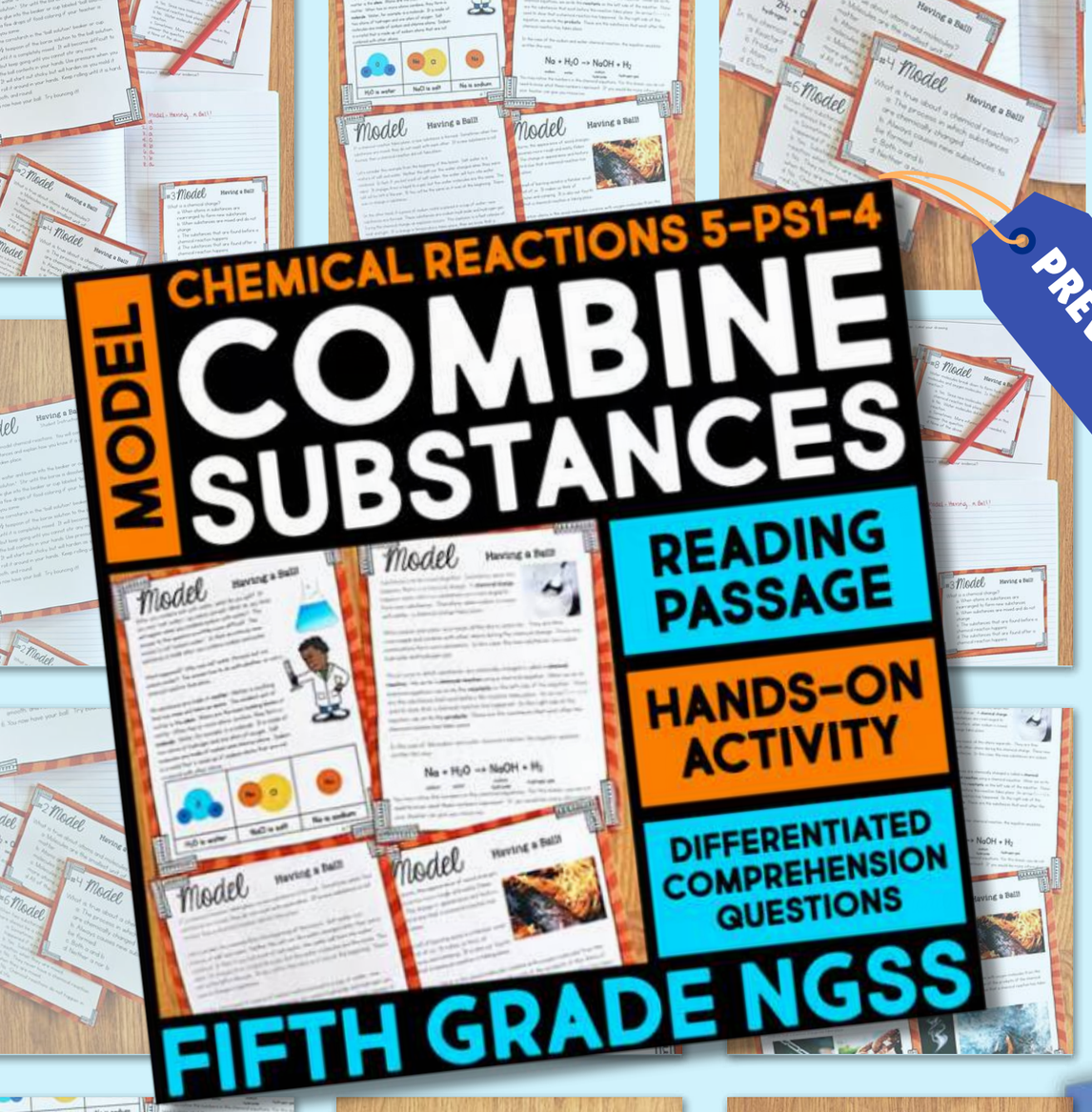


Create a Bouncy Ball While Learning Science!

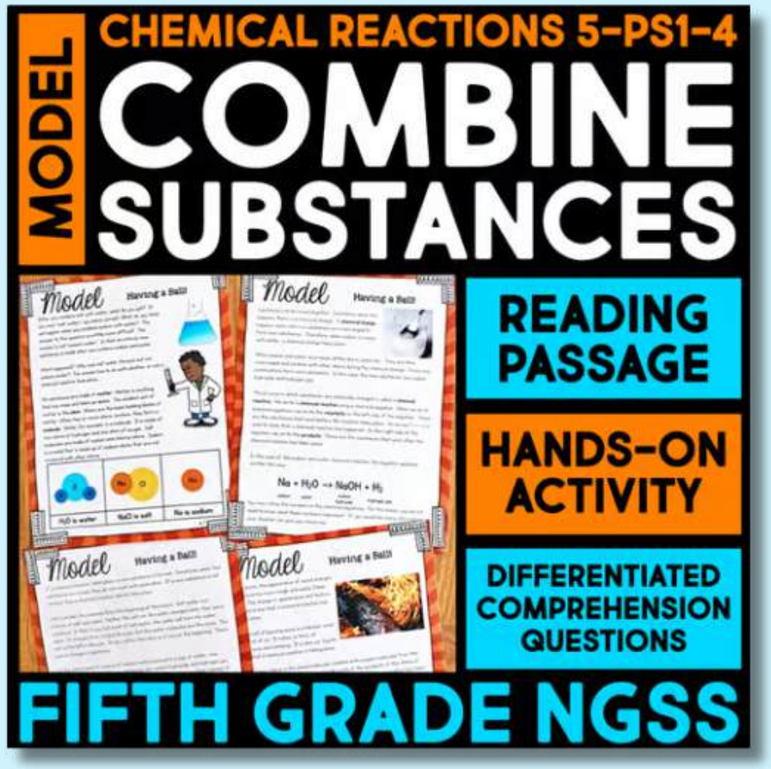
5TH GRADE

MODEL COMBINE SUBSTANCES

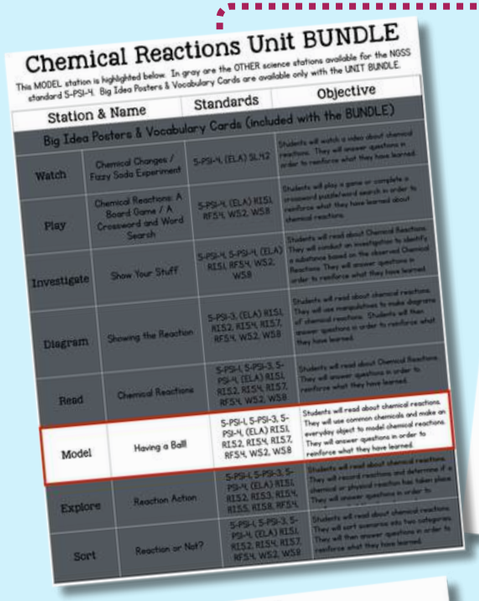
CHEMICAL REACTIONS

KEEP SCROLLING TO SEE WHAT'S INSIDE!

ACTIVITY OVERVIEW



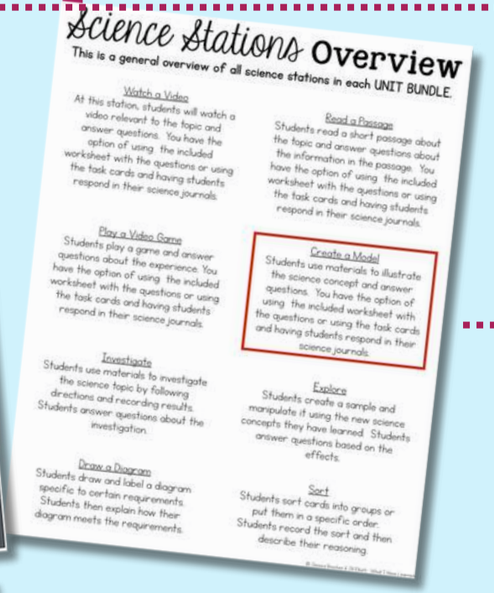
- Your students will read a passage.
- Then your students will create a model.
- Lastly, they will answer differentiated questions.



Chemical Reactions Unit BUNDLE

This MODEL station is highlighted below. In gray are the OTHER science stations available for the NGSS standard 5-PSI-4. 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-PSI-4, (ELA) SL.1.2	Students will watch a video about chemical reactions. They will answer questions in order to reinforce what they have learned.
Play	Chemical Reactions: A Board Game / A Crossword and Word Search	5-PSI-4, (ELA) RI.1.1, RF.1.4, WS.2, WS.8	Students will play a game or complete a crossword puzzle/word search in order to reinforce what they have learned about chemical reactions.
Investigate	Show Your Stuff	5-PSI-4, 5-PSI-4, (ELA) RI.1.1, RF.1.4, WS.2, WS.8	Students will read about Chemical Reactions. They will conduct an investigation to identify a substance based on the observed Chemical Reactions. They will answer questions in order to reinforce what they have learned.
Diagram	Showing the Reaction	5-PSI-3, (ELA) RI.1.1, RI.1.2, RI.1.4, RI.1.7, RF.1.4, WS.2, WS.8	Students will read about chemical reactions. They will use manipulatives to make diagrams of chemical reactions. Students will then answer questions in order to reinforce what they have learned.
Read	Chemical Reactions	5-PSI-1, 5-PSI-3, 5-PSI-4, (ELA) RI.1.1, RI.1.2, RI.1.4, RI.1.7, RF.1.4, WS.2, WS.8	Students will read about Chemical Reactions. They will answer questions in order to reinforce what they have learned.
Model	Having a Ball	5-PSI-1, 5-PSI-3, 5-PSI-4, (ELA) RI.1.1, RI.1.2, RI.1.4, RI.1.7, RF.1.4, WS.2, WS.8	Students will read about chemical reactions. They will use common chemicals and make an everyday object to model chemical reactions. They will answer questions in order to reinforce what they have learned.
Explore	Reaction Action	5-PSI-1, 5-PSI-3, 5-PSI-4, (ELA) RI.1.1, RI.1.2, RI.1.3, RI.1.4, RI.1.5, RI.1.8, RF.1.4	Students will read about chemical reactions. They will record reactions and determine if a chemical or physical reaction has taken place. They will answer questions in order to reinforce what they have learned.
Sort	Reaction or Not?	5-PSI-1, 5-PSI-3, 5-PSI-4, (ELA) RI.1.1, RI.1.2, RI.1.4, RI.1.7, RF.1.4, WS.2, WS.8	Students will read about chemical reactions. They will sort scenarios into two categories. 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 using the included worksheet with the questions or using the task cards and having students respond in their science journals.

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.

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.

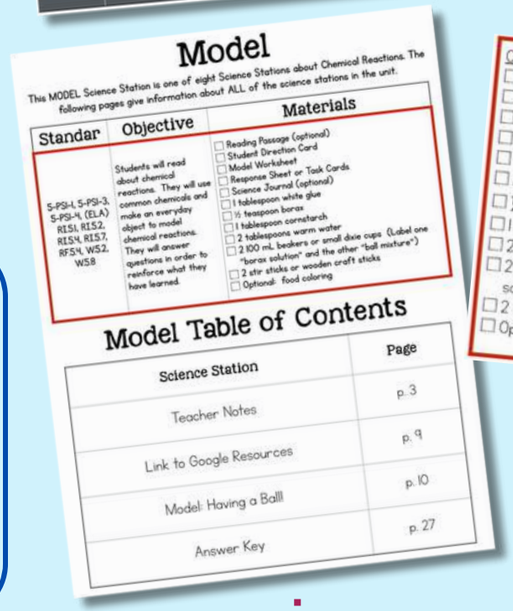
Create a Model
Students use materials to illustrate the science concept and answer questions. You have the option of using the included worksheet with the questions or using the task cards and having students respond in their science journals.

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

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

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

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



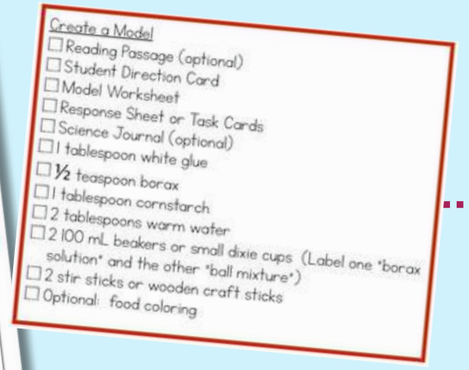
Model

This MODEL Science Station is one of eight Science Stations about Chemical Reactions. The following pages give information about ALL of the science stations in the unit.

Standar	Objective	Materials
5-PSI-1, 5-PSI-3, 5-PSI-4, (ELA) RI.1.1, RI.1.2, RF.1.4, WS.2, WS.8	Students will read about chemical reactions. They will use common chemicals and make an everyday object to model chemical reactions. They will answer questions in order to reinforce what they have learned.	☐ Reading Passage (optional) ☐ Student Direction Card ☐ Model Worksheet ☐ Response Sheet or Task Cards ☐ Science Journal (optional) ☐ 1 tablespoon white glue ☐ ½ 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

Model Table of Contents

Science Station	Page
Teacher Notes	p. 3
Link to Google Resources	p. 9
Model: Having a Ball	p. 10
Answer Key	p. 27



Create a Model

- ☐ Reading Passage (optional)
- ☐ Student Direction Card
- ☐ Model Worksheet
- ☐ Response Sheet or Task Cards
- ☐ Science Journal (optional)
- ☐ 1 tablespoon white glue
- ☐ ½ 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")
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- ☐ Optional: food coloring

Table of Contents

Science Station Overview

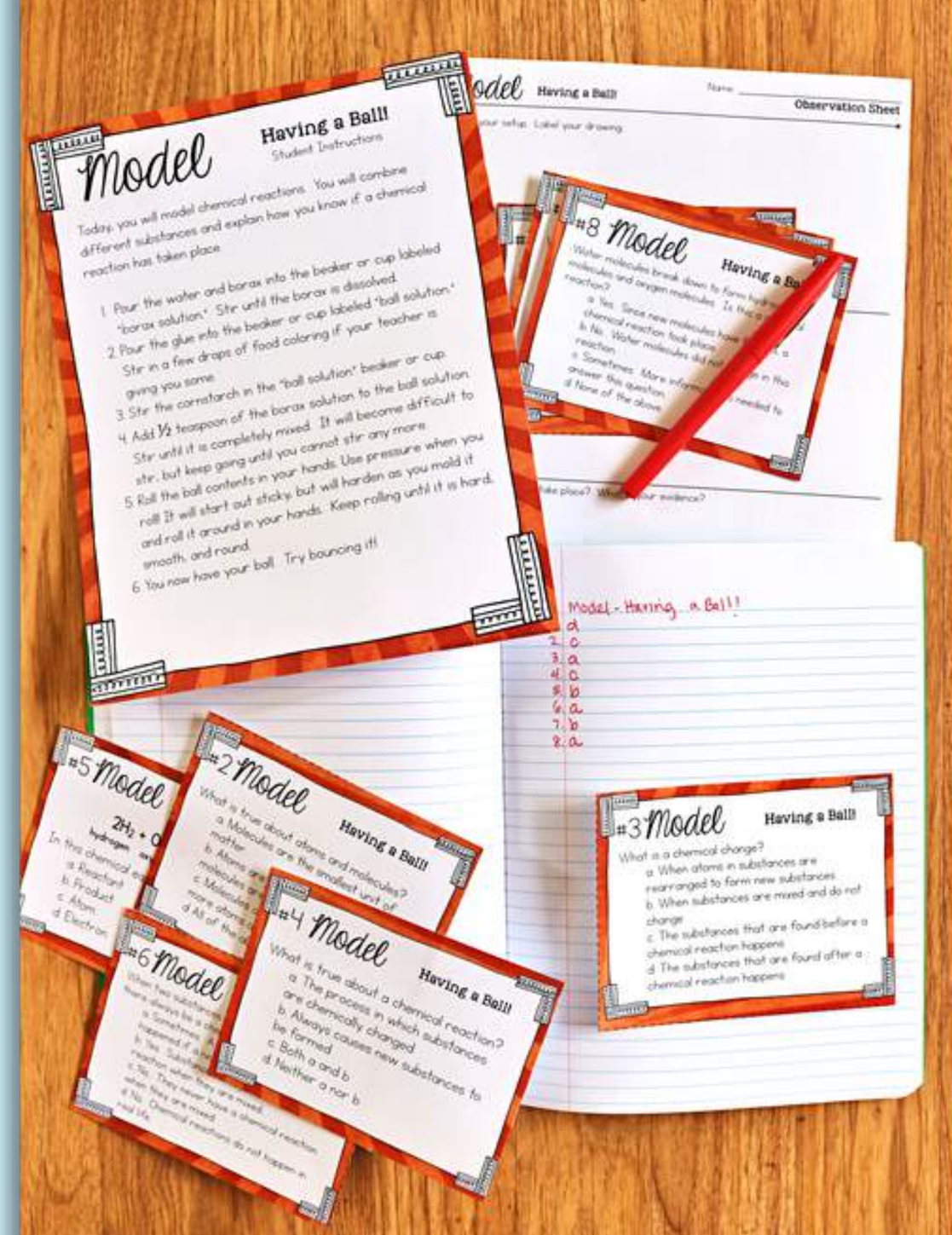
Materials Checklist

Table of Contents / Teacher's Notes

WHAT'S INCLUDED MODEL SCIENCE STATION

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

ADD TO CART



MODEL: READING PASSAGE

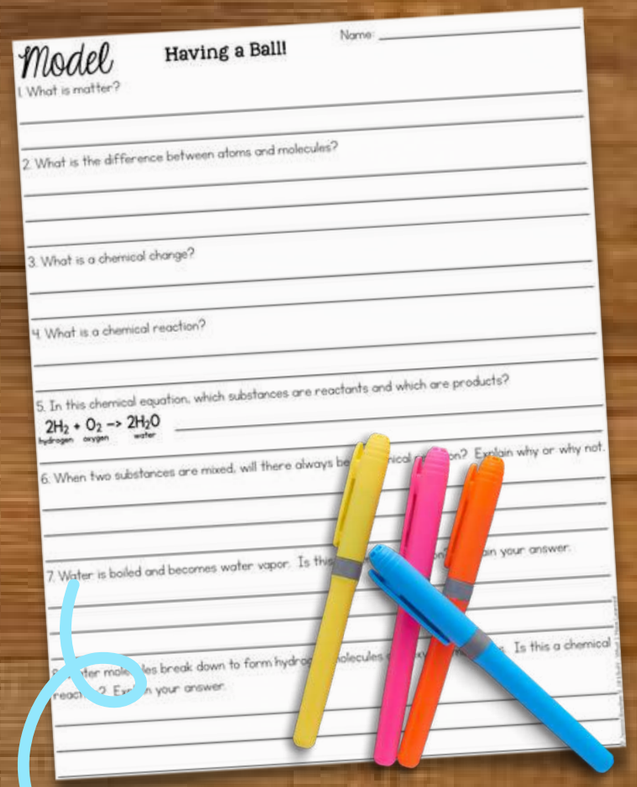


READING PASSAGE IN TWO FORMATS

ENGAGING ACTIVITY & WORKSHEETS



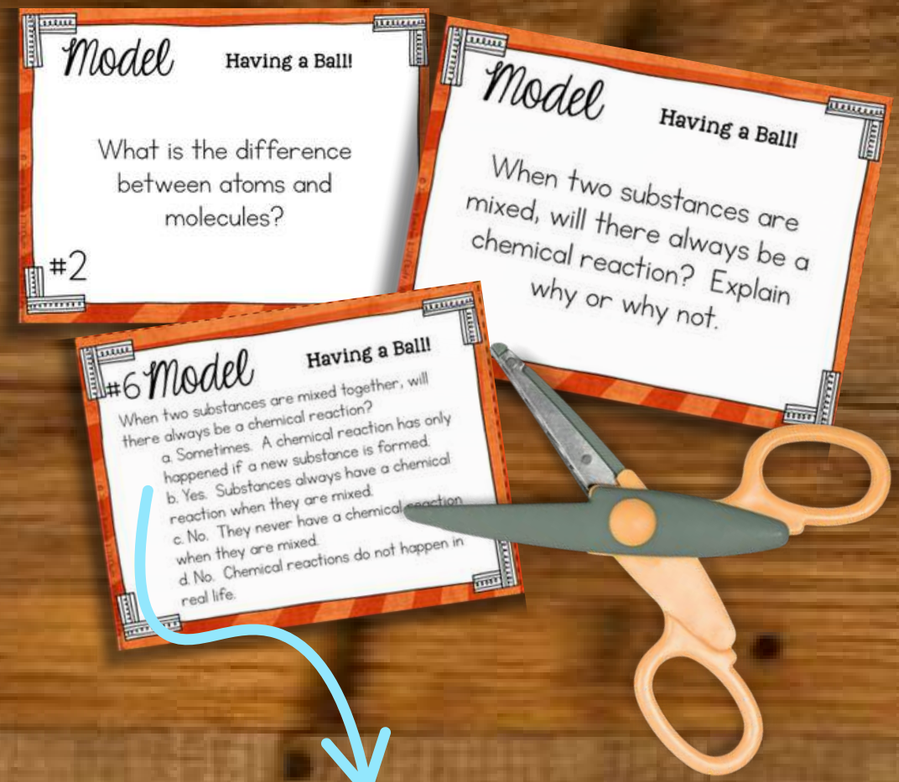
DIFFERENTIATED QUESTIONS



SHORT ANSWER



FILL-IN-THE BLANK



TASK CARDS: SHORT ANSWER & MULTIPLE CHOICE

Model — Having a Ball!

Student Instructions

Today, you will model chemical reactions. You will combine different substances and explain how you know if a chemical reaction has taken place.

1. Pour the water and borax into the beaker or cup labeled "borax solution." Stir until the borax is dissolved.
2. Pour the glue into the beaker or cup labeled "ball solution." Stir in a few drops of food coloring if your teacher is giving you some.
3. Stir the cornstarch in the "ball solution" beaker or cup.
4. Add ½ teaspoon of the borax solution to the ball solution. Stir until it is completely mixed. It will become difficult to stir, but keep going until you cannot stir any more.
5. Roll the ball contents in your hands. Use pressure when you roll. It will start out sticky, but will harden as you mold it and roll it around in your hands. Keep rolling until it is hard, smooth, and round.
6. You now have your ball. Try bouncing it!

Model — Having a Ball! — Name: _____ — Observation Sheet

...your setup. Label your drawing.

...take place? What is your evidence?

#8 Model — Having a Ball!

Water molecules break down to form hydrogen molecules and oxygen molecules. Is this a chemical reaction?

a. Yes. Since new molecules have formed, a chemical reaction took place.
b. No. Water molecules did not participate in this reaction.
c. Sometimes. More information is needed to answer this question.
d. None of the above.

Model - Having a Ball!

1. d
2. c
3. a
4. c
5. b
6. a
7. b
8. a

#3 Model — Having a Ball!

What is a chemical change?

a. When atoms in substances are rearranged to form new substances
b. When substances are mixed and do not change
c. The substances that are found before a chemical reaction happens
d. The substances that are found after a chemical reaction happens

#5 Model — Having a Ball!

$2H_2 + O$

In this chemical reaction, what is the hydrogen?

a. Reactant
b. Product
c. Atom
d. Electron

#2 Model — Having a Ball!

What is true about atoms and molecules?

a. Molecules are the smallest unit of matter.
b. Atoms are...
c. Molecules...
d. All of the...

#6 Model — Having a Ball!

When two substances...
a. Sometimes...
b. Yes. Substances...
c. No. They never have a chemical reaction when they are mixed.
d. No. Chemical reactions do not happen in real life.

#4 Model — Having a Ball!

What is true about a chemical reaction?

a. The process in which substances are chemically changed
b. Always causes new substances to be formed
c. Both a and b
d. Neither a nor b

Model — Having a Ball!

When you combine salt with water, what do you get? If you said, "salt water," you were correct. What do you think will happen when you combine sodium with water? The answer to this question is a little more difficult. The answer is not "sodium water." In fact, an entirely new substance is made when you combine sodium and water.

What happened? Why was salt water formed, but not sodium water? The answer has to do with whether or not a chemical reaction took place.

All substances are made of **matter**. Matter is anything that has mass and takes up space. The smallest unit of matter is the **atom**. Atoms are the basic building blocks of matter. When two or more atoms combine, they form a **molecule**. Water, for example, is a molecule. It is made of two atoms of hydrogen and one atom of oxygen. Salt molecules are made of sodium and chlorine atoms. Sodium is a metal that is made up of sodium atoms that are not combined with other atoms.

H_2O is water	NaCl is salt	Na is sodium

Model — Having a Ball!

Substances can be mixed together. Sometimes when this happens, there is a chemical change. A **chemical change** happens when atoms in substances are rearranged to form new substances. Therefore, when sodium is mixed with water, a chemical change takes place.

When sodium and water are mixed, all the atoms separate. They are then rearranged and combine with other atoms during the chemical change. These new combinations form new substances. In this case, the new substances are sodium hydroxide and hydrogen gas.

The process in which substances are chemically changed is called a **chemical reaction**. We write a **chemical reaction** using a chemical equation. When we write chemical equations, we write the **reactants** on the left side of the equation. These are the substances that exist before the reaction takes place. An arrow (——>) is used to show that a chemical reaction has happened. On the right side of the equation, we write the **products**. These are the substances that exist after the chemical reaction has taken place.

In the case of the sodium and water chemical reaction, the equation would be written this way:

$$Na + H_2O \rightarrow NaOH + H_2$$

sodium — water — sodium hydroxide — hydrogen gas

You may notice the numbers in the chemical equations. For this lesson, you do not need to know what these numbers represent. If you would like more information, your teacher can give you resources.

Model — Having a Ball!

If a chemical reaction takes place, a new substance is formed. Sometimes when two substances are mixed, they do not react with each other. If a new substance is not formed, then a chemical reaction did not take place.

Let's consider this example from the beginning of this lesson. Salt water is a mixture of salt and water. Neither the salt nor the water changed when they were combined. In fact, if you boil a pot of salt water, the water will turn into water vapor. It changes from a liquid to a gas, but the water molecules are the same. The salt will be left in the pan. It, too, will be the same as it was at the beginning. There was no change in substance.

On the other hand, if a piece of sodium metal is placed in a cup of ... substances are formed. These substances are sodium ... During the chemical change, an explosion ... heat and light. If a change in ... chemical reaction has ta...

Another way to know if a chemical reaction has taken place is if there is a change in color. A new metal chain is a shiny silver color. When the iron in the chain reacts with oxygen in the air, rust forms. Rust is brown and dull. The color change is evidence that a chemical change has taken place.

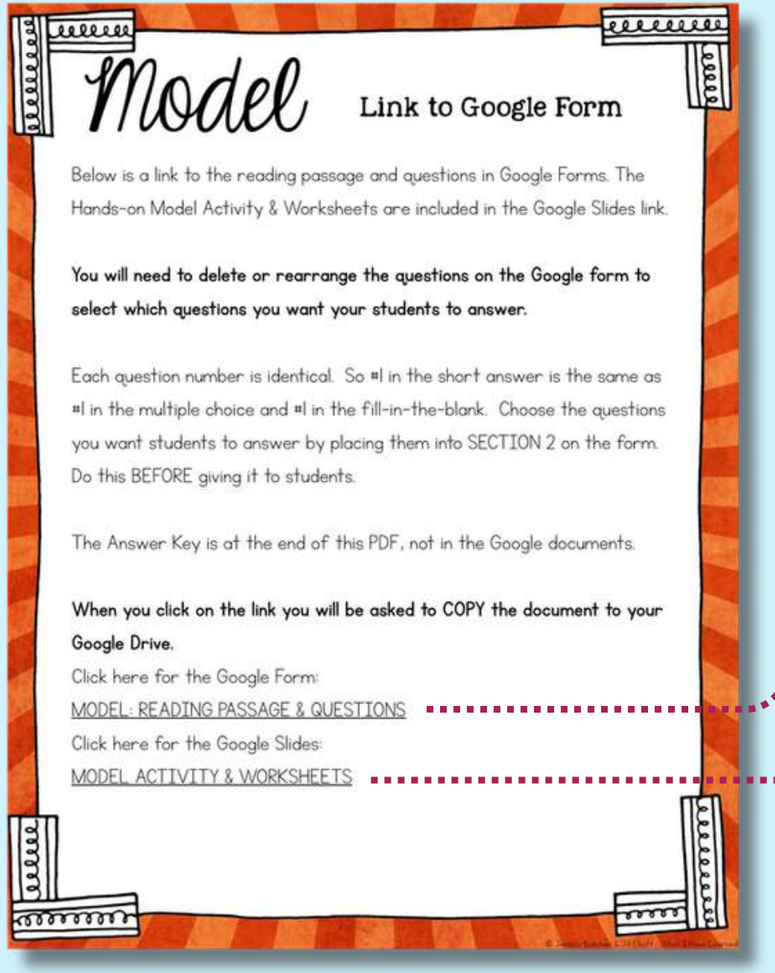
Model — Having a Ball!

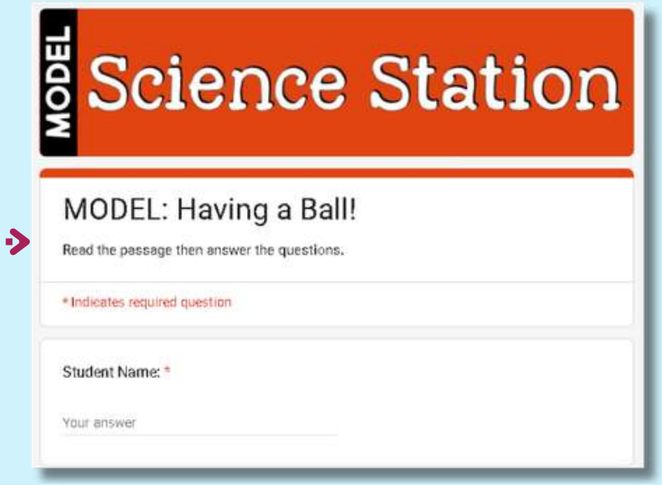
...burns, the appearance of wood changes ...becomes more rough and easily flaken... The change in appearance and texture ...hand clue that a chemical reac... place.

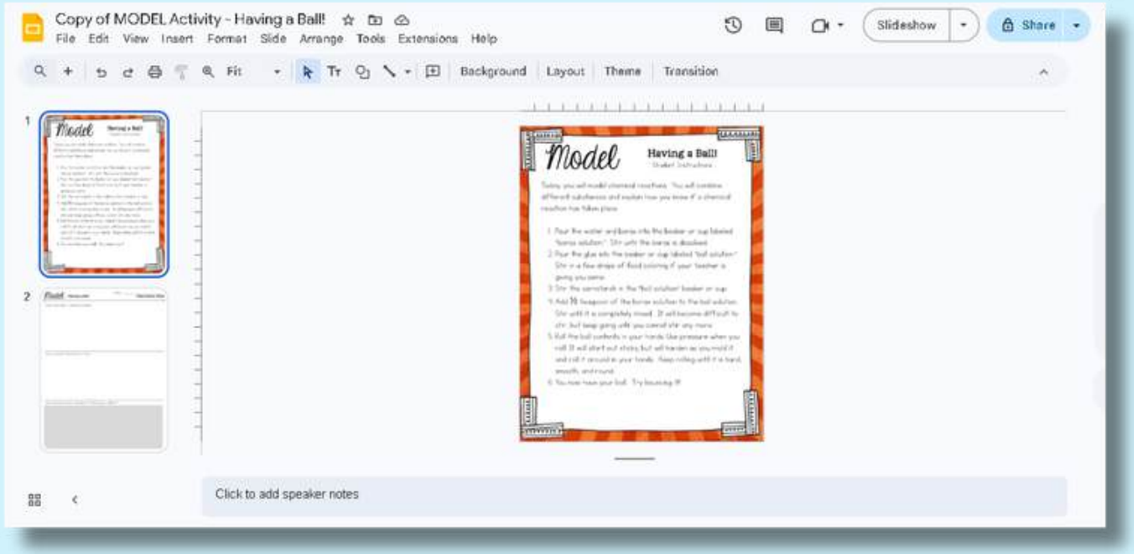
...ple is a Kanbar small ...ik. It makes us think of ...pices and camping. It is also our fourth ...that a chemical reaction is taking place.

...arbon atoms in the wood molecules combine with oxygen molecules from the ...form carbon dioxide. Carbon dioxide is one of the products of the chemical ...on. Gases forming from solids is a fifth clue that a chemical reaction has taken ...

DIGITAL VERSIONS





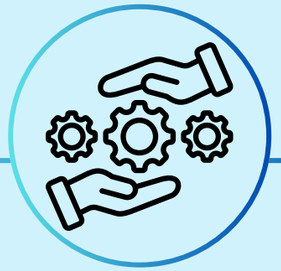


DIGITAL VERSIONS

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

Answer keys provided

YOU WILL LOVE THIS BECAUSE



Hands-On and Engaging

Students actively create a bouncy ball while learning about chemical reactions, making abstract concepts fun and memorable.



Differentiated for All Learners

Multiple question formats allow teachers to easily adjust the activity for different ability levels and learning styles.



Teacher-Friendly Design

Includes notes, answer keys, and ready-to-use activities that reduce prep time while ensuring standards-based, engaging science instruction.

TEACHERS LOVE IT!

You are my go to for Science class for my kids. You have the BEST bundles. My daughter really enjoyed all the experiments and hands on learning in this packet. Thank you!!!

Kerri P.



Love it!

Lighting the Embers



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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