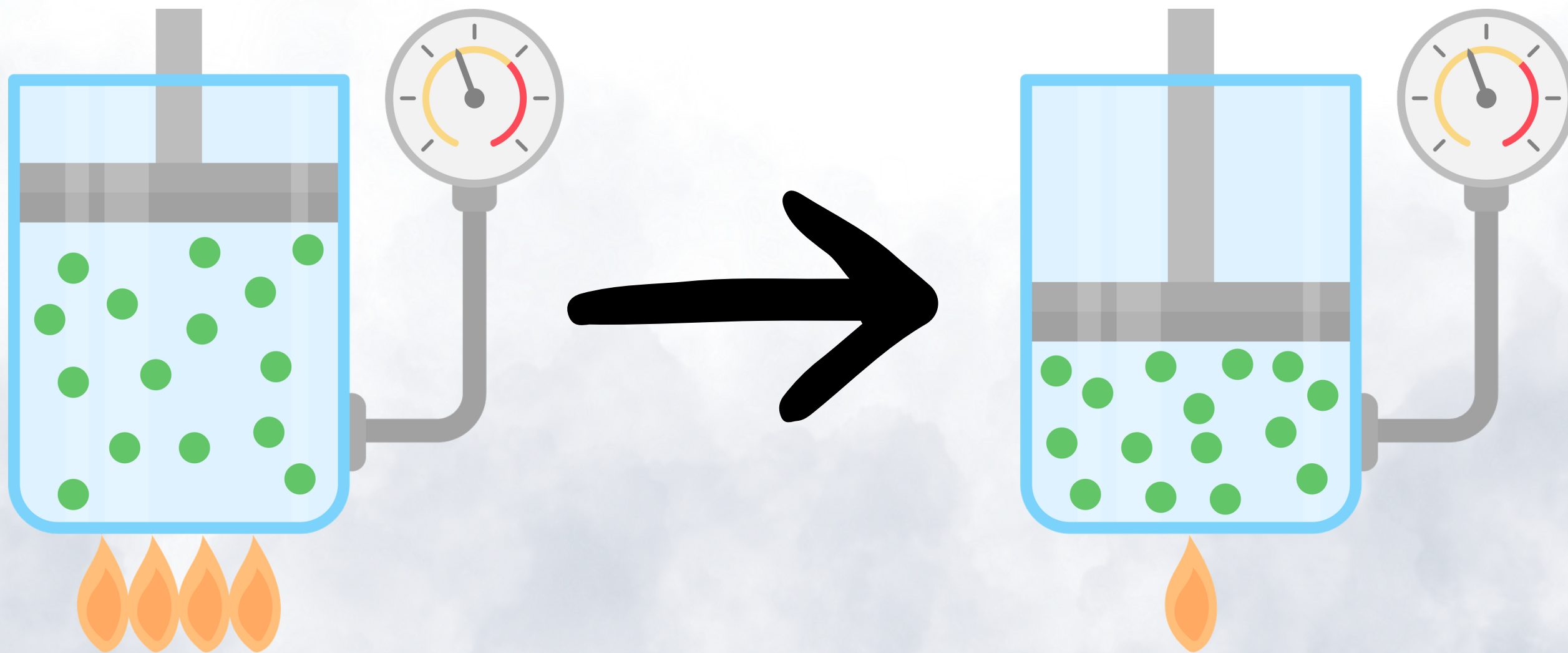


PROPERTIES OF GASES



ENGAGING, HANDS-ON CHEMISTRY ACCESSIBLE TO ALL LEARNERS



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

Gases

By
Christa Joy
Special Needs for Special Kids



Christa Joy, Special Needs for Special Kids
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Pages	Activity
4-5	Vocabulary board
6-20	Bingo cards
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42-43	If then chart
44-51	Making predictions (Charles' & Boyle's Laws)
52-59	Experiments
60-69	Assessment
70-71	Terms of Use

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 7 days of material. There is 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

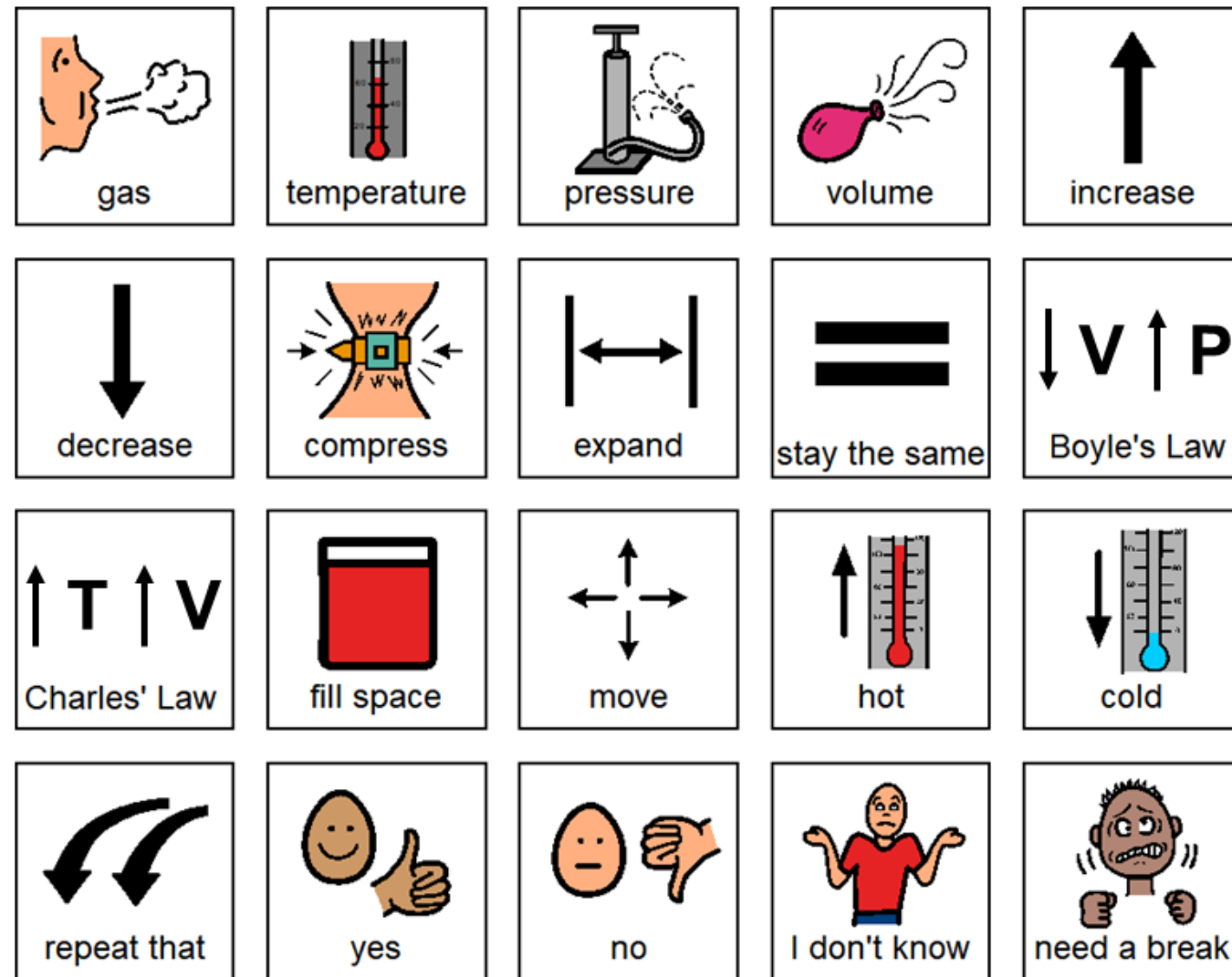
Day	Activity
1	• PowerPoint • Vocab cards activity • Circle map
2	• PowerPoint • Vocab cards activity • Sorting activity
3	• PowerPoint • Vocab cards activity • If-then chart
4	• PowerPoint • Vocab cards activity • Making predictions
5	• PowerPoint • Vocab cards activity • Making predictions
6	• PowerPoint • Vocab cards cut and paste • Experiment
7	• Assessment • Bingo

Day 5

Activity	Notes	Materials
Read or listen to a recording of the PowerPoint (10 minutes)	• Read through the story, asking lots of questions • Continue to make connections between the PowerPoint and vocabulary board	• PowerPoint • Vocabulary board
Vocabulary cards Bean Bag Toss (10 minutes)	• Glue the cut-apart symbols to the paper plates (one on each plate) • Arrange them around the room • Students toss the bean bag, trying to get it to land on a paper plate • Students retrieve the paper plate and share the vocabulary card they retrieved	• Vocabulary cards • Paper plates • Bean bags • Glue • Scissors
Making predictions review (5 minutes)	• Review your activity completed yesterday	• Activity done yesterday
Making predictions (15 minutes)	• Students will complete activities relating to Boyle's and Charles' Laws • There are six examples included. Complete the last three today. ◦ Add color coding if needed for more support • Make connections to real-life examples and the PowerPoint	• Worksheet • Scissors • Glue
Sharing (10 minutes)	• Each student shares their finished activity with the group using the communication method of their choice	• 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, helping with participation and engagement in group discussions.

Tips on how to use in the unit!!

Scientists measure gases in three important ways: temperature, pressure, and volume. These three measurements help us describe how a gas behaves.



© Christa Joy, SNSK

There is a 33-page PowerPoint for this unit using simple text and photos.

Scientists also use something called **Standard Temperature and Pressure** (STP). STP gives scientists one common set of conditions so they can compare different gases fairly.



© Christa Joy, SNSK

It is also available as Google Slides and a pre-recorded MP4 file.

gas

A state of matter with no definite shape or volume. It spreads out to fill its container.



temperature

A measure of how hot or cold a gas is. When a gas gets hotter, its particles move faster.



pressure

The force made when moving gas particles bump into the walls of a container. More collisions create more pressure.



volume

The amount of space a gas takes up inside a container. A gas spreads out to fill all the space available.



ideal gas

A model of a gas that behaves exactly as scientists expect. It helps scientists study gases.



real gas

A real gas found in nature. It usually behaves like an ideal gas, but it does not always behave the same way.



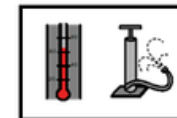
Ideal Gas Law

A law that explains how pressure, volume, temperature, and the amount of gas are related.



STP

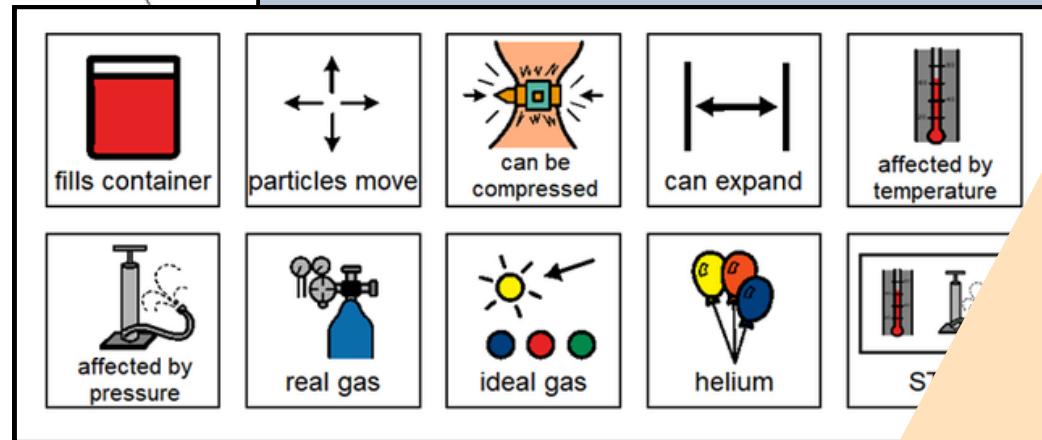
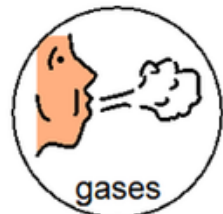
A standard temperature and pressure that scientists use to compare gases fairly.



There are 12 vocabulary cards that come in color and black and white.

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

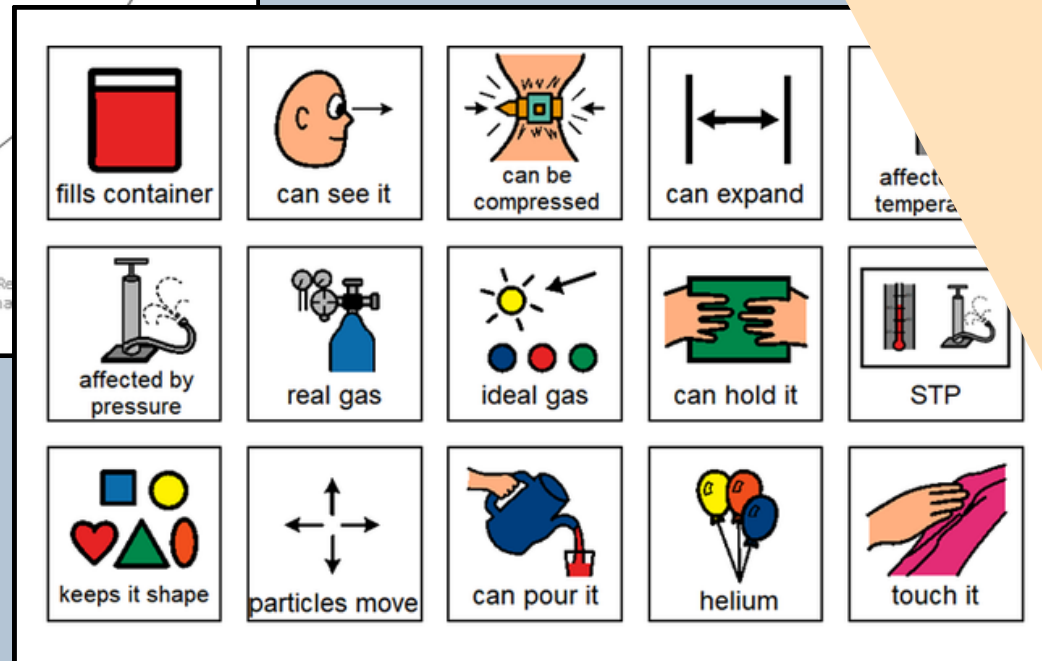
ERRORLESS



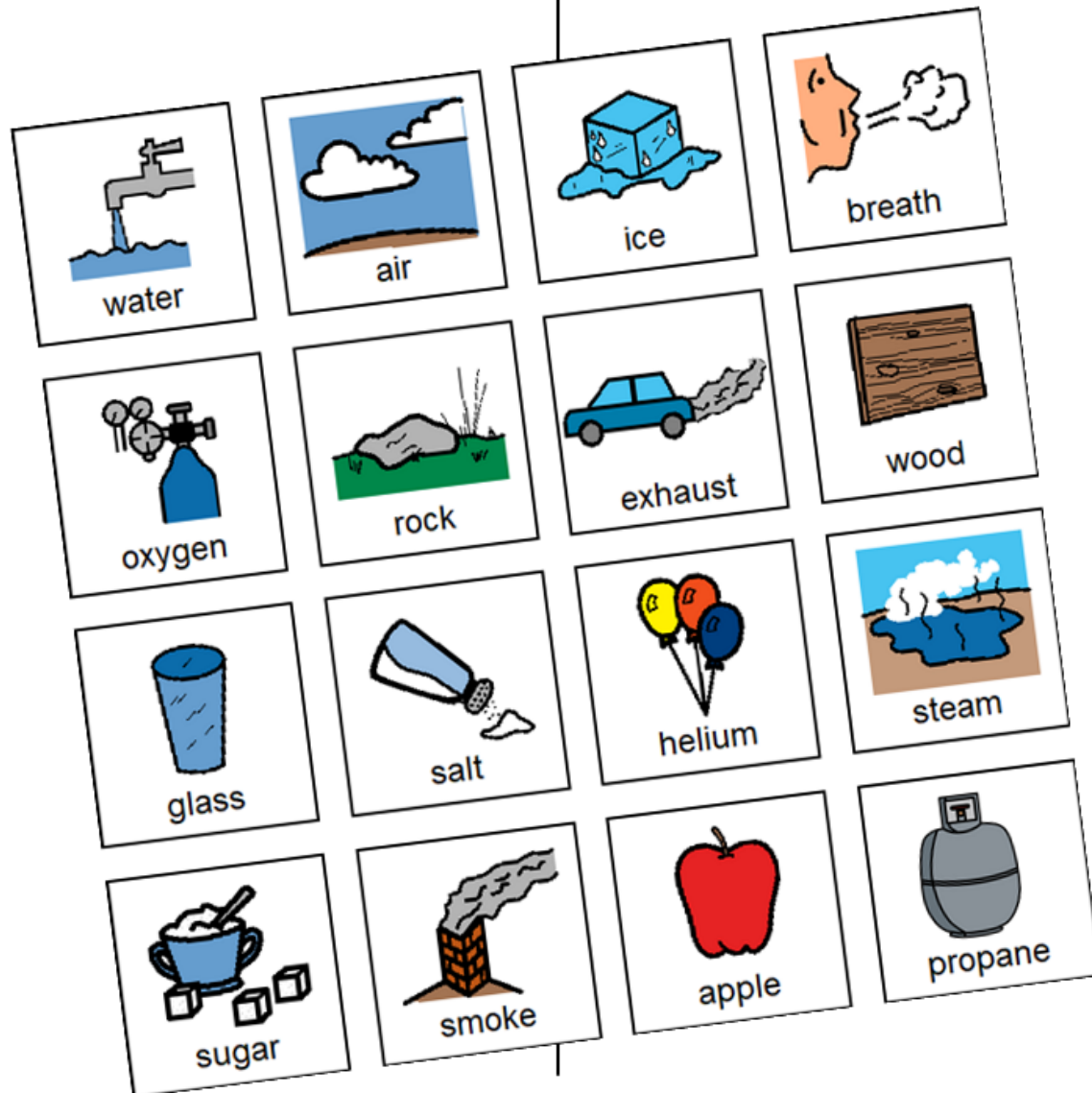
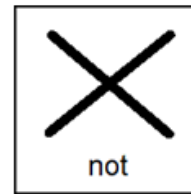
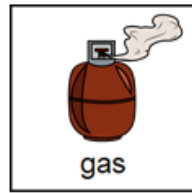
There is a circle map on the properties of gases.

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

- Errorless
- Wrong answers mixed in



**WRONG ANSWERS
MIXED IN**



Students will sort examples of things that are and are not gases.

Suggestions for differentiation and an answer key are included.

Identify what happens in the then... column. Draw an arrow in the blank box.

If...	Then...
Volume ↓	Pressure
Volume ↑	Pressure
Temperature ↑	Volume
Temperature ↓	Volume

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Note: students will NOT be working with formulas

1. Predict what will happen.
2. Identify which law this demonstrates.

A piston goes down in a closed cylinder.

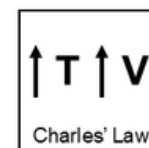


Volume

Pressure

Temperature

Circle the law this demonstrates.



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BOYLE'S LAW & CHARLES'S LAW

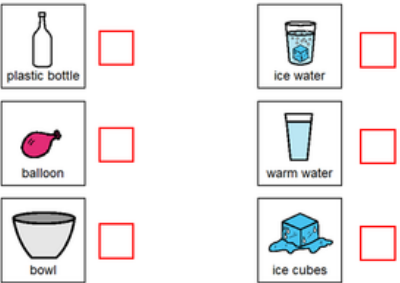
Students complete some activities showing what happens to volume, pressure, or temperature when one or more changes.

Suggestions for differentiation and an answer key are included.

Gases
Balloon and Bottle

People on my team: _____

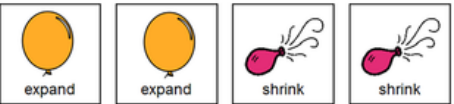
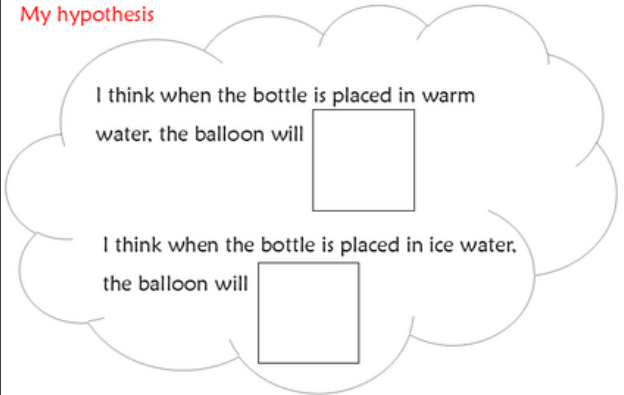
Materials needed: _____



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Gases
Balloon and Bottle

My hypothesis



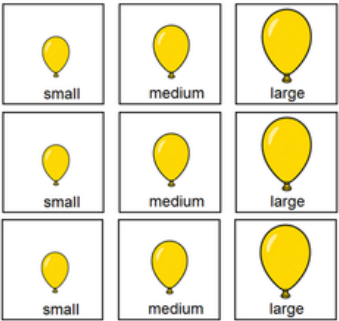
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Gases
Balloon and Bottle

Observations

	Before	Warm water	Ice water
balloon size			

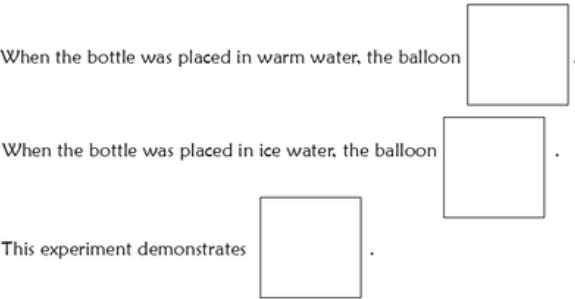
Pictures to use for observations.



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Gases
Balloon and Bottle

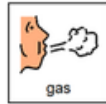
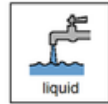
What I learned



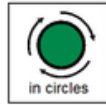
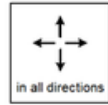
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This unit includes 1 experiment. It guides students through the process by which temperature changes affect a balloon's size.

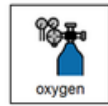
1. Which state of matter does not have a definite shape or volume?



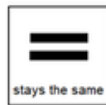
2. Gas particles move:



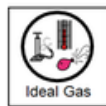
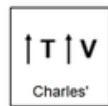
3. Circle the example of a gas.



4. What happens to the volume of a gas when it is heated, and the pressure stays the same?

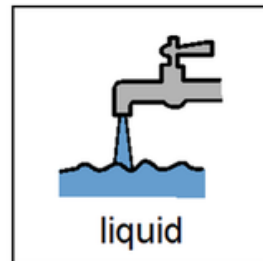
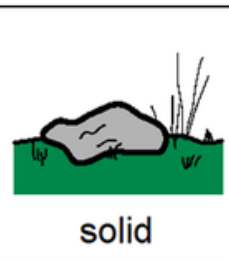


5. Which gas law explains what happens when temperature changes but pressure stays the same?

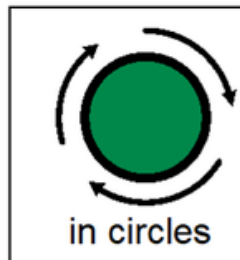
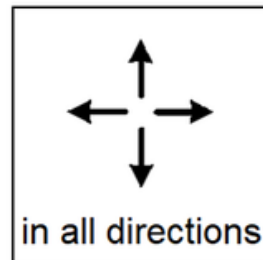
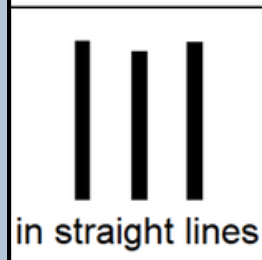


Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 1



Q 2

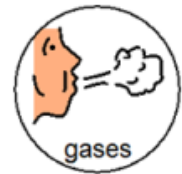


FINALLY the assessment!!

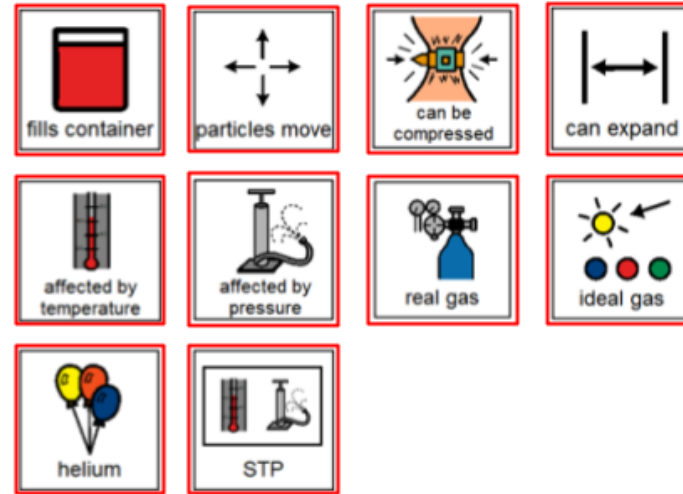
There are 3 versions.

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

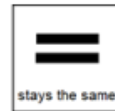
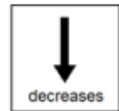
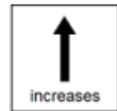
Answer key included.



Place the picture in the circle map about gases.



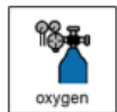
6. What happens to the pressure of a gas when its volume decreases, and the temperature stays the same?



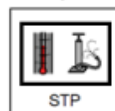
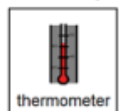
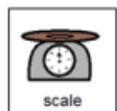
7. Which gas law explains what happens when pressure and volume change while temperature stays the same?



8. What is an ideal gas found in nature?



9. What do scientists use to compare gases fairly?



10. True or False. The Ideal Gas Law explains how pressure, volume, temperature, and the amount of gas are related.



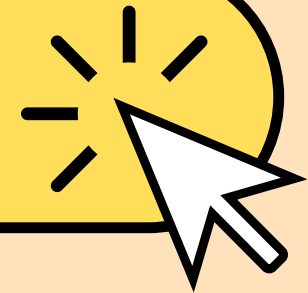
Circle the correct answer.

The digital activities have students click and drag their answers.

Includes a differentiated set of slides.

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THE CHEMISTRY CURRICULUM.**

CLICK HERE



Christa Joy, M.Ed., DVM