

5TH
GRADE

Make Chemical Reactions
Click for Your Students!

PREVIEW

5th Grade NGSS BUNDLE

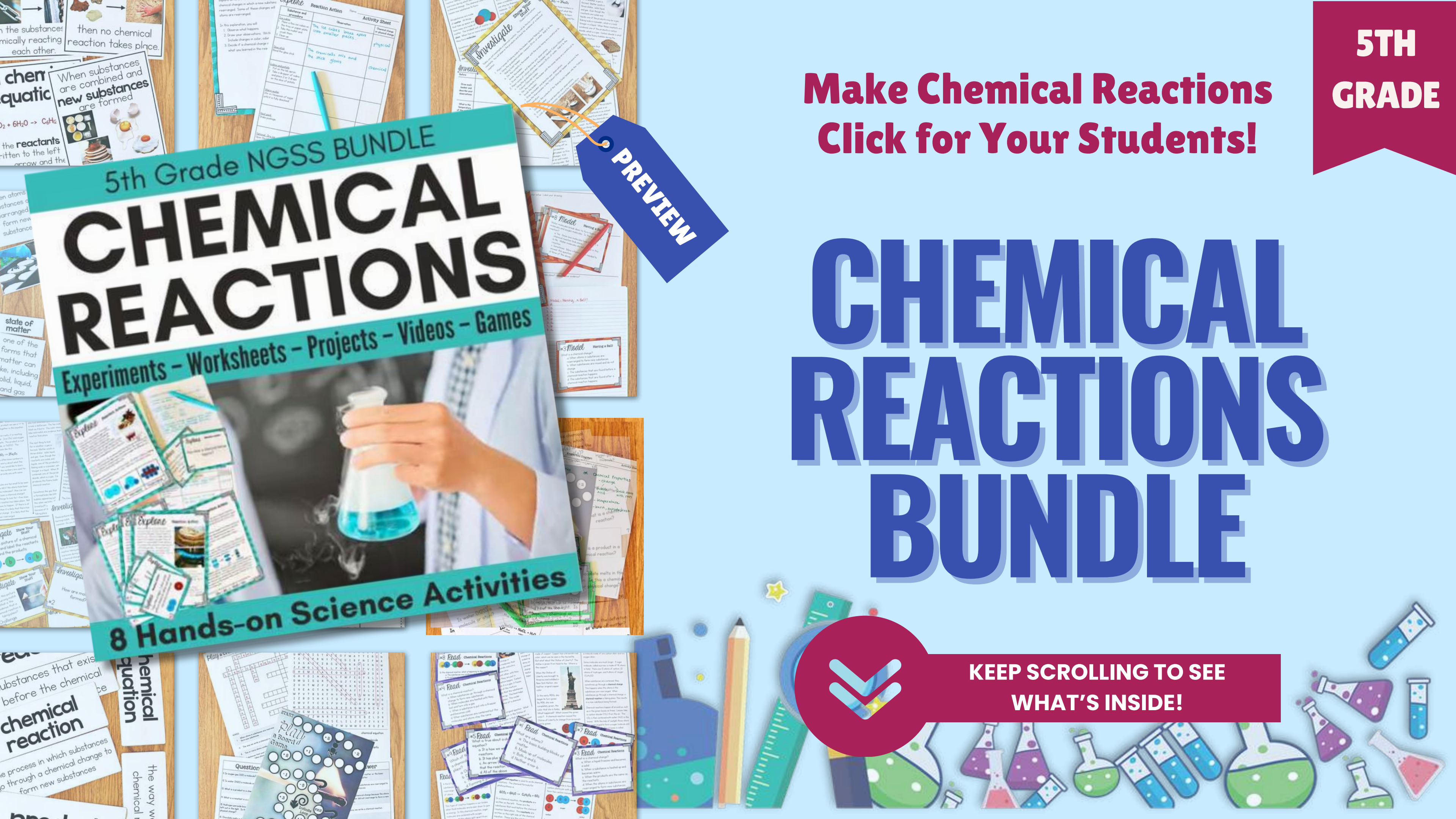
CHEMICAL REACTIONS

Experiments - Worksheets - Projects - Videos - Games

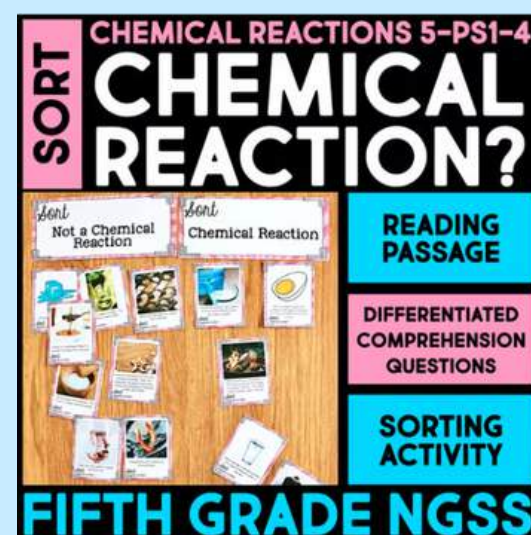
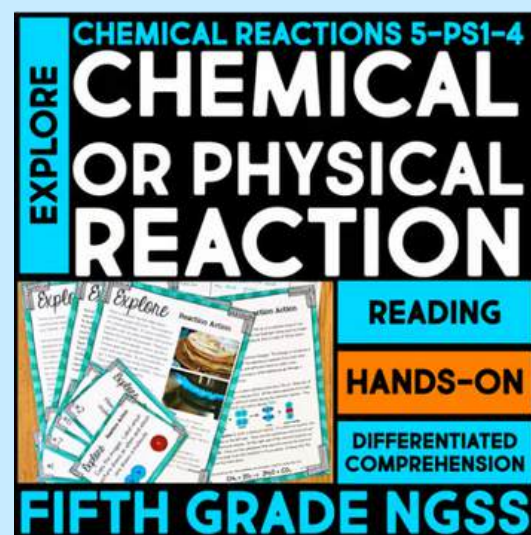
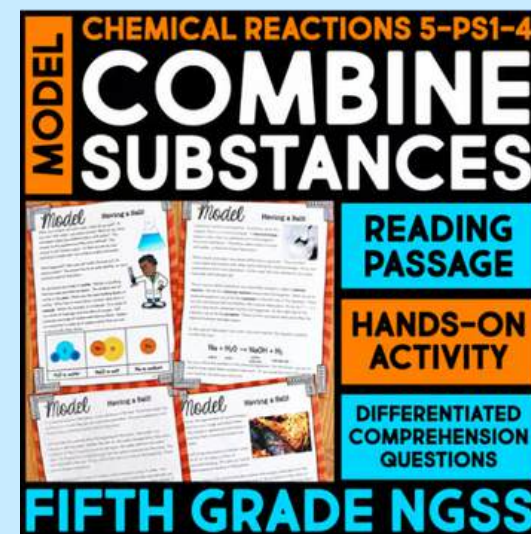
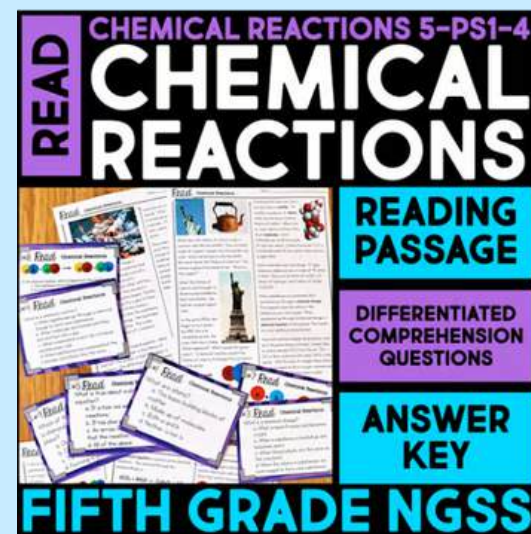
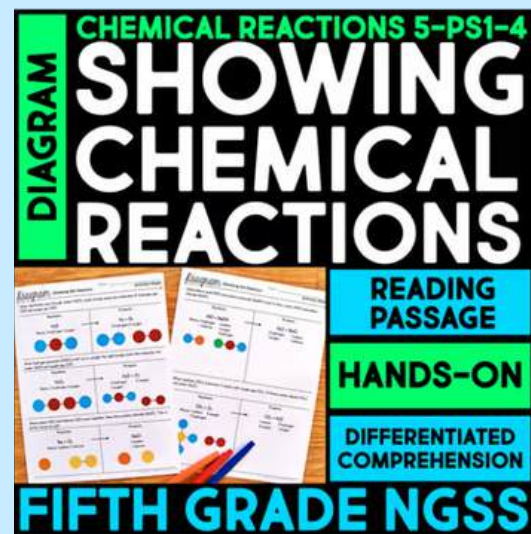
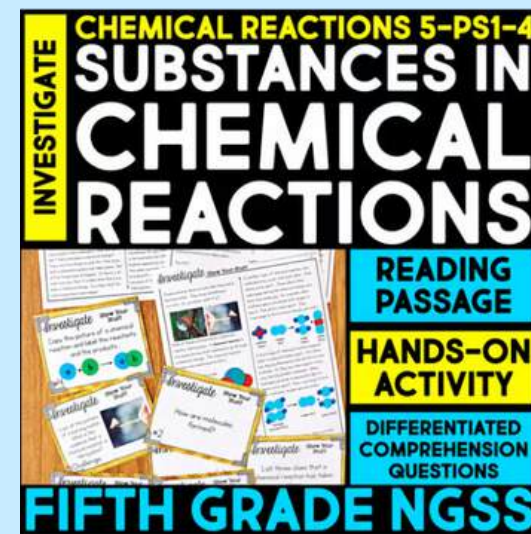
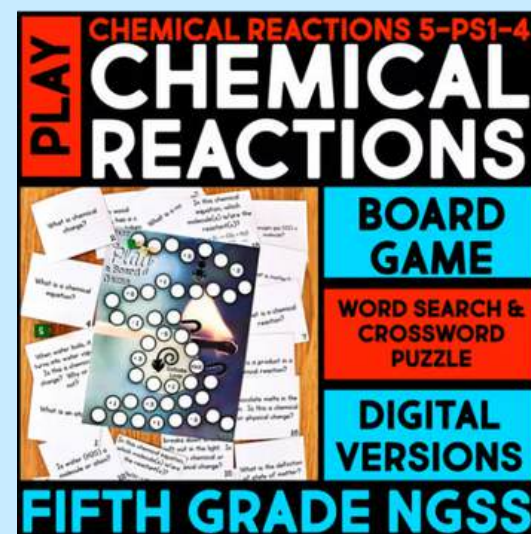
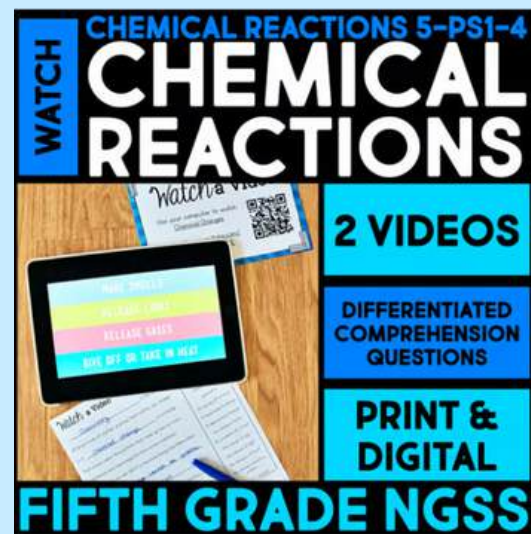
8 Hands-on Science Activities



KEEP SCROLLING TO SEE
WHAT'S INSIDE!



WHAT'S INCLUDED IN THE BUNDLE?



- ✓ 8 Science Stations aligned with the NGSS for 5th grade
- ✓ 6 Reading passages
- ✓ Hands-on activities
- ✓ Differentiated comprehension questions
- ✓ Digital Videos & Video Games
- ✓ Digital Google Slides & Forms

ADD TO CART



6 READING PASSAGE



6 Reading Passages that provide
all scientific background
knowledge for each station

Available in two
formats + Digital

Includes pictures and
visuals

PAGE OVERVIEW

5th Grade NGSS BUNDLE

CHEMICAL REACTIONS

Experiments – Worksheets – Projects – Videos – Games



8 Hands-on Science Activities

ADD TO CART



Chemical Reactions Unit BUNDLE

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	Chemical Changes / Fizzy Soda Experiment	5-PS1-4, (ELA) SL.4.2
Play	Chemical Reactions: A Board Game / A Crossword and Word Search	5-PS1-4, (ELA) RI.5.1, RFS.4, WS.2, WS.8
Investigate	Show Your Stuff	5-PS1-4, 5-PS1-4, (ELA) RI.5.1, RFS.4, WS.2, WS.8
Diagram	Showing the Reaction	5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RFS.4, WS.2, WS.8
Read	Chemical Reactions	5-PS1-4, 5-PS1-3, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RFS.4, WS.2, WS.8
Model	Having a Ball	5-PS1-4, 5-PS1-3, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RFS.4, WS.2, WS.8
Explore	Reaction Action	5-PS1-4, 5-PS1-3, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RFS.4, WS.2, WS.3, WS.8
Sort	Reaction or Not?	5-PS1-4, 5-PS1-3, 5-PS1-4, (ELA) RI.5.1, RI.5.2, RI.5.4, RI.5.7, RFS.4, WS.2, WS.8

Chemical Reactions

Science Stations

NGSS Standards Overview
5-PS1-4

Specific to the Chemical Reactions Unit BUNDLE:

As a Fifth Grade Performance Expectation, students are expected to "Conduct an investigation to determine whether the mixing of two or more substances results in new substances." (5-PS1-4). This correlates with the DCI 5-PS1B, which states, "When two or more different substances are mixed, a new substance with different properties may be formed." All stations in this set meet the Performance Expectation and DCI, helping students gain an understanding of how different substances may be formed as a result of chemical changes when two or more substances are mixed.

The **Investigate**, **Model**, and **Explore** Stations meet the Science and Engineering Practice of "Planning and Carrying Out Investigations." In these stations, students make observations to determine whether a chemical change has taken place.

This Chemical Reactions Science Station Set can be used in conjunction with the following linked stations:

- [Investigate Station "Matter All Around Us" \(5-PS1-1\)](#)
- [Explore Station "What's in the Water?" \(5-PS1-1\)](#)
- [Investigate Station "Dissolvable Solids" \(5-PS1-2\)](#)
- [Explore Station "Where Did It Go?" \(5-PS1-2\)](#)
- [Investigate Station "Show Your Stuff" \(5-PS1-3\)](#)
- [Model Station "What Are All the Properties?" \(5-PS1-3\)](#)
- All the stations in the Energy For Life Station Set (5-PS3-1)

This Chemical Reactions Station Set alludes to, but does not teach, chemical symbols, subscripts, or how to find elements on the periodic table. Those topics are taught in the [Atoms and Molecules Station Set \(5-PS1-1\)](#). While this information is not necessary to master the material in this station set, it could provide helpful background information and answer lingering questions students may have as they are learning about chemical reactions.

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 using the included worksheet with the questions or using the task cards and having students respond in their science journals.

Play a Video Game

Students play a game and answer questions about the experience. You have the option of using the included worksheet with the questions or using the task cards and having 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 using the included worksheet with the questions or using the task cards and having 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 using the included worksheet with the questions or using the task cards and having students respond in their science journals.

Explore

Students create a sample and manipulate it using the new science concepts they have learned. Students answer questions 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.

Materials Checklist Chemical Reactions Unit BUNDLE

The following checklist is for the FULL UNIT BUNDLE.

Watch a Video

- ☐ Computer / Device
- ☐ Student Direction Card
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)

Play a Game

- ☐ Student Direction Card
- ☐ Board Game (ideally game pieces)
- ☐ Word Search or Crossword Puzzle
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)

Investigate

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Investigate Worksheet
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)
- ☐ Safety goggles
- ☐ Disposable gloves
- ☐ 2 50-mL beakers (or baby food jars), labelled "calcium chloride" and "baking soda"
- ☐ 25-mL graduated cylinder
- ☐ Thermometer
- ☐ Spoon or lab scoop
- ☐ Calcium chloride
- ☐ Baking soda
- ☐ Distilled water

Draw a Diagram

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Diagram Worksheet
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)
- ☐ Soft colored candy, such as Dots, in at least 5 colors OR colored pom-poms in at least 5 colors
- ☐ Toothpicks
- ☐ Colored pencils

Read a Passage

- ☐ Reading Passage
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)

Create a Model

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Model Worksheet
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)
- ☐ 1 tablespoon white glue
- ☐ 1/2 teaspoon borax
- ☐ 1 tablespoon cornstarch
- ☐ 2 tablespoons warm water
- ☐ 2 100 mL beakers or small Dixie cups (Label one "borax solution" and the other "ball mixture")
- ☐ 2 stir sticks or wooden craft sticks
- ☐ Optional: food coloring

Explore

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Explore Worksheet
- ☐ Colored pencils
- ☐ Trays and paper plates
- ☐ Paper towels
- ☐ Bowl of ice cubes
- ☐ Mallet
- ☐ Glow stick
- ☐ Iodine
- ☐ Dropper
- ☐ Lab apron
- ☐ Slice of potato
- ☐ Beaker or jar of warm water
- ☐ Sugar
- ☐ Spoon
- ☐ Heat pack or hand warmer pack
- ☐ Optional: dry ice in a closed foam container

Sort

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Larger Sort Cards or Worksheet
- ☐ Scissors
- ☐ Glue
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)

Table of Contents

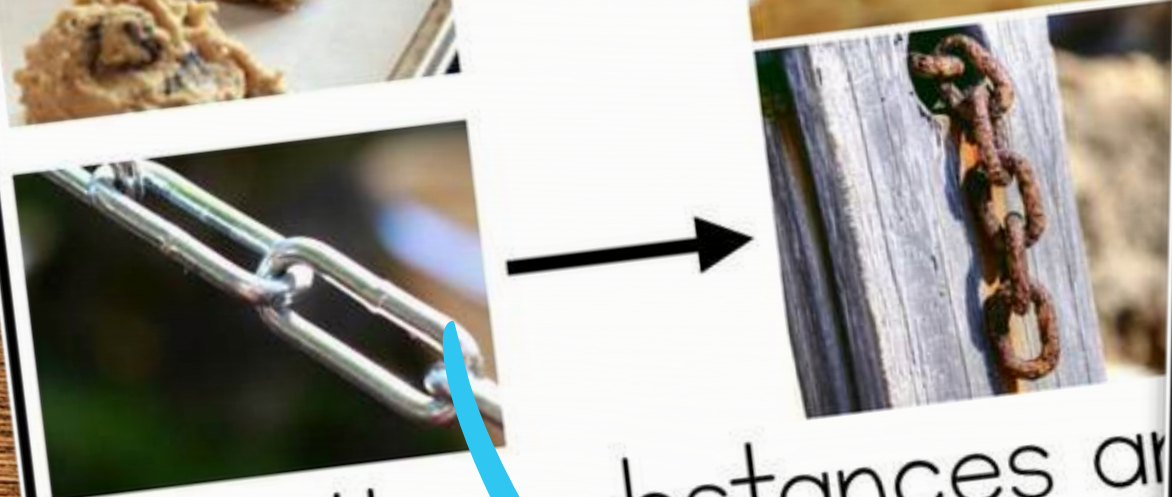
Science Station Overview

Materials Checklist

Standards Alignment

BIG IDEA POSTERS

If a
chemical change
takes place

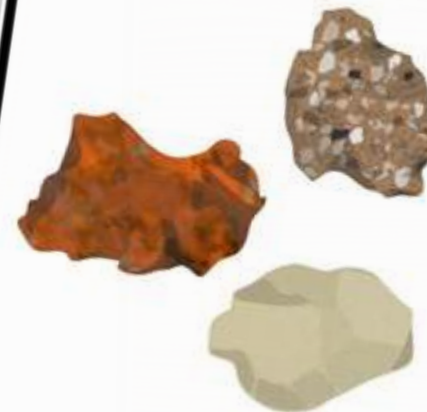


then the substances are
chemically reacting
each other

When substances
are combined and
new substances
are formed



If a
physical change
takes place



then no chemical
change takes place.

**BIG IDEA POSTERS THAT
EXPLAIN THE KEY CONCEPTS.**

reactants

substances that exist before the chemical reaction

chemical reaction

the process in which substances go through a chemical change to form new substances

products

substances that exist after the chemical reaction takes place

chemical equation

the way we write a chemical reaction

VOCABULARY CARDS WITHOUT PICTURE

chemical change

when atoms in substances are rearranged to form new substances



chemical reaction

the process in which substances go through a chemical change to form new substances



atom

Smallest unit of matter; the basic building block of matter



chemical equation

the way we write a chemical reaction

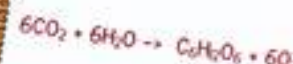
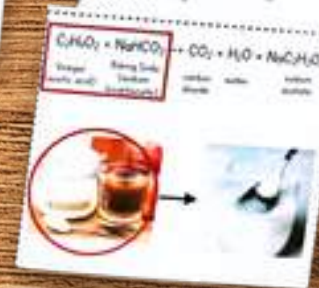
state of matter

one of the forms that matter can take, including solid, liquid, and gas



reactants

substances that exist before the chemical reaction takes place



VOCABULARY CARDS WITH PICTURE

WATCH STATION

**STUDENTS WATCH ONE OF TWO
CHEMICAL REACTIONS VIDEOS AND
ANSWER COMPREHENSION
QUESTIONS.**

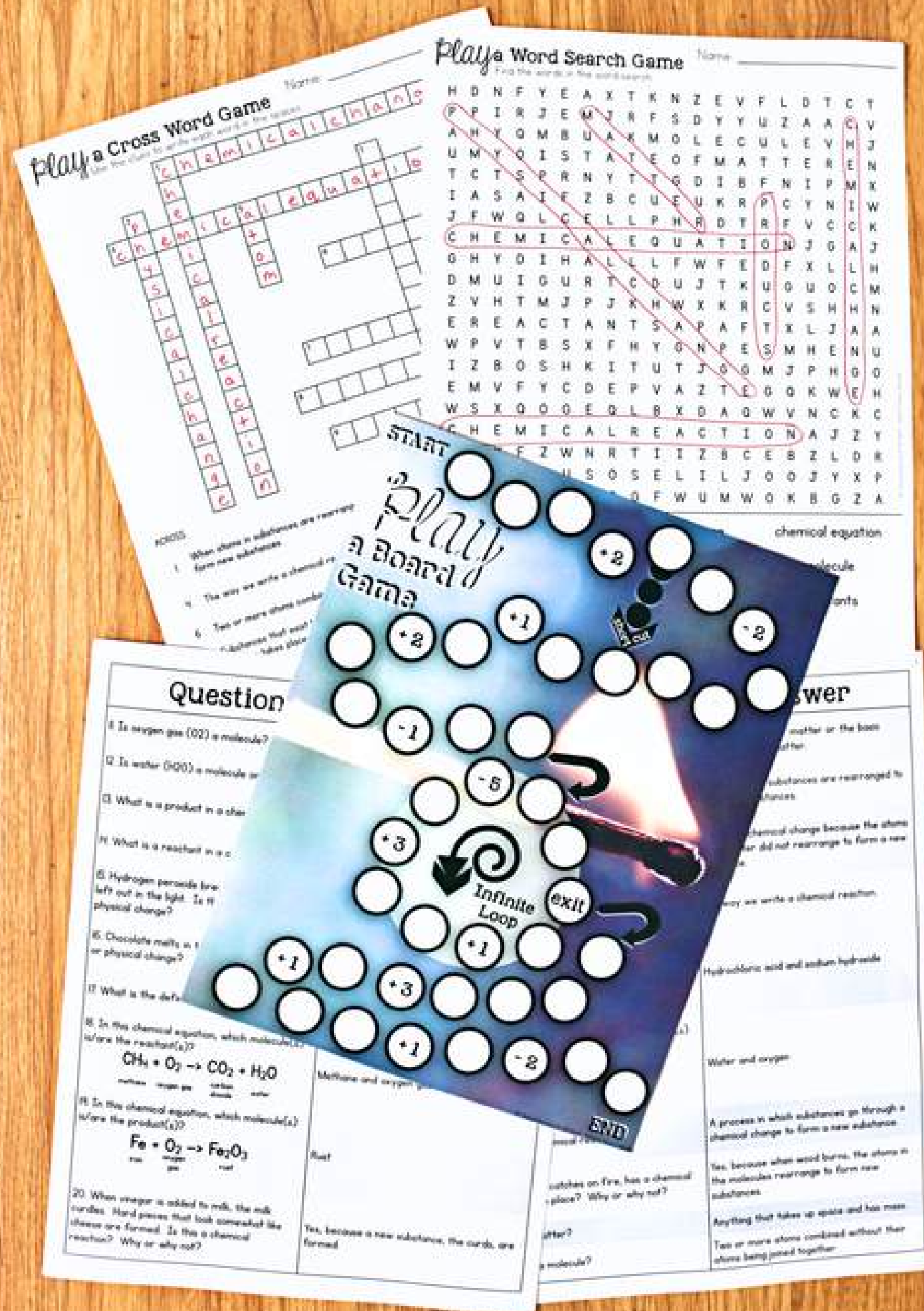
“Unique formative
assessment that
the kids really
enjoyed.”
- Jordan J.



PLAY STATION

BOARD GAME, CROSSWORD, OR WORD SEARCH TO REINFORCE VOCABULARY AND CONCEPTS.

“ Board game, crossword, or word search to reinforce vocabulary and concepts. ”
- Jenn H.



INVESTIGATE STATION

STUDENTS CONDUCT AN INVESTIGATION TO IDENTIFY A SUBSTANCE BASED ON OBSERVED CHEMICAL PROPERTIES.

Great resource for my
“5th grade classroom.
Students seemed to
really enjoy.
- Stacy B.”

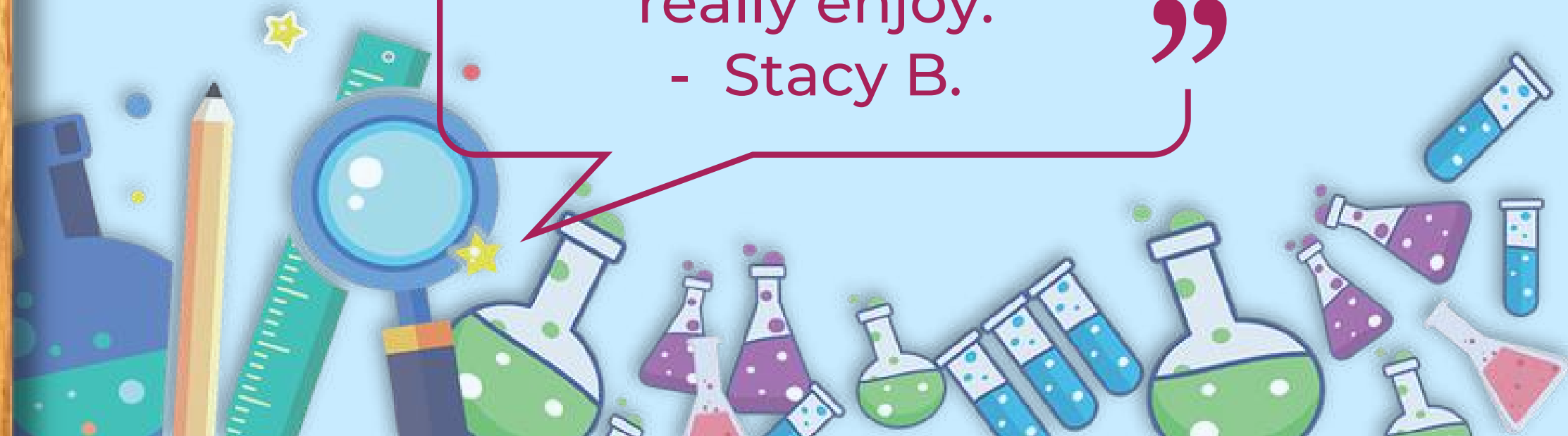
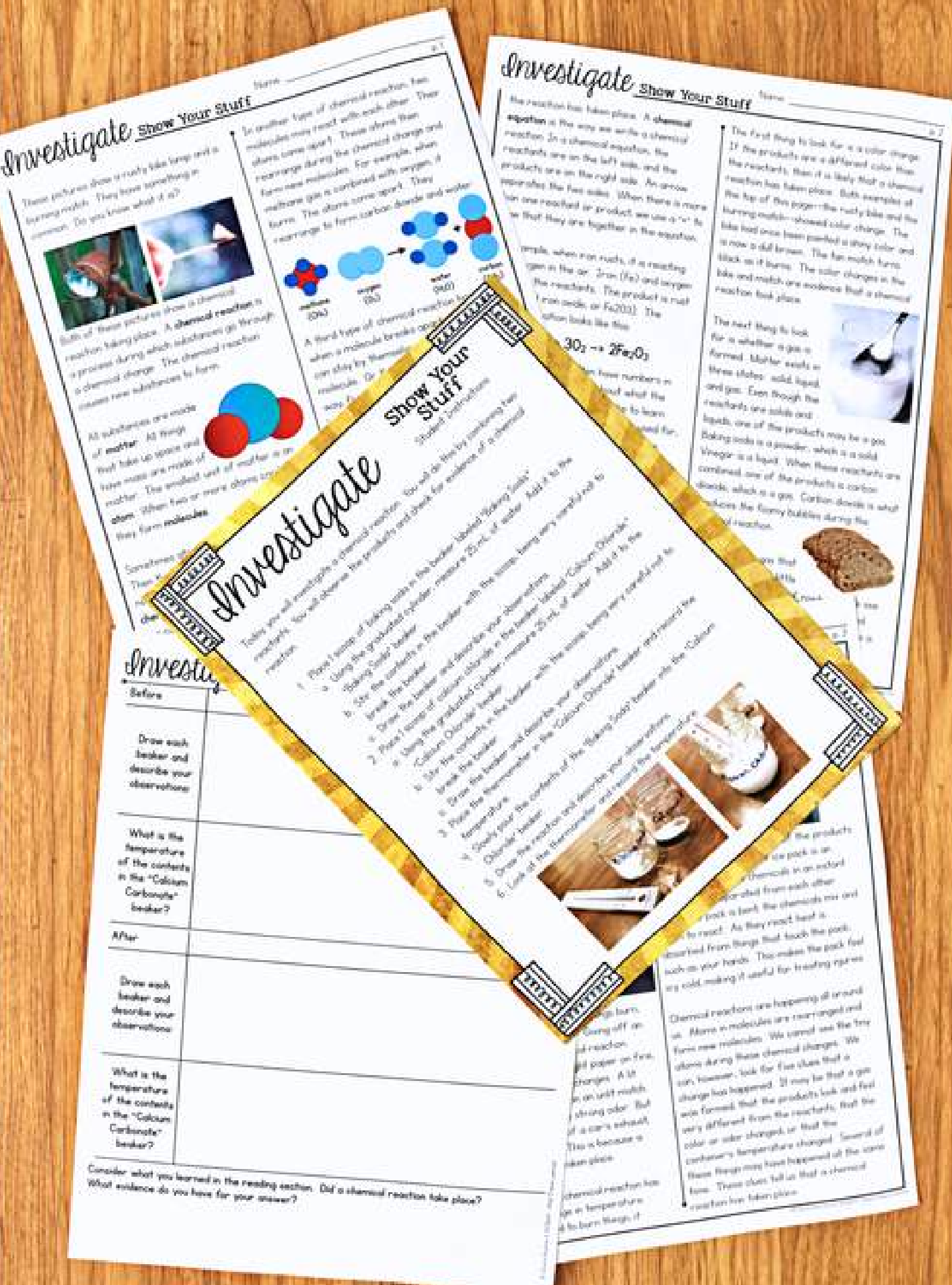


DIAGRAM STATION

STUDENTS USE MANIPULATIVES
TO MODEL AND DIAGRAM
CHEMICAL REACTIONS.

“This was great to use
as practice sub plans
during our chemical
reaction unit.”
- Megan B.

Diagram Showing the Reaction

You decide to bake some cookies. You combine flour, sugar, eggs, butter, baking powder, vanilla extract, and chocolate chips. As you mix your ingredients, you notice that the dough is wet and gloopy. It has a light brown color and smells mostly like sugar and vanilla. Once the cookies come out of the oven, you notice many differences between the raw dough and the finished product. The cookies have turned a golden brown color and look crispy. When you break one open, you notice little holes throughout the dough. The smell is different, too. It definitely smells like a freshly baked cookie!

So, what happened? What caused all the changes? It turns out that baking cookies is an example of chemistry in action. Before we explore the chemistry of baking cookies, let's learn about chemical reactions first.

All substances are made of **matter**. Matter is anything that has mass and takes up space. The smallest units of matter are **atoms**. Atoms combine to form molecules. For example, when two atoms of oxygen combine with one atom of carbon, carbon dioxide is formed.

Diagram

oxygen (O_2) + carbon (C) → carbon dioxide (CO_2)

Diagram Showing the Reaction

There are two parts to a chemical reaction. The substances that are combined before the reaction are called **reactants**. The reactants are the atoms or molecules that have not yet been chemically changed. The substances that are formed after the reaction are called **products**.

Diagram

An example of this type of reaction is what happens when hydrogen peroxide is exposed to light. Hydrogen peroxide is a molecule made of oxygen and hydrogen atoms. The energy in light breaks apart hydrogen peroxide molecules. The molecules are broken down to form different molecules: oxygen and water.

Diagram

hydrogen peroxide (H_2O_2) → oxygen (O_2) + water (H_2O)

Diagram Showing the Reaction

Chemical reactions are written in a certain way. The reactants are on the left, and the products are on the right. If there is more than one reactant, a plus sign (+) goes between them. Likewise, if there is more than one product, a plus sign goes between them. An arrow points from the reactants to the products to show that the reaction took place. The way we write a chemical reaction is called a **chemical equation**.

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

Diagram Showing the Reaction

Hydrochloric acid (HCl) and sodium chloride ($NaCl$)

Reactants: $HCl + NaCl$

Atoms: 1 hydrogen, 1 chlorine, 1 sodium, 1 chlorine

When hydrogen peroxide (H_2O_2) is left out in air, it breaks down into water (H_2O) and oxygen gas (O_2).

Reactants: H_2O_2

Atoms: 2 hydrogen, 2 oxygen

When sodium (Na) and chlorine (Cl_2) come together, they form sodium chloride ($NaCl$), better known as salt.

Reactants: $Na + Cl_2$

Atoms: 1 sodium, 2 chlorine

Diagram Showing the Reaction

1. **Matter** is anything that has mass and takes up space.

2. Molecules are formed when two or more **atoms** combine.

3. During a **chemical** **reaction**, substances go through a chemical change to form new substances.

4. In a chemical reaction, the **reactants** are the substances that have not yet been chemically changed.

5. In a chemical reaction, the **products** are the substances that are formed.

6. Look at this picture: $a + b \rightarrow c$

The type of chemical reaction shows atoms **combining** to form a new molecule.

7. Look at this picture: $a + b + c \rightarrow d$

This type of chemical reaction shows the atoms in the reactant molecules **rearranging** to form new product molecules.

8. A **chemical** **equation** is the way we write chemical reactions.

Diagram

H_2 and O_2 atoms

chemical equation

chemical reaction

combining

matter

products

reactants

rearranging

READ STATION

INFORMATIONAL READING PASSAGE WITH COMPREHENSION QUESTIONS.

A fun and
engaging way to
do science in the
rooms.
- Micaela J.

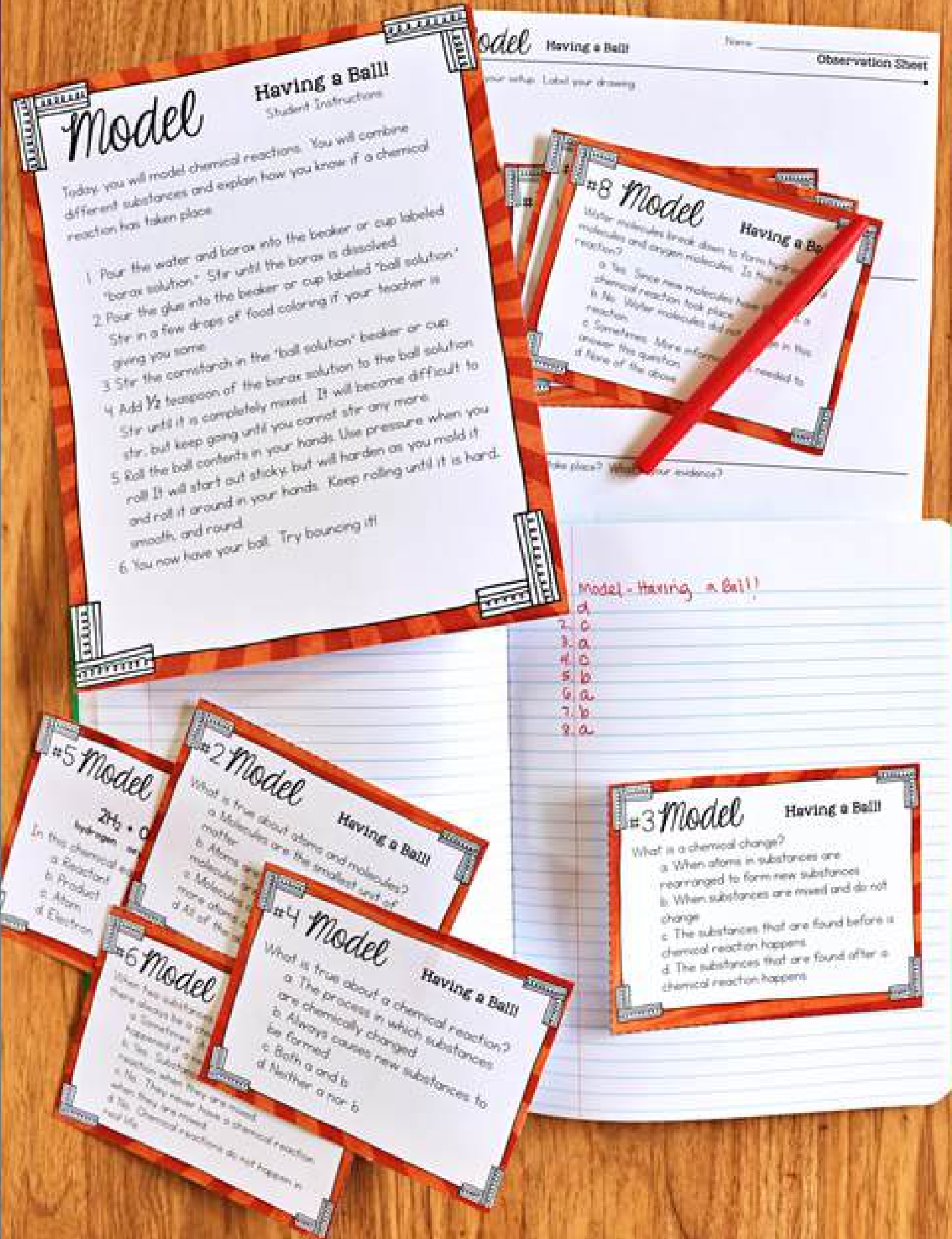


MODEL STATION

**STUDENTS CREATE A SIMPLE
EVERYDAY OBJECT USING
COMMON MATERIALS TO MODEL A
CHEMICAL REACTION.**

I absolutely love
this resource for
my classroom!

- Sarah H.



EXPLORE STATION

**STUDENTS ANALYZE SCENARIOS
TO DETERMINE WHETHER A
CHEMICAL OR PHYSICAL
REACTION HAS OCCURRED.**

“SO good that I
bought other
bundles to use.”
- Jenn H.

Explore **Reaction Action**

Student Instructions:

You have learned what chemical reactions are. You can now know whether a reaction has taken place or not. You can now know explore different kinds of changes. Some chemical changes in which a new substance is rearranged. Some of these changes will atoms are rearranged.

In this exploration, you will

1. Observe what happens.
2. Draw your observations. Write Include changes in color, odor
3. Decide if a chemical change or what you learned in this real

Explore **Reaction Action** **Activity Sheet**

Substance and procedure	Observation	Chemical change or physical change
Ice cubes 1. Place a few ice cubes on the tray or paper plate. 2. Take the mallet and crush them. 3. Clean up.	The ice cubes break apart into smaller pieces.	physical
Glow stick Bend the glow stick.	The chemicals mix and the stick glows	chemical
Iodine and potato 1. Put on the lab apron. 2. Take a dropper of iodine and place 2 or 3 drops on the slice of potato.		
Warm water Stir in 1 teaspoon of sugar until it is fully dissolved.		
Heat pack Shake package.		
Optional: Dry ice Open the lid of the container.		

◀ SORT STATION

**SORTING ACTIVITY WITH
FOLLOW-UP QUESTIONS TO
REINFORCE UNDERSTANDING.**

It is a great resource to incorporate into my current lesson to reach all levels of learning.

- deb F.



CHEMICAL REACTIONS ACTIVITIES

SUGGESTED USES

Learning Stations

Use all eight stations or just a few as learning stations that students complete at their own pace.

Science Centers

Set up a rotation where students visit each center to complete the activities.

Whole Class

Use the activities in a whole class format.

Small Group

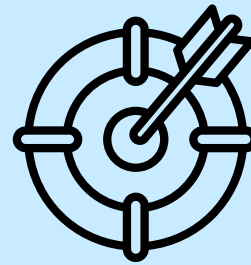
Use the activities with a small group who need extra help.

YOU WILL LOVE THIS BECAUSE



Complete Unit in One Download

Provides everything needed to teach chemical reactions without searching for separate labs, readings, and review materials.



Direct NGSS Alignment

All activities support NGSS standard 5-PS1-4, helping students observe and measure properties to identify and classify materials.



Saves Teachers Valuable Time

With ready-to-use materials, digital options, and answer keys included, teachers can quickly implement engaging science instruction.

TEACHERS LOVE IT!



I had my students do this assignment with a substitute teacher. Great article to introduce chemical reactions. My students seemed to enjoy it!

Liz P.



like the multiple learning experiences this resource offers. My fifth graders learned a lot with this resource, it gave them multiple opportunities to practice what they learned.

Gretchen L.



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to earn Reward Points
to get more resources!

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.



What I have **LEARNED**