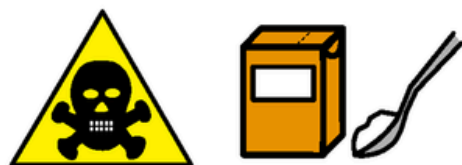
INCLUDES GOOGLE SLIDES



- For students who:
-
- are emerging or non-readers
- take alternate assessments
- are in special education
- short-attention span
- lack pre-requisite skills
- benefit from the use of pictures for support
- middle/high school

Acids and Bases Unit

By
Christa Joy
Special Needs for Special Kids



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Also included in this resource as separate files:

- Lesson plans
- Links and directions to digital activities
- PowerPoint (this is the book in the lesson plans)
- Voice recorded PowerPoint
- Activities in black and white

This unit contains 10 days of material in both printable and digital formats. I have included a detailed lesson plan to help you make the most of everything in this unit, including how to add some group activities.

It comes in 2 separate files. One in color and one in black and white.

Quick Look

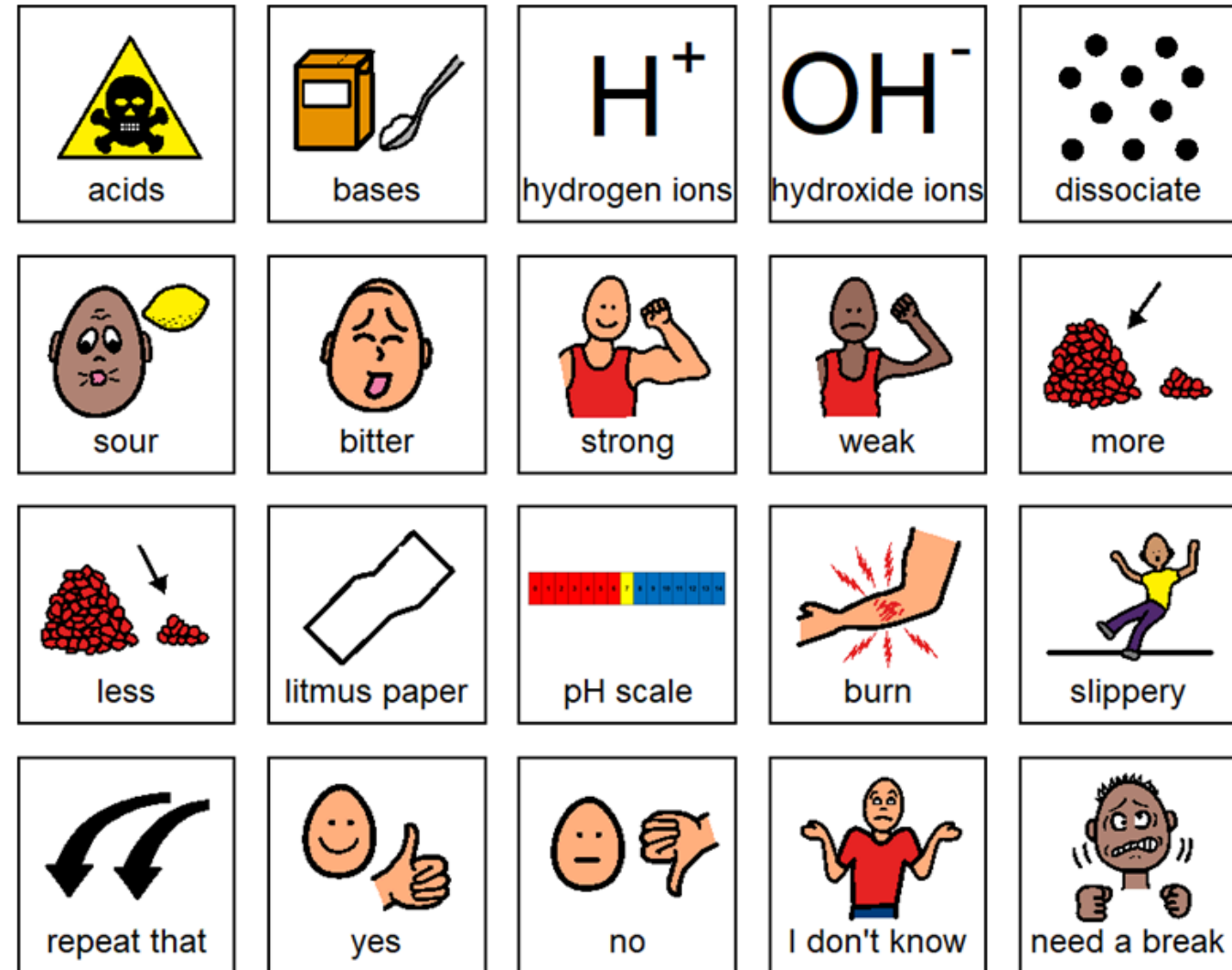
Day	Activity
1	<ul style="list-style-type: none"> • Book • Vocab board activity • Circle map
2	<ul style="list-style-type: none"> • Book • Vocab board activity • Circle map
3	<ul style="list-style-type: none"> • Book • Who am I • Sorting activity
4	<ul style="list-style-type: none"> • Book • Who am I • Litmus Paper
5	<ul style="list-style-type: none"> • Book • Who am I • pH scale
6	<ul style="list-style-type: none"> • Book • Who am I activity • Experiment
7	<ul style="list-style-type: none"> • Book • Bingo • Vocab cut and paste
8	<ul style="list-style-type: none"> • Book • Bingo • Close worksheet
9	<ul style="list-style-type: none"> • Book • Bingo • Close worksheet
10	<ul style="list-style-type: none"> • Assessment

Day 8

Activity	Notes	Materials
Read or listen to the book: Acids and Bases (10 minutes)	<ul style="list-style-type: none"> • Read through the story, asking lots of questions • Continue to make connections between book and vocabulary board 	<ul style="list-style-type: none"> • Book • Vocabulary board
Bingo (15 minutes)	<ul style="list-style-type: none"> • See separate pdf for Bingo cards and directions • For different ways to play Bingo and use the cards go here: https://specialneedsforspecialkids.org/2022/01/31/10-ways-to-play-bingo-in-your-special-education-classroom/ 	<ul style="list-style-type: none"> • Bingo board • markers
Vocabulary review (5 minutes)	<ul style="list-style-type: none"> • Review the vocabulary activity completed yesterday 	<ul style="list-style-type: none"> • Complete activity from yesterday
Close worksheet (10 minutes)	<ul style="list-style-type: none"> • Complete the first close worksheet on acids <ul style="list-style-type: none"> ◦ Add color coding as needed ◦ Make connections to the book as necessary ◦ NOTE: This is your first opportunity to assess students on a small part of the material and determine if any re-teaching will be needed prior to the assessment 	<ul style="list-style-type: none"> • worksheet • scissors • glue
Sharing (10 minutes)	<ul style="list-style-type: none"> • Each student shares their finished activity with the group using the communication method of their choice 	<ul style="list-style-type: none"> • Completed activity • Communication devices

The lesson plans contain:

- Overall tips for teaching students with significant needs
- A quick look at what you will do each day
- Detailed instructions on how that day's lesson should run



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This unit comes with a vocabulary board.

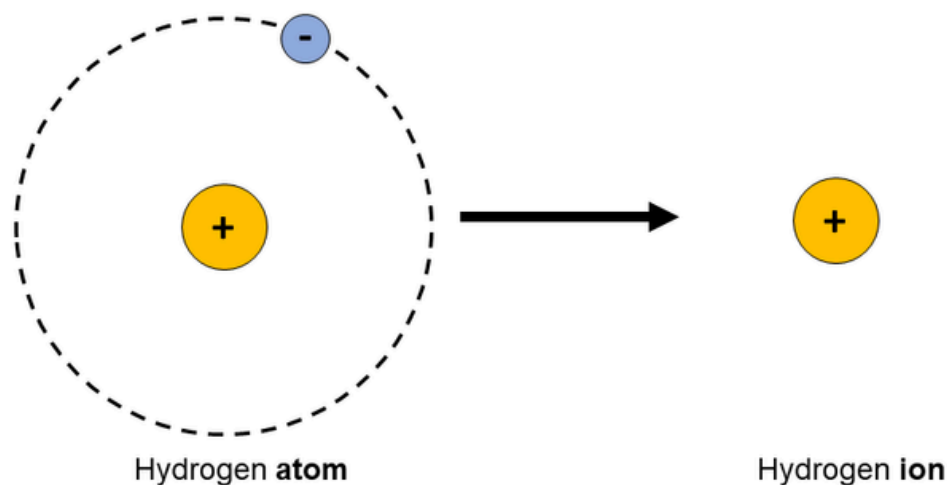
Vocabulary boards are great for ALL students to **assist with participation and engagement** in group discussions.

Tips on how to use in the unit!!

Have you ever bit into a slice of lemon? Did it make you pucker? Did it taste sour? You can thank an acid for that.



Hydrogen ions are hydrogen atoms that have lost their one electron, leaving the positively charged proton. This is the hydrogen ion.



There is a 42 page book with this unit using simple text and photos.

It comes in a PowerPoint as well as an mp4/ movie version (so you don't have to print it out.)

acid

Compound, when dissolved in water, creates hydrogen ions.



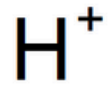
base

Compound, when dissolved in water, creates hydroxide ions.



hydrogen ion

Positively charged ion created when acids break down in water.



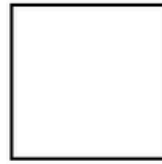
hydroxide ion

Negatively charged ion created when bases break down in water.



acid

Compound, when dissolved in water, creates hydrogen ions.



base

Compound, when dissolved in water, creates hydroxide ions.



hydrogen ion

Positively charged ion created when acids break down in water.



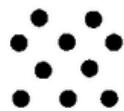
hydroxide ion

Negatively charged ion created when bases break down in water.



There are vocabulary cards that come in color and black and white.

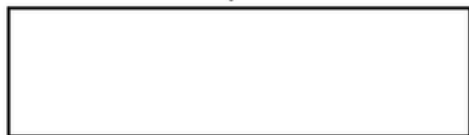
dissociate



litmus paper



pH



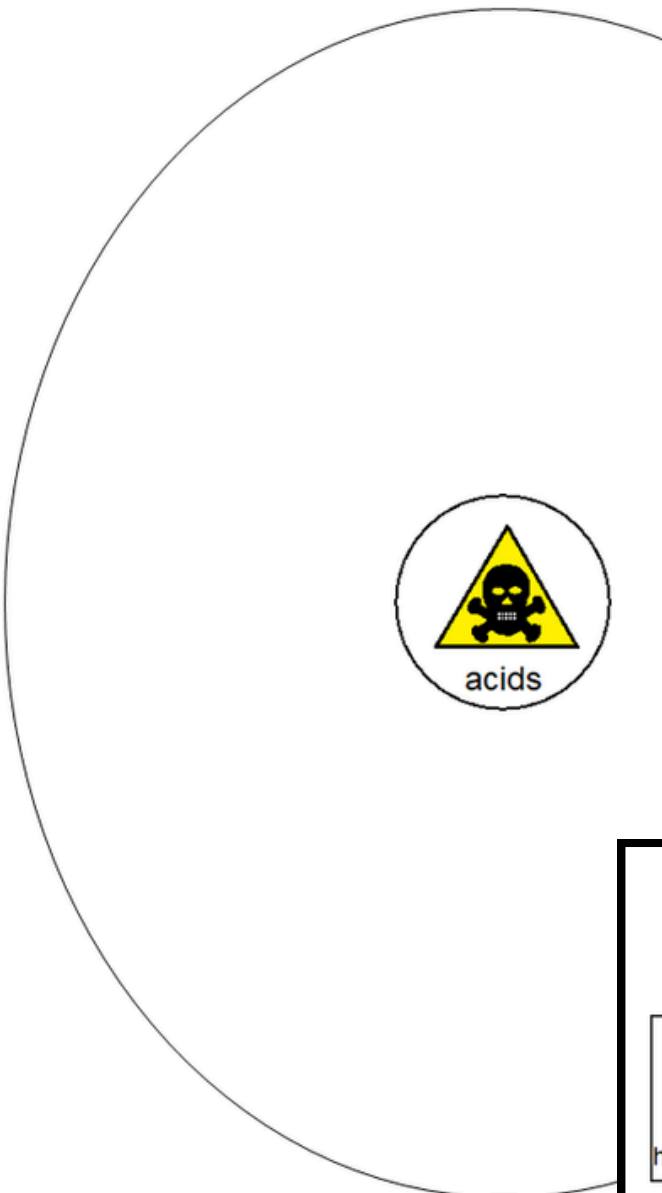
hydrochloric acid



Cut apart and match pictures with definition.

H ⁺			
			OH ⁻

- Included are suggestions for group activities to do with these each day.
- There is also a cut-and-paste activity.



Errorless version

Cut apart pictures and place in circle map about acids.

H^+ hydrogen ions	 dissociate	 sour	 litmus paper	 burn
0-6 pH scale	 battery	 lemon	 stomach	 vinegar



Cut apart pictures and place in circle map **ONLY IF** they relate to acids.

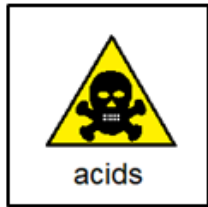
H^+ hydrogen ions	 dissociate	 bitter	 litmus paper	 burn
0-6 pH scale	 battery	 lemon	 stomach	 slippery
 litmus paper	 baking soda	 sour	8-14 pH scale	 vinegar

There are 2 circle maps. One is on acids, and the other is on bases that review the main points from the book.

Circle maps are a great way for students to see the concept at a glance. There are 2 versions:

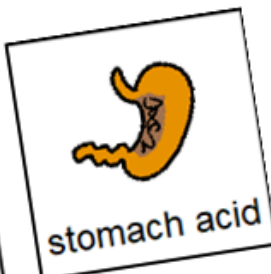
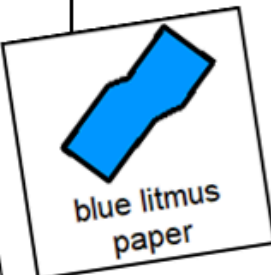
- One is errorless
- One has wrong answers mixed in students will have to set aside.

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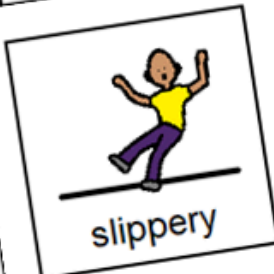


pH > 7

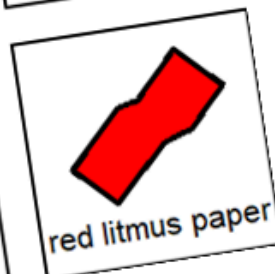
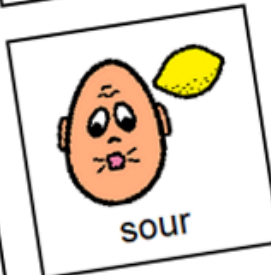
OH⁻



H⁺











pH < 7



















There is a sorting activity comparing acids and bases. Suggestions for differentiation and an answer key are included.

Color in the litmus paper, either red or blue, depending on the conditions present.

 pH 2	 pH 5
 pH 9	 pH 3
 pH 14	 pH 11
 pH 1	 pH 12

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Color in the litmus paper, either red or blue, depending on the conditions present.

  Baking soda in water	  green tea
  Hydrochloric acid	  toothpaste
  vinegar	  Lemon juice
  orange juice	  soapy water

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Students will color in the litmus paper depending on whether it is an acid or base.

Acid

Alkaline

Students will place various objects on a pH scale based on a key.

Using the key, place the items above the pH scale in the correct location.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
---	---	---	---	---	---	---	---	---	----	----	----	----	----

- Coke pH 3
- Hydrochloric acid 1
- Borax pH 9
- Bleach pH 13
- Celery pH 6



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Using the key, place the items above the pH scale in the correct location.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
---	---	---	---	---	---	---	---	---	----	----	----	----	----

- Lemons pH 2
- Bananas pH 5
- Eggs pH 8
- Soap pH 12
- Distilled water pH 7



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Acid

pH

Who am I cards

- Give each student a set of Who am I cards
- Various options/ways to play, but the goal is to have students hold up the card you are talking about. Sometimes there can be more than one correct answer
- Things you can do:
 - Hold up a who am I card
 - Show a page from the book
 - Point to a symbol on the vocabulary board
 - Verbally describe something about an acid or a base.
 - How does it taste?
 - How does it feel?
 - What is the pH?
 - What color is the litmus paper?
 - What type of ions are primarily present?
- Give examples of an acid or a base.



acid



base



acid



base

Group activity







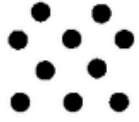





There are large cards and directions for playing a "Who am I?" group activity.

Bingo cards



- Included are 10 Bingo cards in color and 10 Bingo cards in BW.
- Place the cards in page protectors or laminate for long term use.
- **Cut one board apart to use as calling cards.**
- This is a great way to practice the new vocabulary included in this unit.
- Cut apart a set of the vocabulary cards to use as the calling cards.
- Options:
 - Show students the picture for them to match
 - Read the definition and see if students can find the matching picture
 - Work as teams
 - Vary the "winning" patterns.
 - Cover all
 - Cover corners
 - Row across or down
 - Cover the edges
 - Vary the ways to mark the card
 - Place in page protector or laminate and use dry erase markers
 - Stickers
 - Post-it notes
 - Dot markers

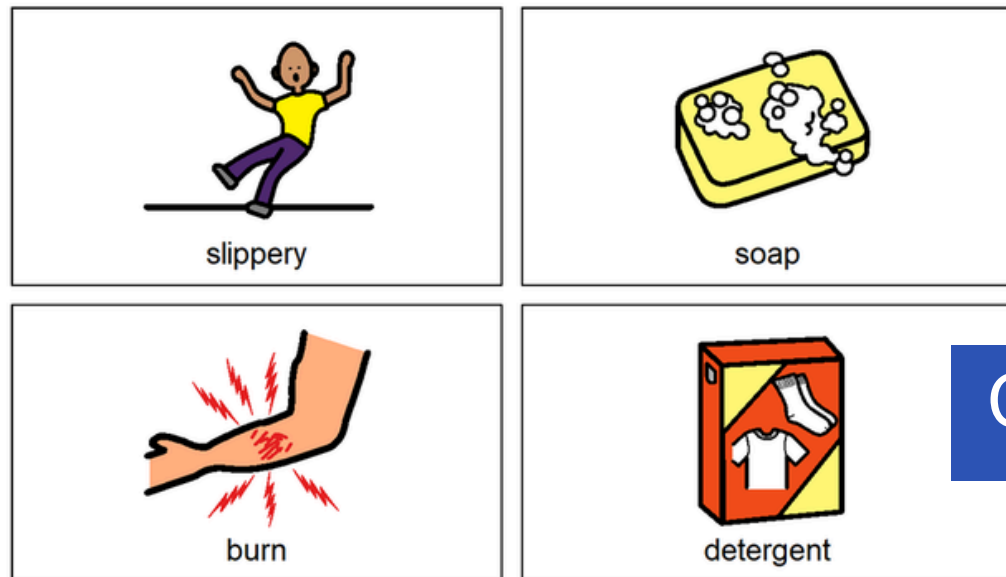
Acids and Bases

 Hydrochloric acid	 detergent	 burn	 blue litmus paper
 slippery	 base	 dissociate	 sour
H^+ Hydrogen ion	>7 pH	<7 pH	OH^- Hydroxide
 lemons	 soap	 red litmus paper	 acid

Group activity

There are 10 color and 10 black and white Bingo cards included plus 10 different ways to use them and play Bingo. There are calling cards included. This is a great way to review vocabulary.

Calling cards included



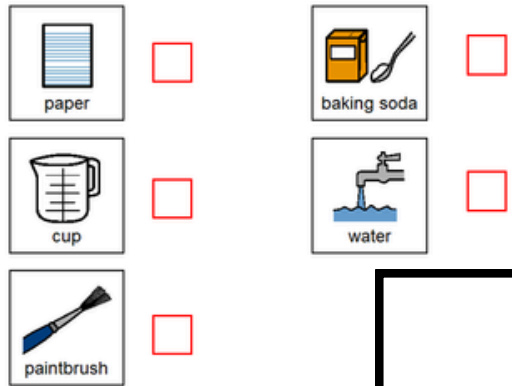
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Acids and Bases Hidden Messages

People on my team: _____

Materials needed:



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This unit includes an experiment. Students will write a secret message with a base that will appear when an acid is added.

Pictures included to use to fill in the blanks.

Detailed teacher instructions are included.

Acids and Bases Hidden Messages

My hypothesis

I think my secret message will

when I spray it with .

I think my secret message will

when I spray it with .



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Acids and Bases Hidden Message

Testing my hypothesis (in the afternoon):

You will need:



	Prediction	Result
Paper #1 		
Paper #2 		

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Acids and Bases Hidden Message

What I learned

An will make a change color.

will not make a change color.

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Acids

1. Acids have a pH .

2. Acids can taste .

3. If they get on your skin, acids can .

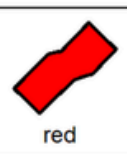
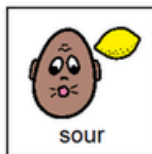
4. Acids will turn litmus paper .

5. Acids have a lot of in the solution.

pH < 7



H⁺



Bases

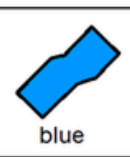
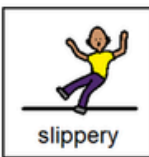
1. Bases have a pH .

2. Bases can taste .

3. Bases can feel .

4. Bases will turn litmus paper .

5. Bases have a lot of in the solution.



pH > 7

OH⁻

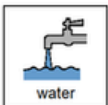
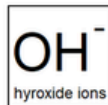
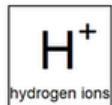
Close worksheets are a great informal assessment.

Answer key included.

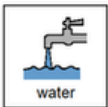
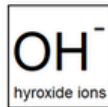
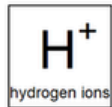
Acid

12/13
Alkali

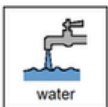
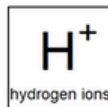
1. In acids, there is a high concentration of _____?



2. In bases, there is a high concentration of _____?



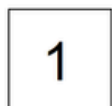
3. pH measures the strength of _____ in the solution.



4. Red litmus paper indicates the presence of a _____.

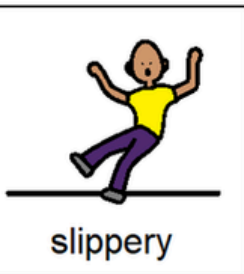


5. What would the strongest base measure on the pH scale?

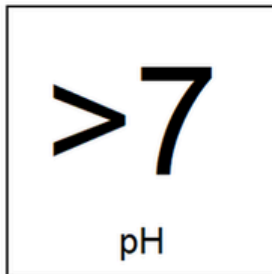


Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 7



slippery



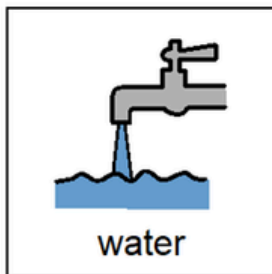
pH



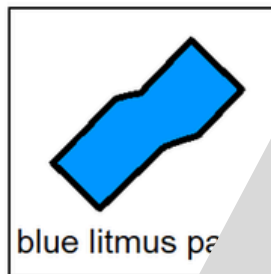
detergent



vinegar



water



blue litmus paper

1. In acids, there is a high concentration of _____?

- A. Hydrogen ions
- B. Hydroxide ions
- C. Water

2. In bases, there is a high concentration of _____?

- A. Hydrogen ions
- B. Hydroxide ions
- C. Water

3. pH measures the strength of _____ in the solution.

- A. Sugar
- B. Hydrogen ions
- C. Water

4. Red litmus paper indicates the presence of a _____.

- A. Acid
- B. Base
- C. Salt

5. What would the strongest base measure on the pH scale?

- A. pH 1
- B. pH 7
- C. pH 14

FINALLY the assessment!!

There are 3 versions.

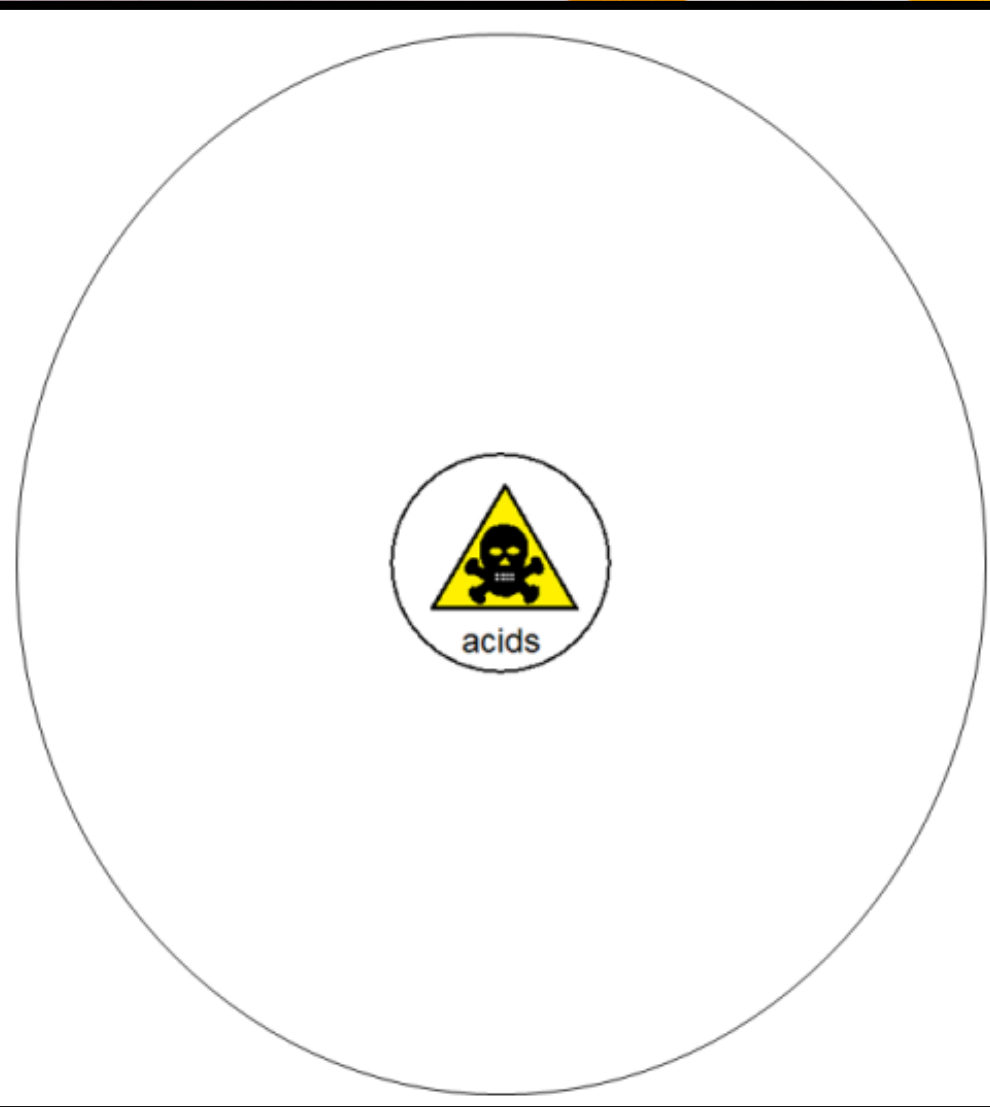
- 10 questions with 3 picture choices for each question
- cut out the answer choices and glue them on index cards
- traditional multiple choice

Answer key included.

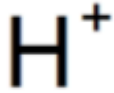




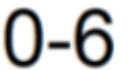




Acids and Bases

This unit also has digital activities. There is a movie version of the books students can listen to read aloud.

By Christa Joy



Place the picture in the circle map about acids.

 hydrogen ions	 dissociate	 sour	 litmus paper
 burn	 pH scale	 battery	
 stomach	 vinegar		

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The digital activities have students click and drag their answers.

13
Alkan



acids



bases

Sort pictures in the correct column depending on if it describes an acid or a base. If you are not sure, place it on the middle line.

pH > 7



slippery

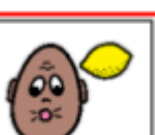
OH⁻

hydroxide ions



litmu

pH < 7



sour



vinegar



litmus paper



soap



toothpaste



sto



bitter

H⁺

hydrogen ions



burn



detergent

There are 2 sets of slides. One set has color-coding for more support.



This resource comes in a zipped folder. You will need to unzip the folder to access all the contents which include:

- 10 days of lesson plans
- Acids and Bases activities in color
- Acids and Bases activities in black and white
- Voice-recorded PowerPoint show
- Acids and Bases book (PowerPoint) to use with activities
- Links and directions to digital activities