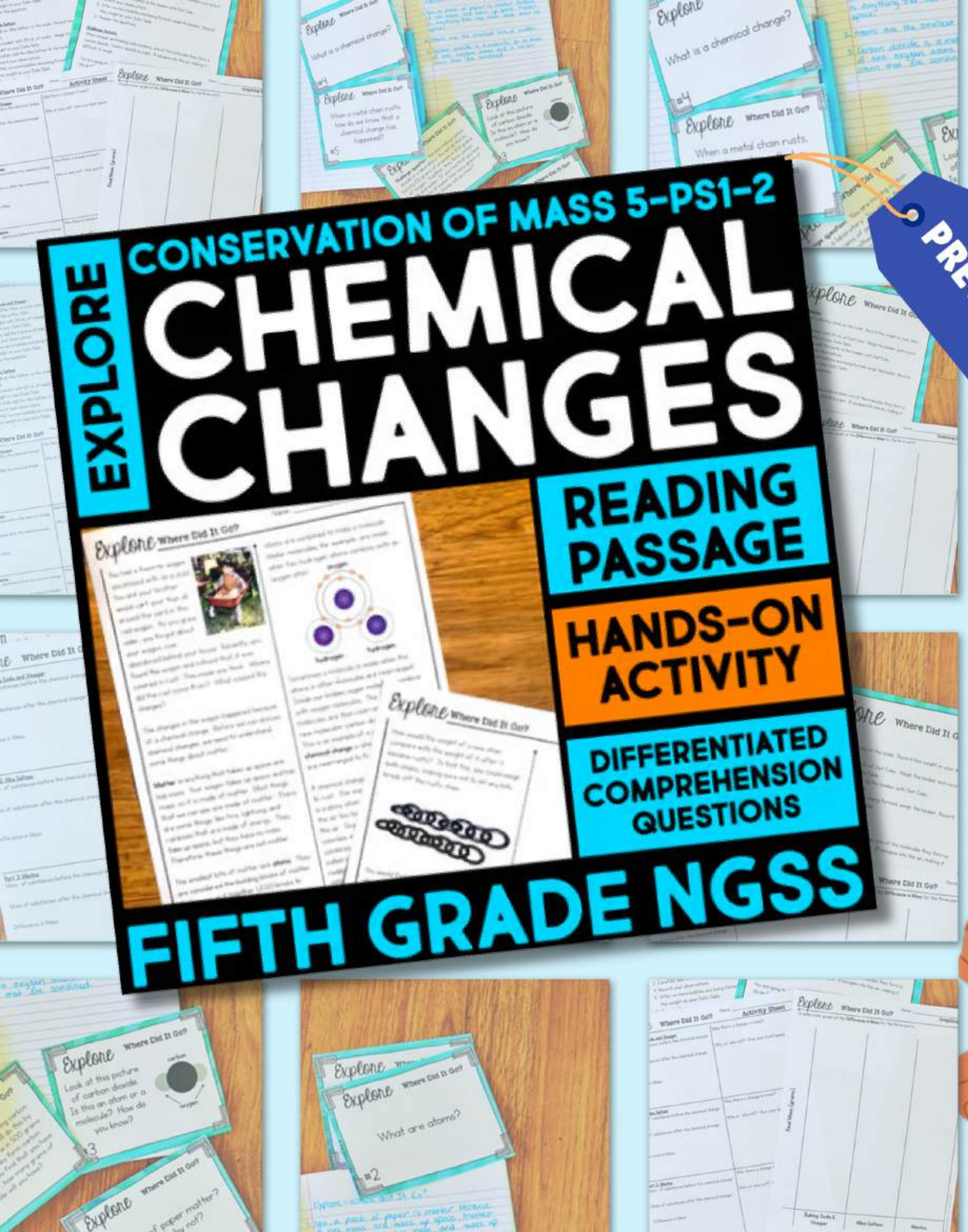


Explore Before You Explain

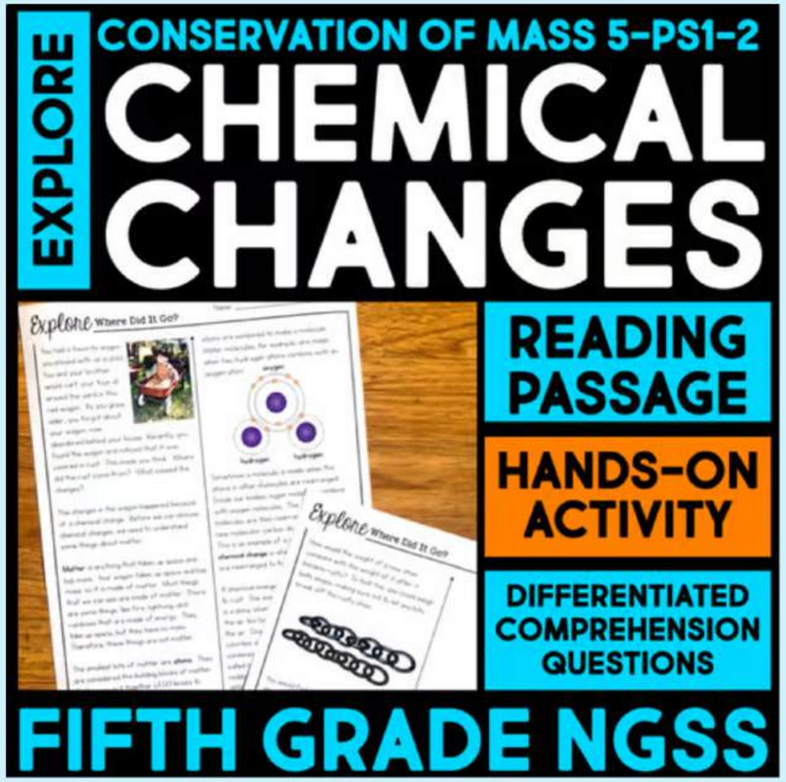
5TH GRADE

EXPLORE CHEMICAL CHANGES

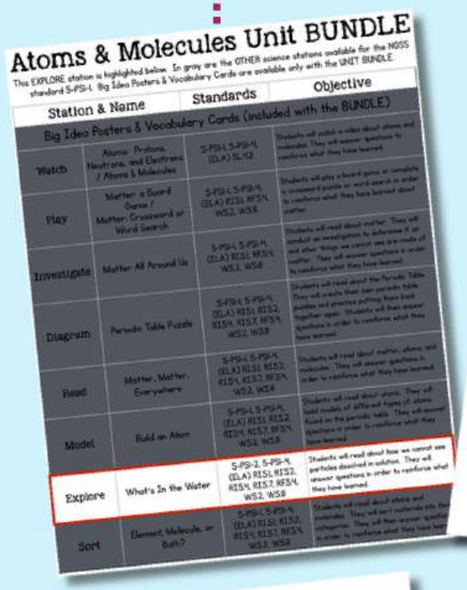
CONSERVATION OF MASS

KEEP SCROLLING TO SEE WHAT'S INSIDE!

ACTIVITY OVERVIEW



- Students read a passage
- Students explore in a hands-on activity.
- Lastly, they answer questions based on their exploration activity.


Atoms & Molecules Unit BUNDLE

This EXPLORE station is highlighted below. In gray are the OTHER science stations available for the NGSS standard 5-PS1-1. Big Idea Posters & Vocabulary Cards are available only with the UNIT BUNDLE.

Station & Name	Standards	Objective
Big Idea Posters & Vocabulary Cards (included with the BUNDLE)		
Watch	Atoms, Protons, Neutrons, and Electrons / Atoms & Molecules	5-PS1-1, 5-PS1-4, (ELA) SL.5.2	Students will watch a video about atoms and molecules. They will answer questions to reinforce what they have learned.
Play	Matter: a Board Game / Matter: Crossword or Word Search	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RF.5.4, WS.2, WS.8	Students will play a board game or complete a crossword if inside or word search or order to reinforce what they have learned about matter.
Investigate	Matter: All Around Us	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RF.5.4, WS.2, WS.8	Students will read about matter. They will conduct an investigation to determine if air and other things are mass and are made of matter. They will answer questions in order to reinforce what they have learned.
Diagram	Periodic Table Puzzle	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about the Periodic Table. They will create their own periodic table together with their partners. Students will then answer questions in order to reinforce what they have learned.
Read	Matter, Matter, Everywhere	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about matter, atoms, and molecules. They will answer questions in order to reinforce what they have learned.
Model	Build an Atom	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about atoms. They will build models of different types of atoms found on the periodic table. They will answer questions in order to reinforce what they have learned.
Explore	What's In the Water	5-PS1-2, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about how we cannot see particles dissolved in solution. They will answer questions in order to reinforce what they have learned.
Sort	Element, Molecule, or Both?	5-PS1-1, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about atoms and molecules. They will sort materials into their components. They will then answer questions in order to reinforce what they have learned.


Science Stations Overview

This is a general overview of all science stations in each UNIT BUNDLE.

Watch a Video
At this station, students will watch a video relevant to the topic and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Play a Video Game
Students play an online video game and answer questions about the experience. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Investigate
Students use materials to investigate the science topic by following directions and recording results. Students answer questions about the investigation.

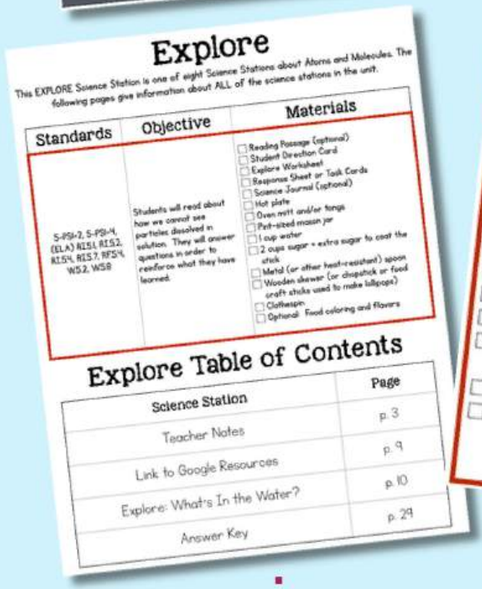
Draw a Diagram
Students draw and label a diagram specific to certain requirements. Students then explain how their diagram meets the requirements.

Read a Passage
Students read a short passage about the topic and answer questions about the information in the passage. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Create a Model
Students use materials to illustrate the science concept and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Explore
Students create a sample and manipulate it using the new science concepts they have learned. Students answer question based on the effects.

Sort
Students sort cards into groups or put them in a specific order. Students record the sort and then describe their reasoning.

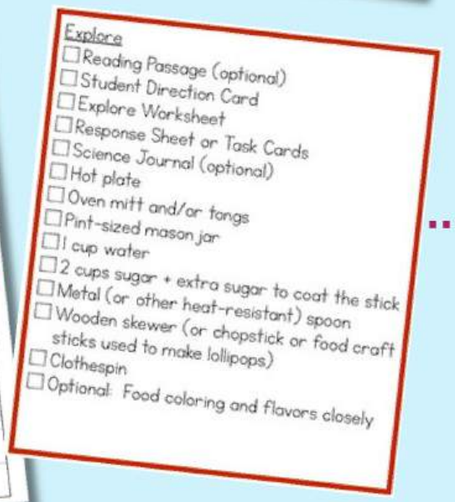

Explore

This EXPLORE Science Station is one of eight Science Stations about Atoms and Molecules. The following pages give information about ALL of the science stations in the unit.

Standards	Objective	Materials
5-PS1-2, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RF.5.4, WS.2, WS.8	Students will read about how we cannot see particles dissolved in solution. They will answer questions in order to reinforce what they have learned.	☐ Reading Passage (optional) ☐ Student Direction Card ☐ Explore Worksheet ☐ Response Sheet or Task Cards ☐ Science Journal (optional) ☐ Hot plate ☐ Oven mitt and/or tongs ☐ Pint-sized mason jar ☐ 1 cup water ☐ 2 cups sugar + extra sugar to coat the stick ☐ Metal (or other heat-resistant) spoon ☐ Wooden skewer (or chopstick or food craft sticks used to make lollipops) ☐ Clothespin ☐ Optional: Food coloring and flavors

Explore Table of Contents

Science Station	Page
Teacher Notes	p. 3
Link to Google Resources	p. 9
Explore: What's In the Water?	p. 10
Answer Key	p. 29


Explore

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Explore Worksheet
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)
- ☐ Hot plate
- ☐ Oven mitt and/or tongs
- ☐ Pint-sized mason jar
- ☐ 1 cup water
- ☐ 2 cups sugar + extra sugar to coat the stick
- ☐ Metal (or other heat-resistant) spoon
- ☐ Wooden skewer (or chopstick or food craft sticks used to make lollipops)
- ☐ Clothespin
- ☐ Optional: Food coloring and flavors closely

Table of Contents

Science Station Overview

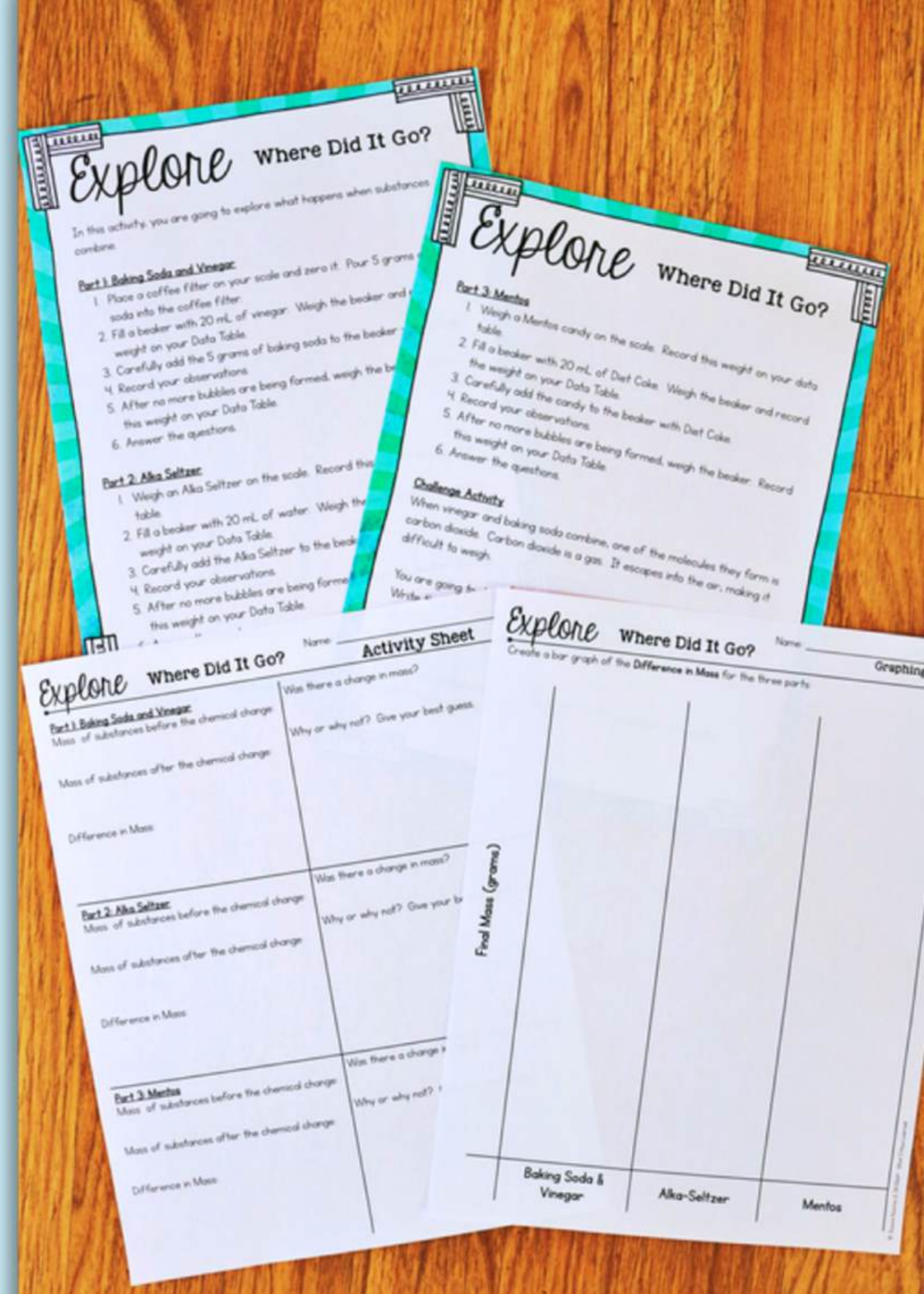
Materials Checklist

Table of Contents / Teacher's Notes

WHAT'S INCLUDED

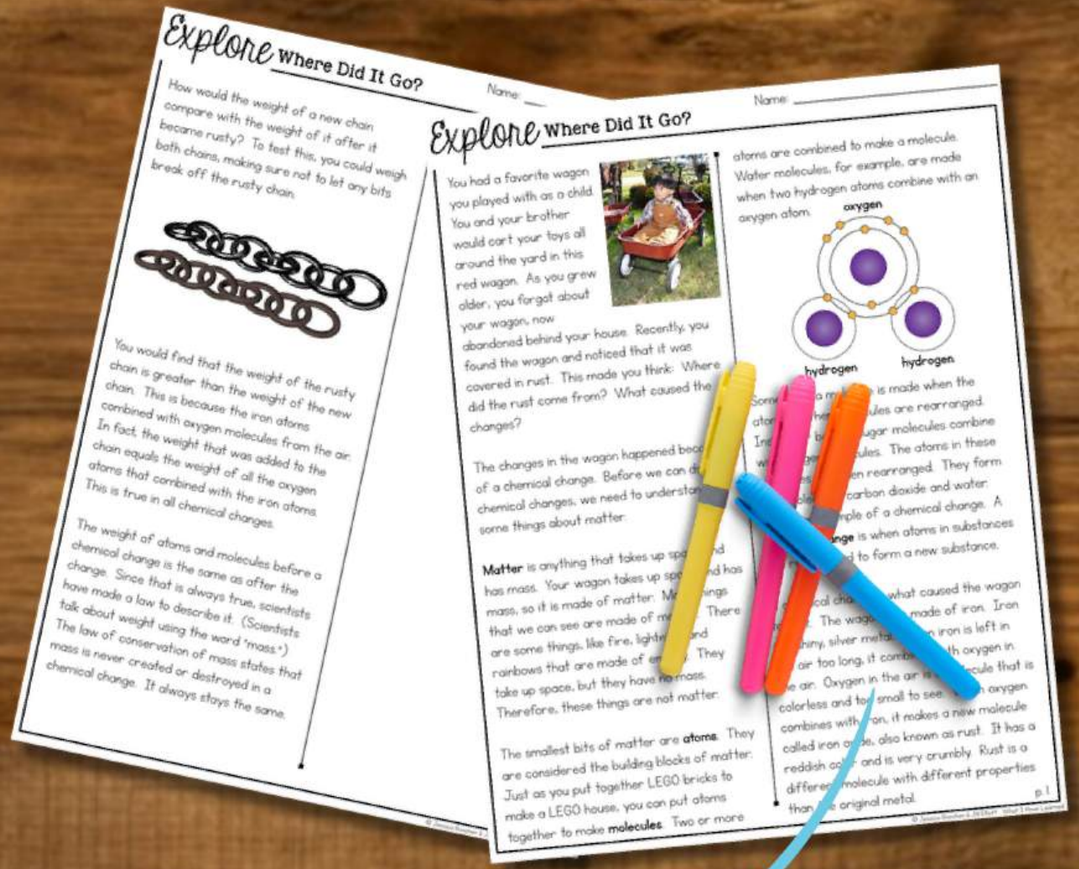
EXPLORE SCIENCE STATION

- Teacher Notes
- **Student Text** in two formats
- Student **Instructions**
- **Activity Sheets** for observation
- Differentiated **Questions**
- Answer Key
- Google Form™
- Google Slides™

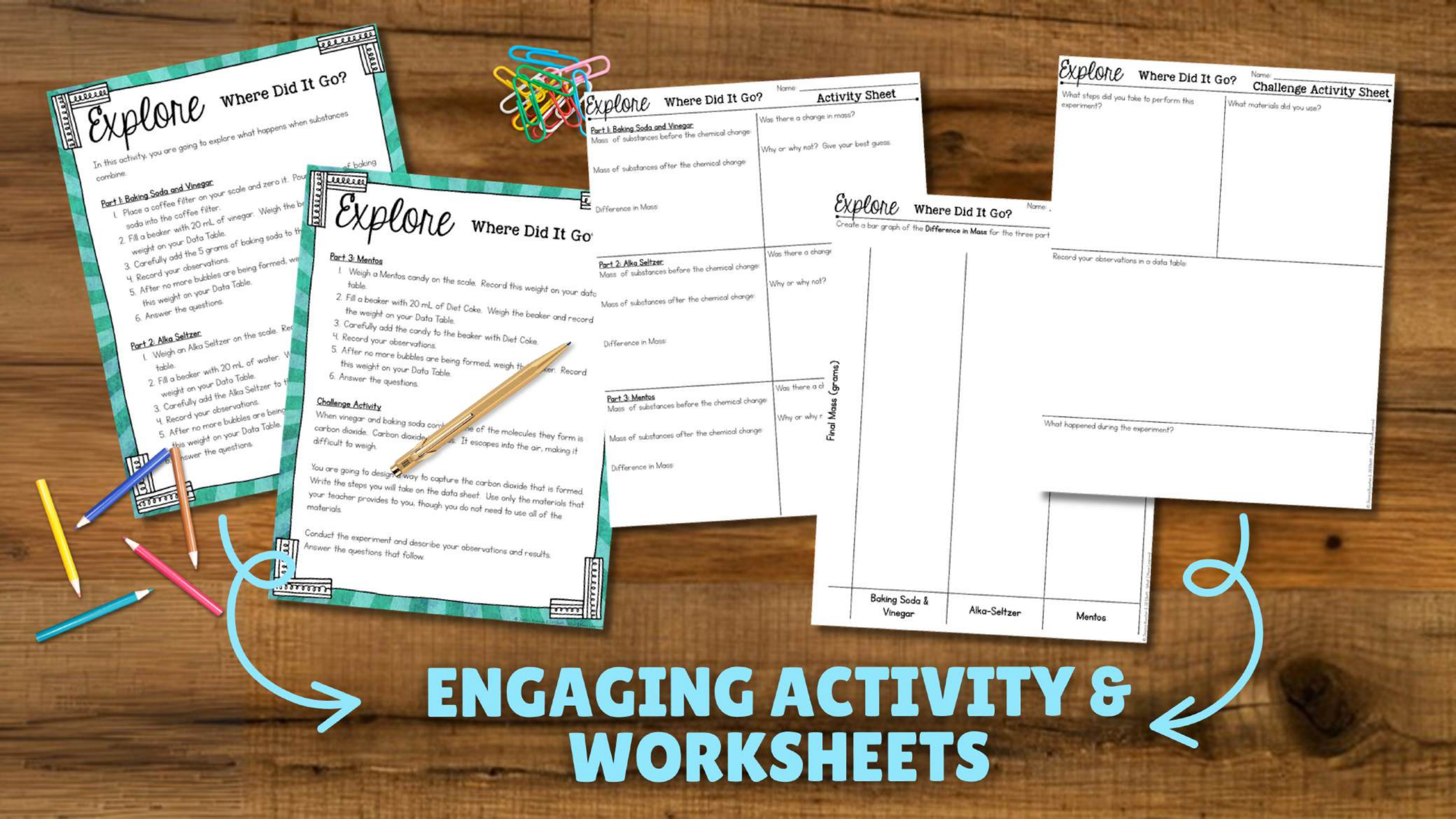


EXPLORE: READING PASSAGE





READING PASSAGE IN TWO FORMATS


Explore Where Did It Go?
In this activity, you are going to explore what happens when substances combine.
Part 1: Baking Soda and Vinegar
1. Place a coffee filter on your scale and zero it. Pour baking soda into the coffee filter.
2. Fill a beaker with 20 mL of vinegar. Weigh the beaker and record the weight on your Data Table.
3. Carefully add the 5 grams of baking soda to the vinegar.
4. Record your observations.
5. After no more bubbles are being formed, weigh the beaker. Record this weight on your Data Table.
6. Answer the questions.
Part 2: Alka Seltzer
1. Weigh an Alka Seltzer on the scale. Record this weight on your data table.
2. Fill a beaker with 20 mL of water. Weigh the beaker and record the weight on your Data Table.
3. Carefully add the Alka Seltzer to the water.
4. Record your observations.
5. After no more bubbles are being formed, weigh the beaker. Record this weight on your Data Table.
6. Answer the questions.
Explore Where Did It Go?
Part 3: Mentos
1. Weigh a Mentos candy on the scale. Record this weight on your data table.
2. Fill a beaker with 20 mL of Diet Coke. Weigh the beaker and record the weight on your Data Table.
3. Carefully add the candy to the beaker with Diet Coke.
4. Record your observations.
5. After no more bubbles are being formed, weigh the beaker. Record this weight on your Data Table.
6. Answer the questions.
Challenge Activity
When vinegar and baking soda combine, one of the molecules they form is carbon dioxide. Carbon dioxide is a gas. It escapes into the air, making it difficult to weigh.
You are going to design a way to capture the carbon dioxide that is formed. Write the steps you will take on the data sheet. Use only the materials that your teacher provides to you, though you do not need to use all of the materials.
Conduct the experiment and describe your observations and results. Answer the questions that follow.
Explore Where Did It Go?
Name:
Activity Sheet
Part 1: Baking Soda and Vinegar
Mass of substances before the chemical change:
Mass of substances after the chemical change:
Difference in Mass:
Was there a change in mass?
Why or why not? Give your best guess.
Part 2: Alka Seltzer
Mass of substances before the chemical change:
Mass of substances after the chemical change:
Difference in Mass:
Was there a change
Why or why not?
Part 3: Mentos
Mass of substances before the chemical change:
Mass of substances after the chemical change:
Difference in Mass:
Was there a ch
Why or why n
Explore Where Did It Go?
Name:
Create a bar graph of the Difference in Mass for the three part
Final Mass (grams)
Baking Soda & Vinegar
Alka-Seltzer
Mentos
Explore Where Did It Go?
Name:
Challenge Activity Sheet
What steps did you take to perform this experiment?
What materials did you use?
Record your observations in a data table:
What happened during the experiment?
ENGAGING ACTIVITY & WORKSHEETS

DIFFERENTIATED QUESTIONS



SHORT ANSWER



FILL-IN-THE BLANK



TASK CARDS: SHORT ANSWER & MULTIPLE CHOICE

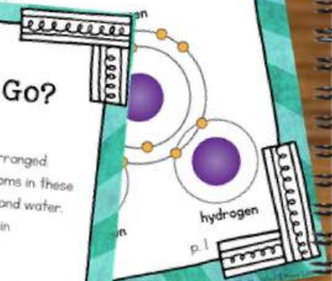
Explore Where Did It Go?



You had a favorite wagon you played with as a child. You and your brother would cart your toys all around the yard in this red wagon. As you grew older, you forgot about your wagon, now abandoned behind your house. Recently, you found the wagon and noticed that it was covered in rust. This made you think: Where did the rust come from? What caused the changes?

The changes in the wagon happened because of a chemical change. Before we can discuss chemical changes, we need to understand some things about matter.

Matter is anything that takes up space and has mass. Your wagon takes up space and is made of matter. Most things that we can see are made of matter. Lightning, and rainbows that are made of energy. Therefore, these things are not matter.



p. 1

Explore Where Did It Go?

Sometimes a molecule is made when the atoms in other molecules are rearranged. Inside our bodies, sugar molecules combine with oxygen molecules. The atoms in these molecules are then rearranged. They form new molecules: carbon dioxide and water. This is an example of a chemical change. A **chemical change** is when atoms in substances are rearranged to form a new substance.

A chemical change is what caused the wagon to rust. The wagon was made of iron. Iron is a shiny, silver metal. When iron is left in the air too long, it combines with oxygen in the air. Oxygen in the air is a molecule that is colorless and too small to see. When oxygen combines with iron, it makes a new molecule called iron oxide, also known as rust. It has a reddish color and is very crumbly. Rust is a different molecule with different properties than the original metal.

How would the weight of a new chain compare with the weight of it after it became rusty? To test this, you could weigh both chains, making sure not to let any bits break off the rusty chain.



You would find that the weight of the rusty chain is greater than the weight of the new chain. This is because the iron atoms combined with oxygen molecules from the air. In fact, the weight that was added to the chain equals the weight of all the oxygen atoms that combined with the iron atoms. This is true in all chemical changes.

The weight of atoms and molecules before a chemical change is the same as after the change. Since that is always true, scientists have made a law to describe it. (Scientists talk about weight using the word "mass.") The law of conservation of mass states that mass is never created or destroyed in a chemical change. It always stays the same.

p. 2

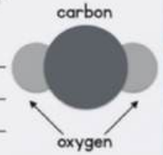
Explore Where Did It Go?

Name: _____

1. Is a piece of paper matter? Why or why not?
Yes, a piece of paper is matter because it has mass and takes up space. Matter is anything that has mass and takes up space.

2. What are atoms?
Atoms are the smallest bits of matter. Students may also say that atoms are the building blocks of matter.

3. Look at this picture of carbon dioxide. Is this an atom or a molecule?



How do you know?
Carbon dioxide is a molecule. It i… two oxygen atoms and a carbon atom that are comb…

4. What is a chemical chan…
A chemical change is when a… form a new substance.

5. When a metal chain rusts, how a… change has happened?
When metal rusts, we know that a … pened because the rust is a different substance than the metal.

6. What is the law of conservation of mass…
The law of conservation of mass states that … eated or destroyed in a change. It stays the same.

Challenge question: You are making carbon dioxi… You will do this by burning 100 grams of propane in 500 grams of oxy… ey form carbon dioxide and water. If you find that you have 200 g… w many grams of carbon dioxide will you have?
Since you have 600 grams of substance (100g propane + … he chemical change, you need to have 600 grams of substance (200g water + … after the chemical change. Therefore, 600g - 200g = 400g. You will have … ide.

Explore Where Did It Go?

What are atoms?

#2

#2 Explore Where Did It Go?

What are atoms?
a. The smallest bits of matter.
b. The building blocks of matter.
c. Both a and b
d. Neither a or b

#6 Explore Where Did It Go?

What is the law of conservation of mass?
a. Mass cannot be created or destroyed in a change.
b. Mass is conserved when people try to lose weight.
c. There is less mass after a change than before the change.
d. There is more mass after a change than before the change.

YOU WILL LOVE THIS BECAUSE



Encourages True Scientific Inquiry

Students explore concepts through hands-on investigation rather than passive reading alone.



Low-Prep, High-Impact Learning

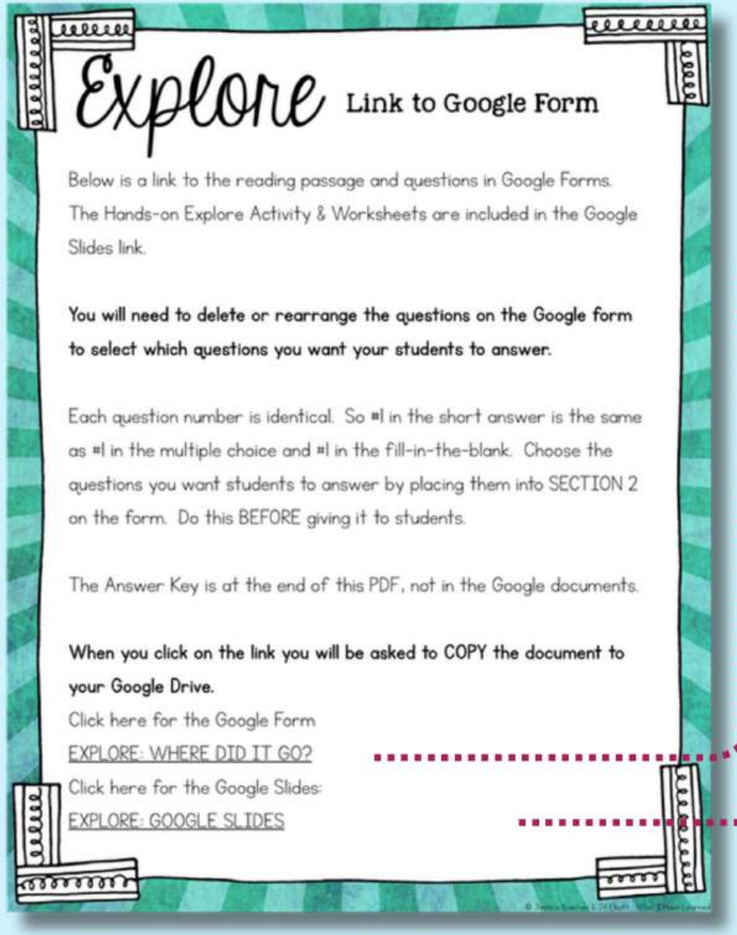
Teacher-friendly design saves prep time while offering meaningful, NGSS-aligned exploration activities.



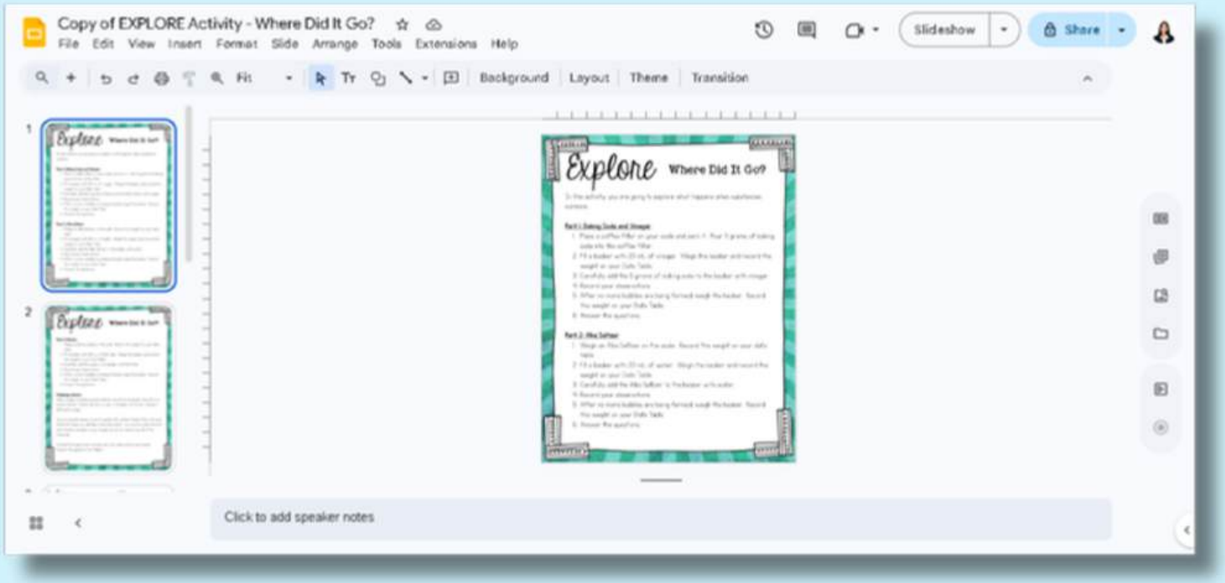
Easy to Implement

Includes teacher notes, student directions, worksheets, and answer keys—everything needed for a no-prep, ready-to-use science lesson.

DIGITAL VERSIONS







DIGITAL VERSIONS

- ✔ Google Sheet with Activity & Directions
- ✔ Google Form with Reading & Questions

Answer keys provided

TEACHERS LOVE IT!

Great resource with variety of activities that help address the standard. Students were engaged and it was easy to implement.

Nicole C.



Another awesome science bundle from you. You have the BEST products. Thank you!!!

Kerri P.



My passion is making learning accessible to all students.
I love scaffolding learning, breaking down the concepts and building them up so that students can see the connections.
I love figuring out the small components that build up to the big ideas and helping students see it all.



teach MATH | teach SCIENCE | teach READING | teach WRITING

What I have LEARNED