

# TEACHING POWERPOINT

## UNIT INCLUDES:



## 10 ENGAGING, CONTENT-RICH LESSONS:

What is Science?  
What is a Scientist?  
Tools Scientists Use  
Science Safety  
The Scientific Method  
Become a Scientist:  
Exploring Buoyancy  
Exploring Solubility  
Exploring Chemical  
Reactions  
Design An Experiment

# EACH LESSON INCLUDES:

- Detailed lesson plan
- Vocabulary cards
- PowerPoint lesson
- Turn & talk questions
- Science journal activity
- Extension/science center
- 2 Quick check/exit ticket options
- Unit Assessment

### WHAT DO SCIENTISTS DO?

A mind map with a central cartoon scientist and a test tube. Branches include: They ask questions, Explore labs, Scientists share ideas, Scientists collaborate with others, Use the scientific method, Analyze data, Follow safety procedures, Scientists read, research and gather information, Base their knowledge on facts, Scientists conduct experiments, Scientists sometimes disagree, Test hypotheses, Draw conclusions, Provide evidence, Teach others what they have learned.

#### Lesson 2: Quick Check

Name \_\_\_\_\_

What is a scientist?

What kind of jobs do scientists do?

Name \_\_\_\_\_

\_\_\_\_\_ is a person who studies the \_\_\_\_\_ of the \_\_\_\_\_ things.

#### TYPES OF SCIENCE

### Earth Science

The study of the Earth and \_\_\_\_\_ things.

#### LESSON 2 ACTIVITY

### Talk About It

#### What is a scientist?

I. Talk with your partner about what a scientist is.

#### LESSON 2 JOURNAL

### Write About It

#### What is a scientist?

Complete Lesson 2 in your science journal.

### Life science

Life science is the study of living things. These scientists study plants, animals, humans, and microscopic organisms.

ecologist

botanist

wildlife biologist

### Physical science

Physical science is the study of all physical things. These scientists are experts in the areas of physics and chemistry. Matter, energy, atoms, and molecules are researched by these scientists.

biochemist

physicist

microbiologist

### Famous Scientists

Alexander Graham Bell: Scientist and engineer invents the telephone.

Albert Einstein: Physicist who developed the theory of relativity.

archaeologist: Archaeologists study the people of the past and how they lived.

### What is a scientist?

A scientist is a person who studies the world around us. They ask questions and find ways to answer them.

### What does a scientist do?

Scientists help us understand our world and how it works. Scientists collaborate. Scientists work together to define problems, explore solutions, and develop new ideas by testing and carrying out experiments.

marine biologist

### Lesson 2: What Is A Scientist?

# SAMPLE LESSON



## ESSENTIAL QUESTION

How does science help us understand the world around us?  
Can we determine if an object is alive?  
Can we determine if a



I can explain what science is and how it impacts our daily lives.

Aligned to  
**Next Generation Science Standards**  
and  
**Common Core State Standards**  
for grades 2-3

STANDARDS BASED

# TEACHER GUIDE

Scripted lessons  
Teacher's notes  
Prep &  
management tips  
Independent  
practice  
Extension activities  
Assessments

11 Day  
Pacing  
Guide

DETAILED LESSON PLANS

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 1** What is science?

**LEARNING TARGET:** I can explain what science is and how it impacts our daily lives.

**MATERIALS:** -Teaching PowerPoint  
-Science journals  
-prepped anchor chart  
-sticky notes for anchor chart  
-vocabulary cards

**GUIDING QUESTIONS:** What is science?  
How do we use science?

**VOCABULARY:** science

**LESSON:**  
1. Set the purpose for the lesson by introducing the learning target. Today we are going to talk about what science is why it is important. How would you describe what science is? What do you know about science?  
2. Read the Lesson 1 slides in the PowerPoint to students.

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 2** What is a scientist?

**LEARNING TARGET:** I can explain what a scientist is and what a scientist does.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-vocabulary cards  
-Lesson 2 Quick Check

**GUIDING QUESTIONS:** What is a scientist?  
How do we use science to understand our world?

**VOCABULARY:** science, scientist, life science.

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 3** Tools Scientists Use

**LEARNING TARGET:** I can identify science tools and their purpose.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-science cards  
-science safety posters  
-science safety contract  
-Lesson 4 Quick Check

**GUIDING QUESTION:** What types of tools do scientists use?

**VOCABULARY:** microscope, anemometer, safety goggles, beaker, test tube, tape measure, gloves, thermometer, tweezers, balance scale, hand lens

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 4** Science Safety

**LEARNING TARGET:** I can understand and follow science safety rules.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-science safety posters  
-science safety contract  
-Lesson 4 Quick Check

**GUIDING QUESTION:** How do scientists conduct experiments safely?

**VOCABULARY:** science safety

**LESSON:**  
1. Set the purpose for the lesson by introducing the learning target. Scientists work with a variety of tools, and we need to be safe when we use them.

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 5** The Scientific Method

**LEARNING TARGET:** I can explain the steps of the scientific method.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-science safety posters  
-science safety contract  
-Lesson 4 Quick Check

**GUIDING QUESTIONS:** How do scientists investigate/ experiments to find an answer?

**VOCABULARY:** question, experiment, hypothesis, research, data

**LESSON:**  
1. Set the purpose for the lesson by introducing the learning target. Today we are going to explore the scientific method. We will learn about the steps of the scientific method and how scientists use it to answer questions. We will learn about the steps of the scientific method and how scientists use it to answer questions. We will learn about the steps of the scientific method and how scientists use it to answer questions.  
2. Read Lesson 5 PowerPoint slides. Pause to discuss the types of questions that scientists ask.  
3. Pair students to complete the worksheet. Call students together to share their answers.  
4. Call students together to share their answers.  
5. Revisit the learning target. Recap the scientific method with students corrected misconceptions by telling students the scientific method give scientists the opportunity to test their hypotheses. Objectives are not based on your personal opinion. The scientific method scientists can only use facts and data.  
6. Pass out book marks for reference. Students complete Lesson 5 in their science journals and work their unit.

**INDEPENDENT PRACTICE:** Students complete Lesson 5 in their science journals and work their unit.

**ASSESSMENT:** Students complete Lesson 5 Quick Check

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 6** Becoming A Scientist

**LEARNING TARGET:** I can complete an experiment using the scientific method.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-science safety posters  
-science safety contract  
-Lesson 4 Quick Check

**GUIDING QUESTIONS:** What steps do we take to conduct an experiment?

**VOCABULARY:** hypothesis, question, experiment, data, research, safety

**LESSON:**  
1. Set the purpose for the lesson by introducing the learning target. Today we are going to explore the scientific method. We will learn about the steps of the scientific method and how scientists use it to answer questions. We will learn about the steps of the scientific method and how scientists use it to answer questions. We will learn about the steps of the scientific method and how scientists use it to answer questions.  
2. Read Lesson 6 PowerPoint slides. Pause to discuss the types of questions that scientists ask.  
3. Pair students to complete the worksheet. Call students together to share their answers.  
4. Call students together to share their answers.  
5. Revisit the learning target. Recap the scientific method with students corrected misconceptions by telling students the scientific method give scientists the opportunity to test their hypotheses. Objectives are not based on your personal opinion. The scientific method scientists can only use facts and data.  
6. Pass out book marks for reference. Students complete Lesson 6 in their science journals and work their unit.

**INDEPENDENT PRACTICE:** Students complete Lesson 6 in their science journals and work their unit.

**ASSESSMENT:** Students complete Lesson 6 Quick Check

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lesson 7** Design an Experiment

**LEARNING TARGET:** I can plan and carry out an experiment using the scientific method.

**MATERIALS:** -Teaching PowerPoint  
-science journals  
-additional

**GUIDING QUESTIONS:** How can I design an experiment to test my hypothesis?

**LESSON:**  
1. Set the purpose for the lesson by introducing the learning target. Now that you are familiar with how scientists test a hypothesis using the scientific method you will have an opportunity to plan and conduct your own experiment. We can use the steps of the scientific method to answer questions in every day life.  
2. Discuss the examples in the PowerPoint telling students they can use one of these questions or form their own. How would you design an experiment to test these questions?  
• What is the most popular food in the cafeteria?  
• What time of day do I feel most sleep?  
• What time of day is it the least crowded in the school library?  
• What recess games does my class like the most?  
• What kind of jokes make my friend laugh the hardest?  
• What is the fastest route to my classroom from the playground?

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Unit Overview**

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Standards Alignment**

Introduce students to science and science safety, and

**SCIENTISTS, TOOLS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Unit Pacing**

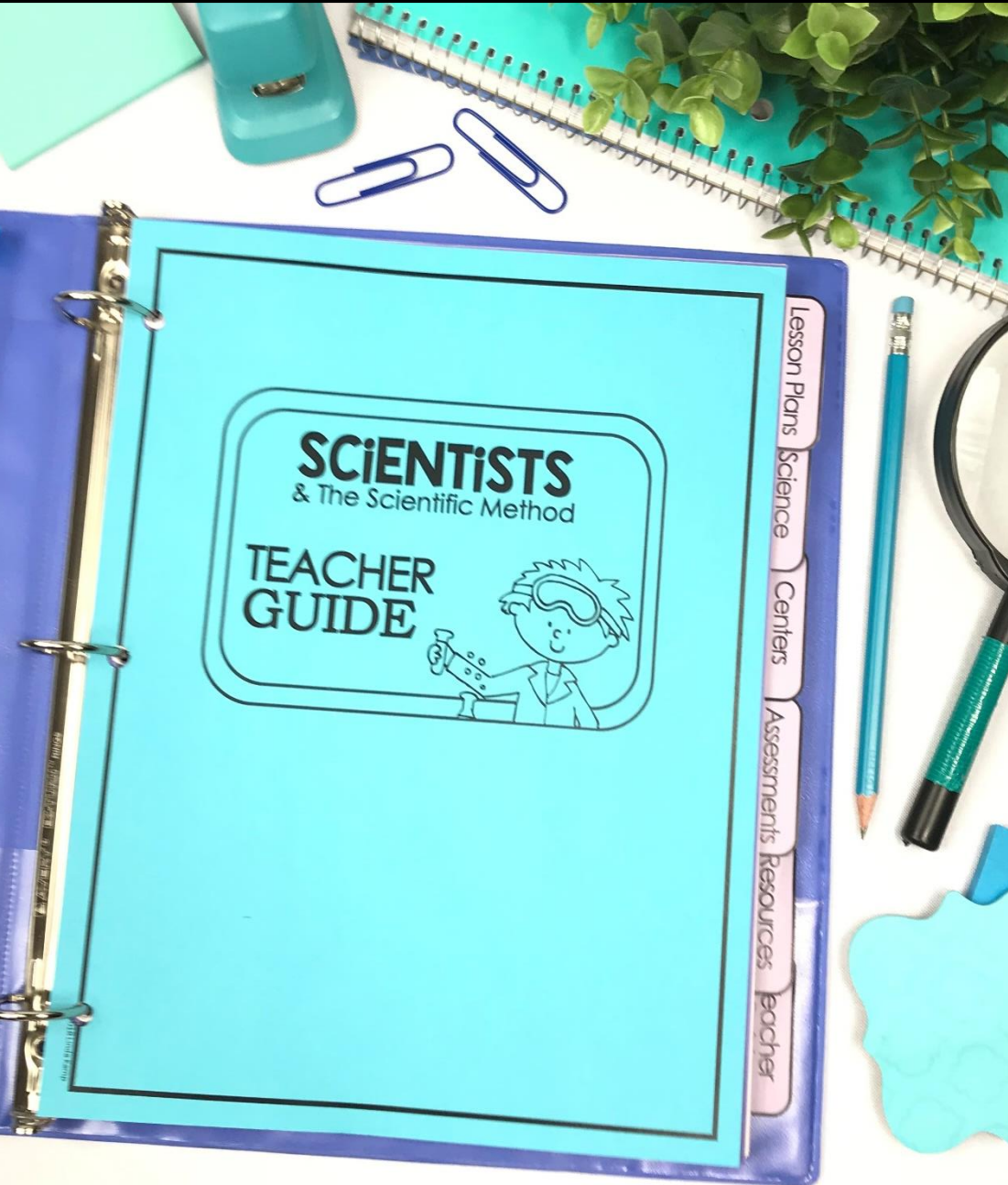
Day	Lesson
1	What is Science?

Second Grade Next Generation Science Standards Science and Engineering Practices

Learning Questions and Defining Problems

Questions that can be investigated based on patterns and relationships. (2-PS2-3)

Use a simple problem that can be solved through the use of basic tools. (2-PS2-4)



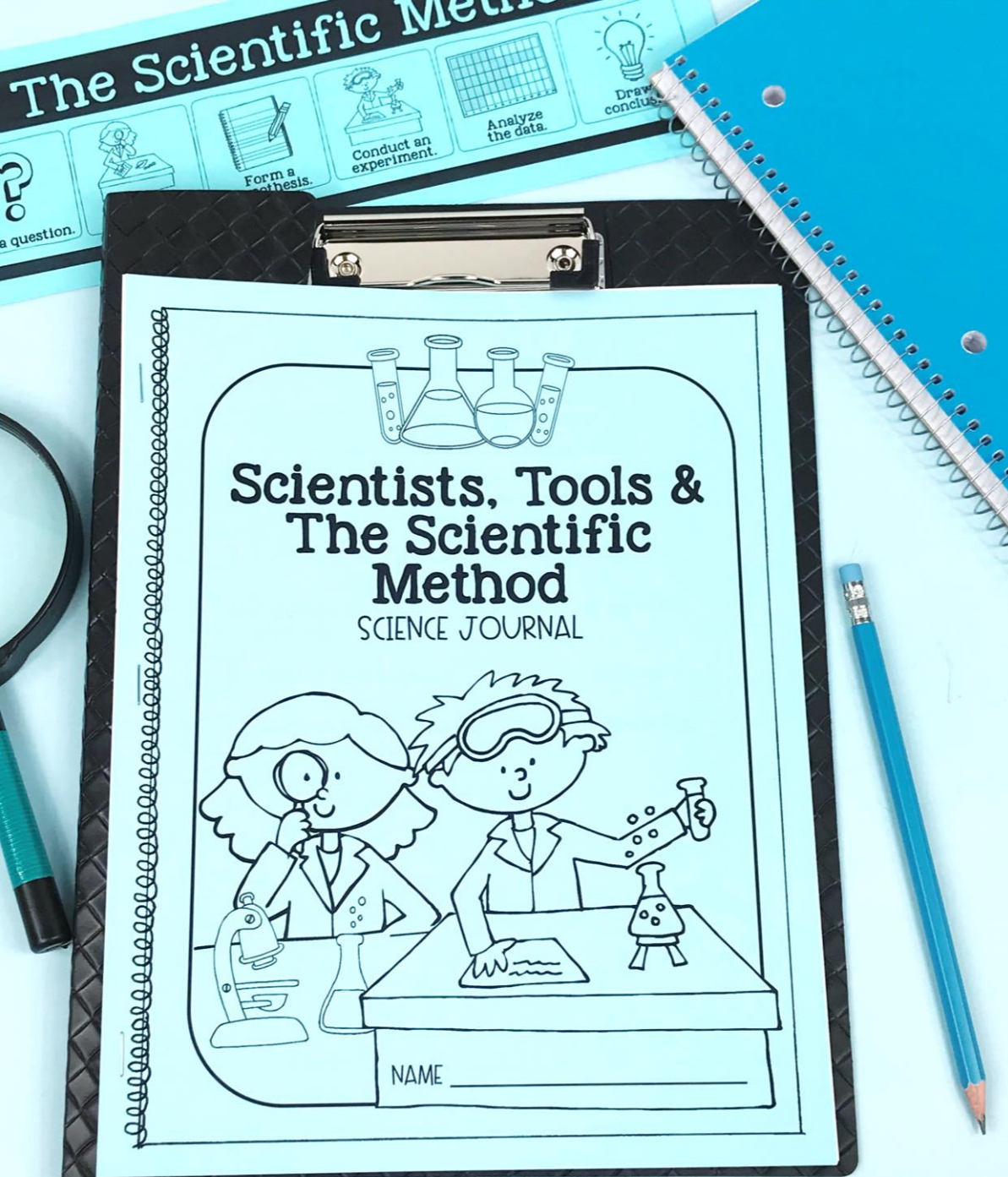
# UNIT BINDER

Keep resources organized in a handy planning binder

## Binder includes:

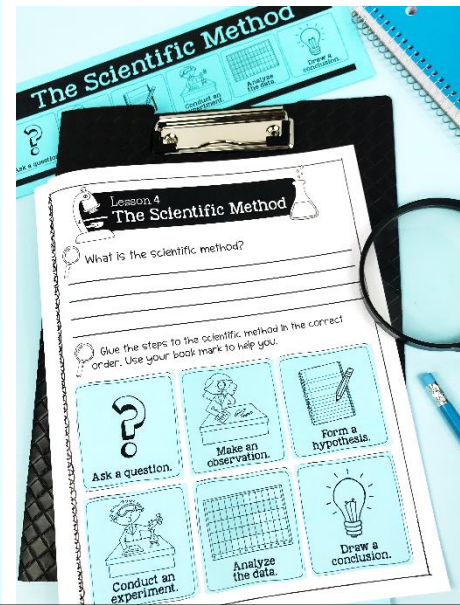
- binder cover
- binder spines
- section dividers
- divider tabs

UNIT PLANNING BINDER



# JOURNAL ACTIVITIES INCLUDE:

- Short written response
- Writing to explain
- Sequencing
- Categorizing
- Applying vocabulary



# LESSON RESPONSE JOURNAL

# 3 SCIENCE EXPERIMENTS

**THE GREAT COOKIE DUNK!**

Name: \_\_\_\_\_  
Become a Scientist Lab Activity

Question: Do cookies sink or float in milk?

Hypothesis: Cookies will float in milk.

Cookie	Observation	Prediction	Sink	Float
Nilla Wafer	light weight, tan, smooth	float		<input checked="" type="checkbox"/>
Chips Ahoy	bumpy, heavier, has chocolate	float		<input checked="" type="checkbox"/>
Oreo	2 layers, round, bumpy, filling	sink	<input checked="" type="checkbox"/>	
Nutter Butter	has filling, tan round, 2 cookies	sink	<input checked="" type="checkbox"/>	

Draw and label your results:

Conclusion: \_\_\_\_\_  
cookies floated, but the chips

## STUDENTS EXPLORE

- Buoyancy
- Solubility
- Chemical Reactions

**MARKER MADNESS!**

Name: \_\_\_\_\_  
Become a Scientist Lab Activity

Question: Are permanent markers really permanent?

Hypothesis: \_\_\_\_\_

Prediction: \_\_\_\_\_

Draw your results: \_\_\_\_\_

Ingredients: Sprite, Baking Soda, Grape Juice

\*Includes alternate lab sheet with blank cookie categories for you to choose your own cookies.

# 3 SCIENCE EXPERIMENTS

Step-by-step **TEACHER GUIDES**  
with pictures



**SCIENTISTS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lab 6.1 THE GREAT COOKIE DUNK!**

**FOCUS:** Buoyancy, sinking, floating  
**LEARNING TARGET(S):** I can determine if an object is buoyant. I can test a hypothesis by using the scientific method.  
**QUESTION:** Do cookies sink or float in milk?  
**MATERIALS PER STUDENT:** 1 Nilla Water cookie, 4 small plastic cups, Teaching PowerPoint, 1 Mini Chips Ahoy, milk, 1 Mini Oreo, paper towel, student lab sheet(s), 1 Mini Nutter Butter

**MINI LESSON:**  
1. Set the purpose for the experiment by introducing the Let's Explore Buoyancy slides in the PowerPoint.  
2. Introduce the Question and the Learning Target for the experiment.  
3. Using the PowerPoint slide for The Great Cookie Dunk lab, review and guide students through how they will use the scientific method.

**INVESTIGATE:** Today we are going to test and gather evidence to answer the question, "How can a secret message be revealed?" Each of you will have a Q-tip and a cup of water with baking soda to write your secret message on 3 sheets of paper. We will test and paint over it with 3 different solutions to try to reveal the message. When it is time to start use your lab sheet to record your observations and data.

**POWERPOINT:** SCIENTISTS & THE SCIENTIFIC METHOD

**SCIENTISTS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lab 6.2 MARKER MADNESS!**

**FOCUS:** Solubility  
**LEARNING TARGET(S):** I can determine if a substance is soluble. I can test a hypothesis by using the scientific method.

**MINI LESSON:**  
1. Set the purpose for the experiment by introducing the Let's Explore Chemical Reactions slides in the PowerPoint.  
2. Introduce the Question and the Learning Target for the experiment.  
3. Using the PowerPoint slides for the Magic Paint Brush lab, review and guide students through how they will use the scientific method to conduct their experiment. Using the slide, explain to students how to use the lab sheet to record their hypothesis, data, and results.

**INVESTIGATION:** Today we are going to test and gather evidence to answer the question, "How can a secret message be revealed?" Each of you will have a Q-tip and a cup of water with baking soda to write your secret message on 3 sheets of paper. We will test and paint over it with 3 different solutions to try to reveal the message. When it is time to start use your lab sheet to record your observations and data.

**POWERPOINT:** SCIENTISTS & THE SCIENTIFIC METHOD

**SCIENTISTS & THE SCIENTIFIC METHOD** **TEACHER GUIDE**

**Lab 6.3 Magic PAINT BRUSH**

**FOCUS:** Chemical reactions  
**LEARNING TARGET(S):** I can test a hypothesis by using the scientific method. I can identify a chemical reaction.  
**QUESTION:** How can a secret message be revealed?  
**MATERIALS:** white vinegar, 2 liter bottle of Sprite, Large box baking soda, 1 Q-tip per student, small paintbrush, small plastic cups (5 per small group), newspaper to cover tables  
**PREP:** (Groups of 3-4 will share the cups.) Mix equal parts baking soda and water in a pitcher. Prep 1 cup for each group. Also prep 1 cup of each: grape juice, vinegar, Sprite. 1 cup water to rinse brushes between use.

**MINI LESSON:**  
1. Set the purpose for the experiment by introducing the Let's Explore Chemical Reactions slides in the PowerPoint.  
2. Introduce the Question and the Learning Target for the experiment.  
3. Using the PowerPoint slides for the Magic Paint Brush lab, review and guide students through how they will use the scientific method to conduct their experiment. Using the slide, explain to students how to use the lab sheet to record their hypothesis, data, and results.

**INVESTIGATION:** Today we are going to test and gather evidence to answer the question, "How can a secret message be revealed?" Each of you will have a Q-tip and a cup of water with baking soda to write your secret message on 3 sheets of paper. We will test and paint over it with 3 different solutions to try to reveal the message. When it is time to start use your lab sheet to record your observations and data.

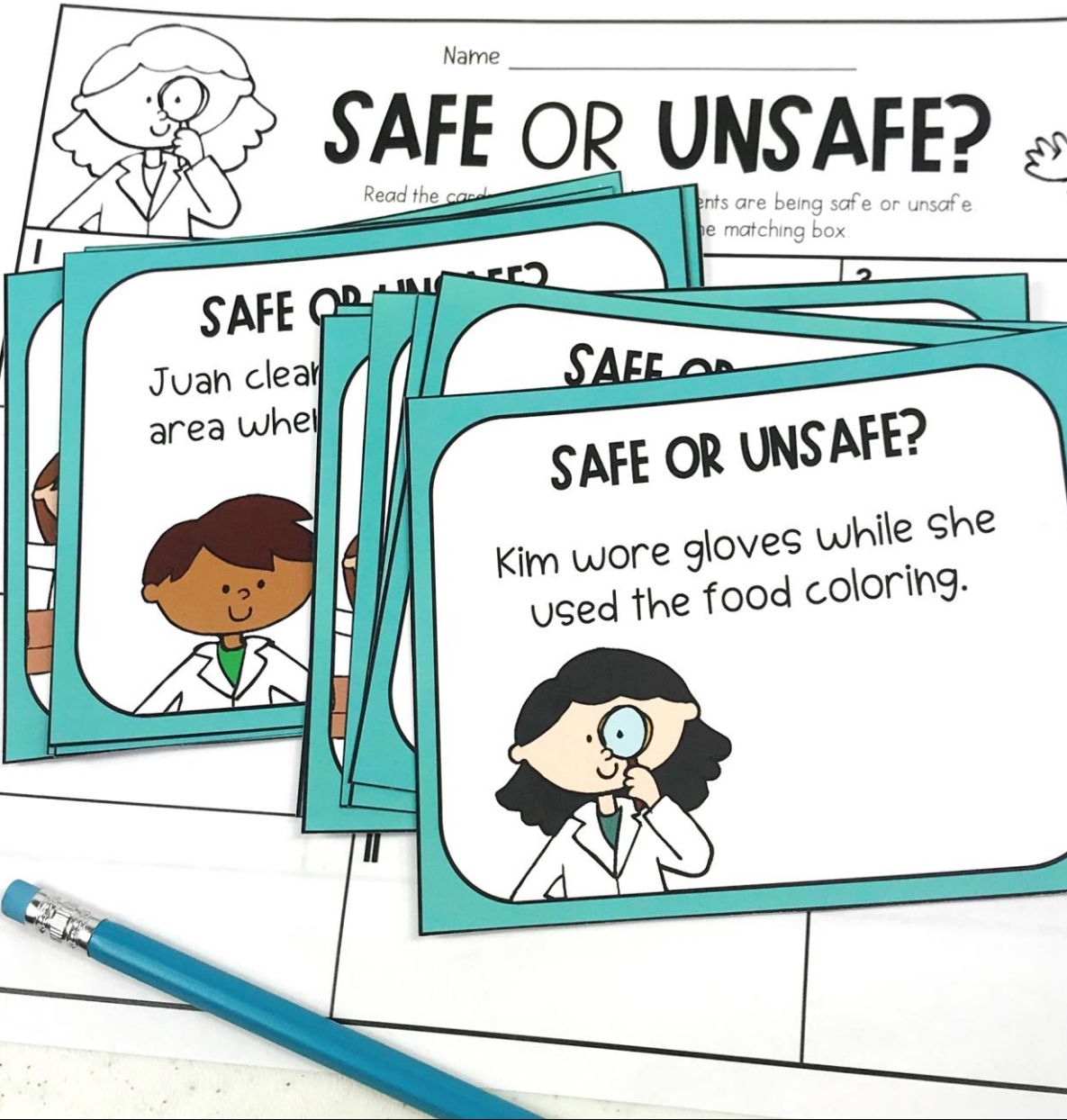
**POWERPOINT:** SCIENTISTS & THE SCIENTIFIC METHOD

**LAB SHEETS**

# USING SIMPLE MATERIALS



# SCIENCE CENTERS



Literacy based  
**EXTENSION**  
**ACTIVITIES**  
using science  
content



Integrate science in your reading centers

# Reinforce SCIENCE KNOWLEDGE



using  
**LITERACY  
SKILLS**



Centers included in color and black & white

# LESSON SUPPORT MATERIALS

Learning targets

**ESSENTIAL QUESTION**

How does science help us live better?

I can explain what science is and how it impacts our daily lives.

conducting an experiment.

**Lesson 1**

SCIENTISTS & THE SCIENTIFIC METHOD

Vocabulary cards

**hypothesis**

**scientific method**

**scientist**

a person who uses research and evidence and tests hypotheses to gain understanding and knowledge

Lesson 1



**safety gloves**

Science tools picture cards

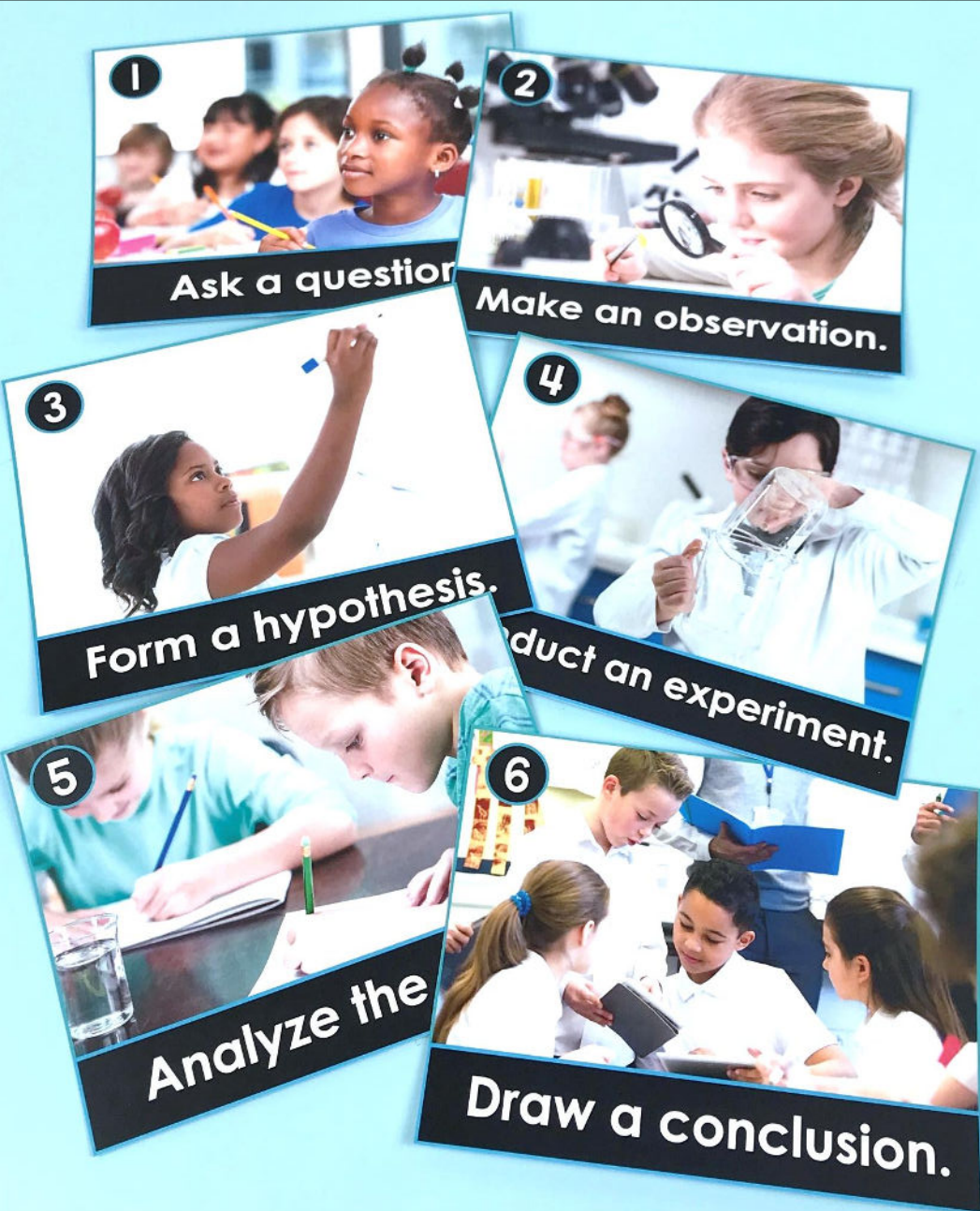
**balance scale**

**microscope**

**beakers**



# REFERENCE WALL RESOURCES



## Printable posters **SCIENCE SAFETY RULES** and **THE SCIENTIFIC METHOD**



Posters included in color and black & white

# TYPES OF SCIENCE & SCIENTISTS

## PHYSICAL SCIENCE



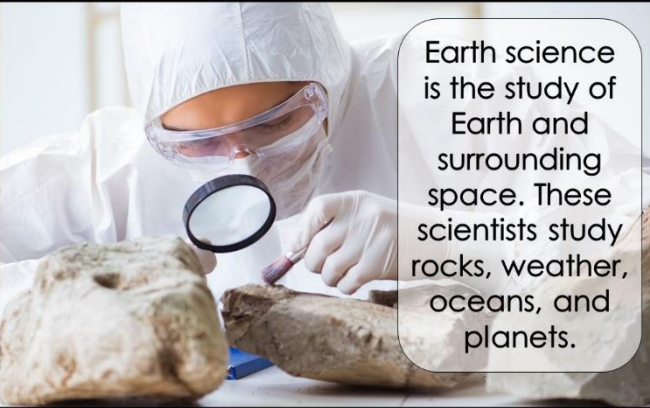
Physical science is the study of all physical things. Matter, energy, atoms, and molecules are studied by physical scientists.

## LIFE SCIENCE



Life science is the study of living things. Life scientists study plants, animals, humans, and microscopic organisms.

## EARTH SCIENCE



Earth science is the study of Earth and surrounding space. These scientists study rocks, weather, oceans, and planets.

## Printable posters in color and black & white

half page posters

astronomer



wildlife biologist



zoologist



botanist



geologist



meteorologist



chemist



Chemists study the properties of matter and how it interacts with energy.

archaeologist



An archaeologist specializes in that people of the past used, and left behind.

physicist



Physicists study matter and how it interacts with energy and forces.

marine biologist



Marine biologists study living things in the ocean.

full page posters

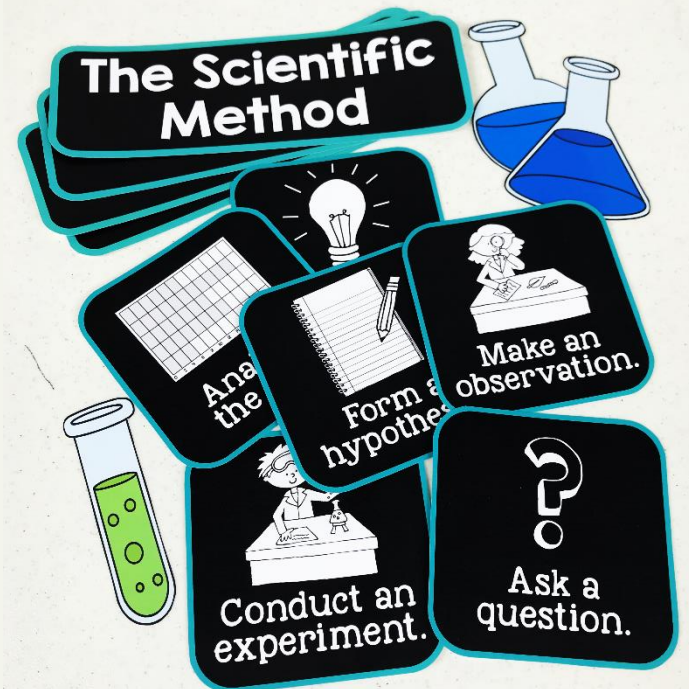
# BONUS BULLETIN BOARD SET



Included in color and blackline

## DISPLAY:

Vocabulary  
Learning targets  
Science tools  
Science safety  
Scientific Method



# BUILD A SCIENCE FOUNDATION

## SCIENTISTS & THE SCIENTIFIC METHOD

Introduction to Science



## INTRODUCE & TEACH

- Areas of science
- Types of scientists
- Jobs scientists do
- Science tools
- Safety procedures
- Processes scientists use

## STUDENTS GAIN

- Foundational knowledge
- Laboratory experience
- Safety expectations