

# THIRD GRADE SCIENCE BUNDLE

## SCIENTISTS & SCIENTIFIC PROCESSES

An Introduction to Science



GRADES  
2-3

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## FORCES AND MOTION

GRADE  
3



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## WEATHER AND CLIMATE

GRADE  
3



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## ENVIRONMENT

SURVIVAL & FOSSIL EVIDENCE

GRADE  
3



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## INHERITED TRAITS & LIFE CYCLES

GRADE  
3

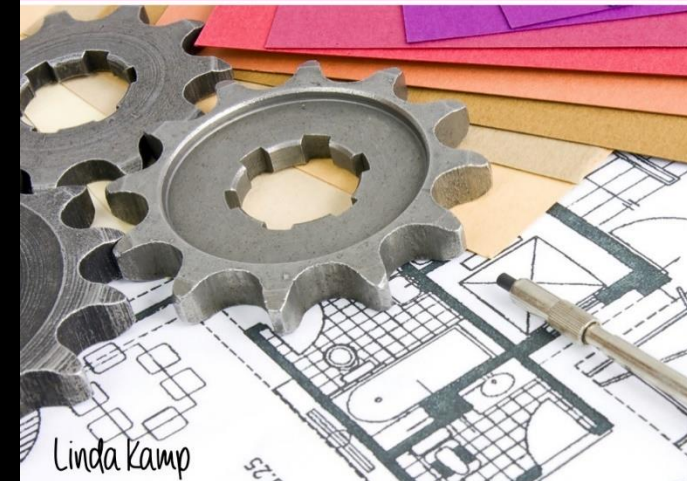


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## ENGINEERING

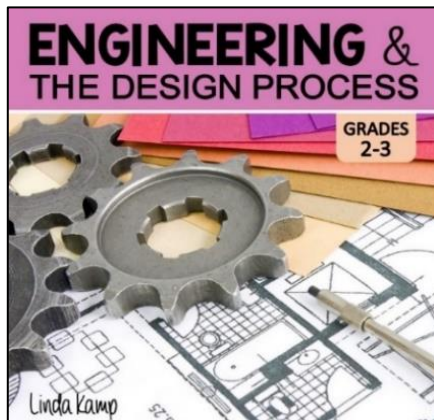
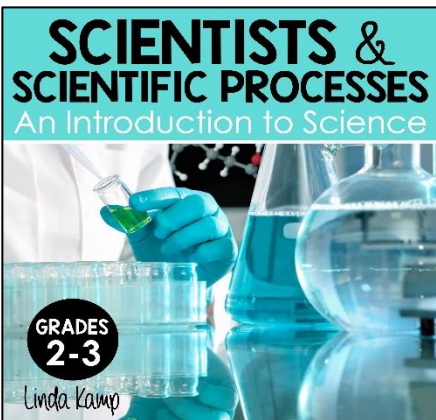
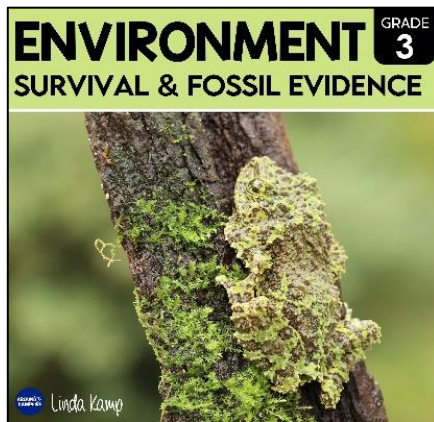
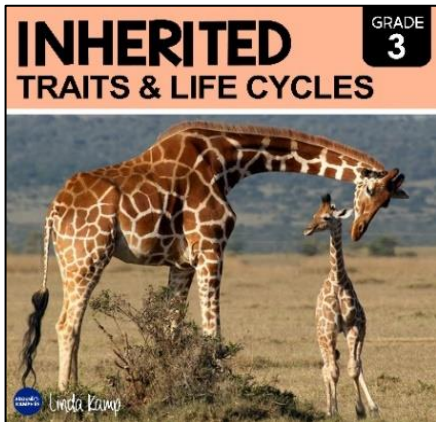
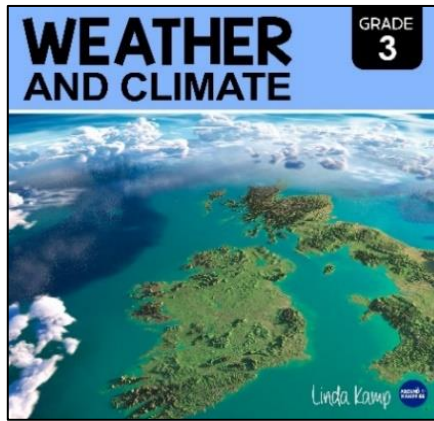
& The Engineering Design Process

GRADE  
2-3



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# NGSS ALIGNED BUNDLE INCLUDES:



**6** THIRD GRADE SCIENCE UNITS

**26** WEEKS OF IN-DEPTH SCIENCE LESSONS

- Scientists & Science Processes
- Forces & Motion
- Weather & Climate
- Inherited Traits & Variations
- Environment, Survival & Fossil Evidence
- Engineering Design

# DETAILED, SCRIPTED LESSON PLANS

## EACH LESSON PLAN FEATURES:

- Lesson objectives
- Guiding questions
- Materials list
- Lesson vocabulary
- Scripted procedures & closing questions
- Partner talk
- Journal activity
- Assessment options
- Investigations
- Lesson videos
- NGSS alignment

### Lesson 2 Inherited Traits **TEACHER GUIDE**

#### Day 2 PHYSICAL TRAITS - PARENTS AND OFFSPRING

**OBJECTIVE:** Students will explain that organisms inherit traits from their parents.  
**PROCEDURE:**  
1. Remind students of...

2. Tell students, "Today we will explore combinations of traits and show what the offspring they have that are similar to their parents."

3. Project the PowerPoint to allow time to look at the photos.  
4. **INTERACTIVE DIAGRAM:** Use the diagram by sliding the cat into the box that is similar to one parent and one offspring and a second parent.

#### SAMPLE ANSWERS

Interactive Parents and Offspring	
Parents	
Offspring	
Similar Trait	spots

Directions: Choose one offspring that is similar to one parent.

5. **INDEPENDENT ACTIVITY:** Science drawings of two cats. Students show which traits they inherited by coloring two parts of the cat. Write an explanation that explains these with a partner.

### Inherited Traits & Life Cycles **TEACHER GUIDE**

3-LS3-1 SEP 4  
DCI LS3.A, B CCC.1

#### Lesson 2 Inherited Traits

**OBJECTIVE:** Students will explain that living things inherit many characteristics from their parents.

**GUIDING QUESTION:** How do organisms get their traits?

**VOCABULARY:** traits, inherit, variation, instinct, observe

#### Day 1

##### KEY CONCEPTS:

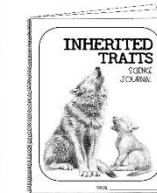
- Many characteristics of organisms are inherited from their parents.
- Different organisms vary in how they look because they have inherited different traits.
- Organisms have some traits we can't see.

##### PROCEDURE:

1. Set the purpose for the lesson by introducing the learning target and guiding question.
2. Tell students, "Today we'll talk about traits, what traits are and how organisms, or living things, get their traits."
3. Project the PowerPoint. Introduce the lesson vocabulary on the first slide. Slide the shapes to reveal the definition of each word, then use each in a sentence to give students context. Display the vocabulary cards.
4. Read the lesson slides to students pausing to allow time to look at and discuss the photos. Pause at slide 58. Ask students to think about and discuss the questions on the slide.
5. Watch the video, Intro to Traits. After the video, ask students, "How do living things (organisms) get their traits?"
6. Introduce **Activity 2.1**  
Remind students that when scientists make observations, they use all five of their senses. Explain to students that in today's activity they too will use all five of their senses to observe the traits of a specific plant.
7. Project slide 61. Follow the procedure on the Activity 2.1 teacher guide & directions page.

##### MATERIALS:

- Teaching PowerPoint
  - Science journals
  - Vocabulary cards
  - Lesson 2 Quick Check
  - Activity 2.1
- \*See teacher guide lab directions for materials  
\*Lesson 2 Investigation  
\*See teacher guide lab directions for materials



INHERITED TRAITS	
How do organisms get their traits?	
What are some examples of a passed trait?	

INHERITED TRAITS	
offspring traits parents inherit	
Using things:	Look for the parents.
Look at:	See how the parents.
Smell and touch:	Feel the parents or the
Use the senses passed down from the:	

# 6 TEACHING POWERPOINTS



Over 100 engaging lessons with multiple components

## Traits and the Environment

The Saguaro cactus is one example of how environment can affect traits. Saguaro cacti are usually very tall with one main stem that forms branches when the environment has more space.

## Patterns of Inherited Traits

As biologists observe and put organisms into

## Variation Within a Species



## LESSON 2 TALK ABOUT IT

Compare parents and offspring



Talk with your partner about how the traits of these offspring compare to their parents.

1. Tapir
2. Swan

## LESSON 2 JOURNAL

Write About It

## Activity 2.2

### PARENTS & OFFSPRING

1. Color each parent to show some traits. Label the traits in your drawing.
2. Color the offspring to show a trait it inherited.
3. Explain the trait the offspring inherited, and from which parent, to a partner.



## What is a trait?

All living things have traits. A **trait** is anything you can **observe** about an organism, including the way it looks and acts.

Physical traits are the way something looks. Fur color, ear length, the number of legs, or the pattern of fur are all physical traits.



## LESSON 2 INVESTIGATE

Patterns of Traits in a Group

### QUESTION:

What patterns of traits can you observe in a group of animals?

Decide which traits you want to observe. Make a chart to collect and analyze data about a group of kittens.



Lesson 2 science

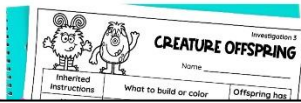




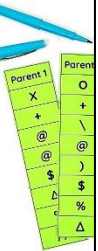
# INTRO SLIDES FOR EACH LAB

## Creature Offspring Models

## Guided Lab Directions



Students v  
strips so th  
parent 1 st



For each m  
check in co  
creature wil

WRAP UP:  
both parent  
different fro



## Investigation 3

Lesson 3

## Creature Offspring Models

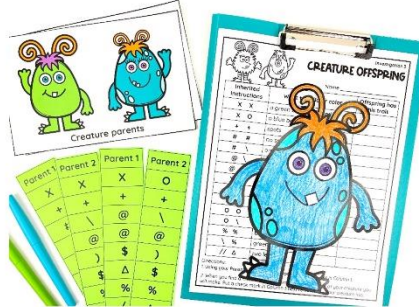
### TEACHER GUIDE

**QUESTION:** Why do offspring have similar traits to their parents but not always to each other?

**OBJECTIVE:** Students will build a model of a creature based on the traits of its parents.

#### MATERIALS:

- Prep per student:
- Investigation 3 slide or creature parents picture cards
  - Play Doh or optional paper cards
  - student lab sheet



**Key concept:** Organisms receive trait instructions from both parents. Each sibling receives different instructions which causes them to look different from one another even though they have the same parents.

#### PROCEDURE:

1. Place students in pairs. Pass out a picture card to each group or project the investigation slide of the creature parents. Give each student an instruction strip so each pair of students has a Parent 1 and a Parent 2 strip.
2. Students place their parent instruction strips next to each other and use the guide on their lab sheet to figure out which traits their creature should have.
3. Students build models of the offspring giving it the traits passed down in the instructions from both parents. Students can build their models out of Play Doh or by coloring and cutting out the paper templates to make a paper model. **\*Students should build the offspring based on the traits they marked on their lab sheet.**
4. Explain to students that all the creature offspring in the class came from the same parents and that they are siblings. Students choose 2 classmates to compare with. Students place the three models next to each other and compare the siblings.
5. Students observe and note the similarities and variations (differences) of the offspring's traits and write them in the chart on their lab sheet. *Example: Similarities may be the same ear color, hair color, same eyes, body spots, horn size etc. Each of those same body parts may also be different in each offspring, in which case students record them in the variation column.* Students complete their lab sheets.

SEP.2 Developing and Using Models  
Develop models to describe phenomena.

SEP.7 Engaging in Argument from Evidence  
Construct and/or support an argument with evidence, data, and/or a model.

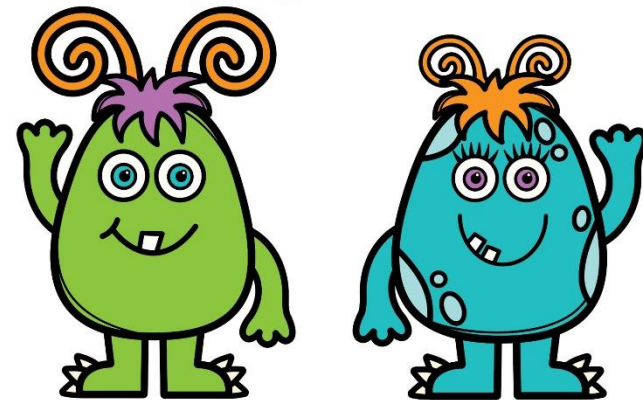
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Science & engineering practices embedded in each lesson

## LESSON 3 INVESTIGATE

## Variations of Traits

**QUESTION:** What variations might their offspring have?



Build a model of a creature based on the traits of its parents.

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See more details of all labs in the unit previews

# INCLUDED FOR EACH LAB

- Guiding questions
- Objective
- Materials list
- Scripted introduction
- Step by Step procedures
- Standards



**Lesson 1**

## Investigation 1 Which Beak Is Best?

**TEACHER GUIDE**

3-LS4-2, SEP.6

**QUESTION:** What determines the shape of a bird's beak?

**OBJECTIVE:** Students will model and test beak shapes to learn how birds are adapted to eat certain foods.

**MATERIALS FOR EACH GROUP**

**For beaks**  
straw, tweezers, pliers, scissors, chopsticks (or replace with things you have available to simulate different types of beaks)

**For food**  
yarn, marshmallows, rice, -water  
-paper bowls or cupcake liners or any small containers to hold the food  
-small cup for water  
-lab sheet for each student



**PROCEDURE:**

1. Explain to students that in this lab they will investigate how bird beaks are adapted to eating different kinds of food. **"In this lab you will use your materials as models of different beaks to investigate how birds eat and how the shape of a birds' beak shape gives you clues to the type of food it eats."**
2. Place students in groups of 2-4 and provide them with the materials listed.
3. Students follow the steps on their lab sheet. Allow students time to test the beaks' abilities to get the different foods.
4. Students write their observations on their lab sheet. Ask students to consider what bird has a beak like the one they are modeling and what the bird eats. guide students to understand that different beak shapes are better at picking up different kinds of bird foods.

**SEP.2** Developing and using models to understand how animal characteristics help them survive

**3-LS4-2:** Use evidence to construct an explanation for how the variations in characteristics (beak shapes) among individuals of the same species may provide advantages for surviving, finding mates, and reproducing.

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## • Student lab sheet

Investigation 1

Name \_\_\_\_\_





### What determines the shape of a bird's beak?

**PLAN** Look at the birds in the chart. What tool does each beak look like?

**MODEL** Use the beak materials to model the different beaks.

**TEST** Pick up different types of food with your model beaks to determine which beak works best for which type of food.

**COLLECT DATA**

Beak	Observations
	
	
	
	

**Beak Materials Used**


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**Food Materials Used**

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**Investigation 1  
Which Beak Is Best?**


**Guided Lab Directions**




Gather materials for each group of 3 or 4 students. Replace any of the beak tools, if necessary, with things you have available to simulate different types of beaks.


Students take turns testing the "beak" tools to find and pick up the "food" to determine which type of beak is best for eating each of the foods.





Guide students to understand that birds' beaks are very specialized tools that determine what a bird can eat. Some beaks are good for probing and grabbing insects out of the ground while others are perfect for cracking open seeds and nuts. The sharp, curved beak of an eagle easily tears the flesh of fish. The long thin, straw-like beak of the hummingbird allows it to drink nectar deep within a flower.





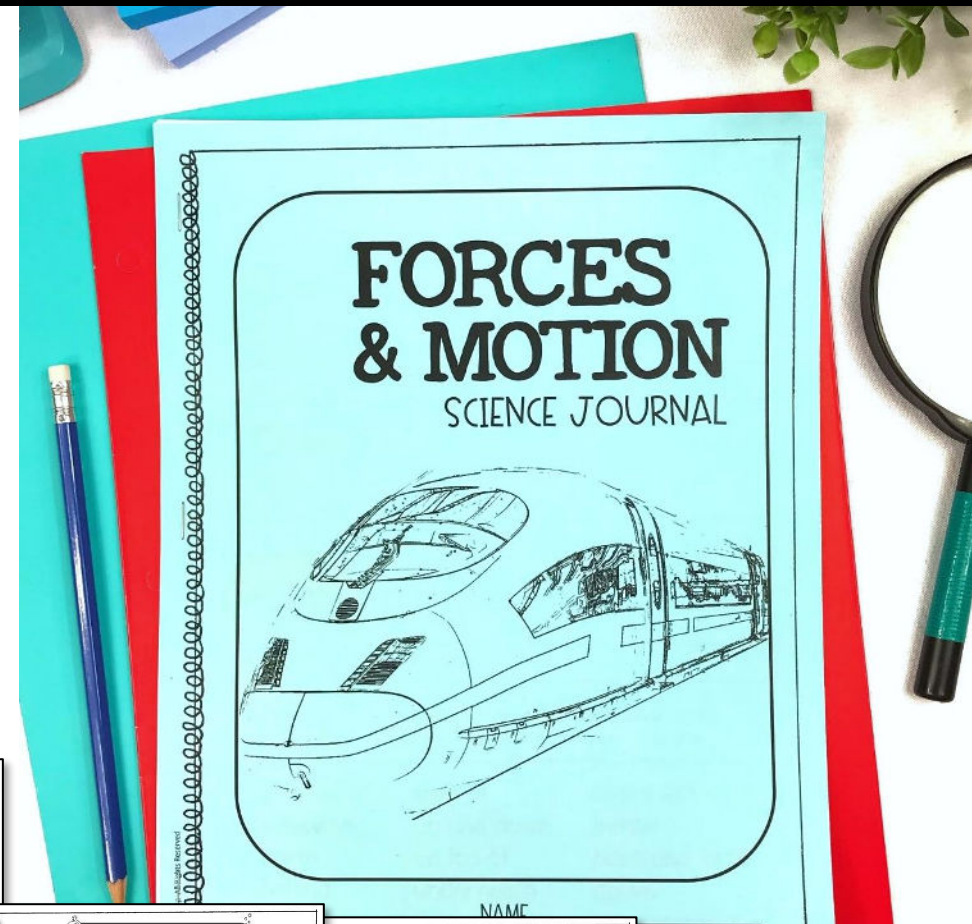
As students test their "beaks", they record their observations on their lab sheet.

## Guided directions & possible results

# STUDENT WORKBOOKS & JOURNAL

## Activities include:

- Applying vocabulary
- Short written response
- Writing to explain
- Labeling diagrams



Lesson 5 Electric Forces

What happens when you rub a balloon on your hair?

Does this create a contact or non-contact force?

Objects with the same charge will attract.

Label the diagram.

Lesson 6 Magnetism

What kind of force do magnets have?

How are electromagnets from regular magnets?

Lesson 5 Electric Forces

Write the charge of each balloon. Write if the pair will attract or repel each other.

silver

rubber

What happens when you rub a balloon on your hair?

Does this create a contact or non-contact force?

Explain It

What causes the needle of a compass to point north?

Lesson 2 Patterns of Motion

What is a pattern?

Name an object that moves in a pattern. Describe the pattern of its movement.

Draw arrows to show the pattern of motion for each ride.

Lesson 3 Forces and Motion

What is a contact force?

Mark an X to show the forces acting on the baseball.

gravity  spring force

friction  magnetic force

electric force

contact force

Why will the baseball eventually fall to the ground?

What are some examples of non-contact forces?

Lesson 4 Balanced & Unbalanced Forces

What are balanced forces?

What happens when forces become unbalanced?

Write T for true and F for false.

Forces can cause an object to start or stop moving.

More than one force can act on an object at the same time.

Unbalanced forces do not change the motion of an object.

Maglev trains run on solar power and electricity.

How can you tell if forces are balanced or unbalanced?

Write an example of a balanced force.

Circle all the words that describe the forces acting on the apples in each picture.

push pull balanced unbalanced contact non-contact

What unit is force measured in? Who is the unit named after?

Explain It

Why is the net force on the rope 0 newtons?

300 N 300 N

Unit Vocabulary

motion exert force mass position tension force speed force distance electric force direction magnetic force relative motion balanced force pattern position unbalanced force predict static discharge net force electromagnetic force electric charge contact force non-contact force

Write new vocabulary:

in front of sideways next to up and down north on top of behind on top of underneath

FORCES & MOTION SCIENCE JOURNAL

NAME



# DETAILED TEACHER GUIDES

ENVIRONMENT & SURVIVAL  
**UNIT TEST** Name \_\_\_\_\_

Vocabulary Match

Write the letter to match each word with its definition.

species \_\_\_\_ A. the fossilized resin or sap of trees

extinct \_\_\_\_ B. a small amount

preserve \_\_\_\_ C. a state of rest

Plant & Animal Needs LIFE CYCLES  
**Science Centers** TEACHER GUIDE

LOCATED IN FILE 3  
Students use science content to practice these skills:

Environments, Survival & Fossil Evidence  
**Lesson Pacing** TEACHER GUIDE

Day	Lesson
1	Lesson 1.1 Adapting to Survive
2-3	Lesson 1.2 Behavioral Adaptations
4	Lesson 1 Investigate
5	Lesson 1 Quick Check
6	Lesson 2.1 Survive
7	Lesson 2.2 Journal
8	Lesson 2.3 Cause and Effect
9	Lesson 2 Investigate
10	Lesson 2 Quick Check
11	Lesson 3.1 Survive
12	Lesson 3.2 Traits and Adaptations
13-14	Lesson 3 Investigate
15	Lesson 3 Quick Check

Next Generation Science Standards Alignment  
**TEACHER GUIDE**

Environment, Adaptation & Survival  
**Related Book List** TEACHER GUIDE

**Standards**  
Construct an explanation for how the variations in traits of the same species may provide advantages in a particular habitat but some survive less well, and some cannot survive.

Use evidence that in a particular habitat some organisms survive better than others because of differences in characteristics that provide advantages in surviving.

Recognize that sometimes the differences in characteristics of the same species provide advantages in surviving in a particular environment, some kinds of organisms survive less well, and some cannot survive at all in a particular environment.

Environments, Survival & Fossil Evidence  
**Lab Materials** TEACHER GUIDE

The following materials are needed to do all the investigations. Please see the teacher notes for each lab as some of the materials are optional or can be replaced with items you may already have.

straws	sponges
tweezers	paper towels
chopsticks	small lunchmeat containers
string or yarn	glue
marshmallows	salt
cupcake liners	plastic spoons
small paper cups	pitcher
small clear cups	play sand (available at home improvement stores)
white paper	small paintbrushes
crayons	warm water
scissors	pony beads
pine needles	Play Doh or clay (in 3 colors)
leaves	small plastic insects & animals
seashells	

Environments, Survival & Fossil Evidence  
**Videos** TEACHER GUIDE

Lesson 2

Why Do Animals Form Groups?  
<https://www.youtube.com/watch?v=msdqmE6sRP3&t=25>

Lesson 2

Amazing Animal Groups  
<https://www.youtube.com/watch?v=gwH8xGmg8&t=44s>

Lesson 2

How Do Beavers Build Dams?  
<https://www.youtube.com/watch?v=82DiWd7Kt0&t=58s>

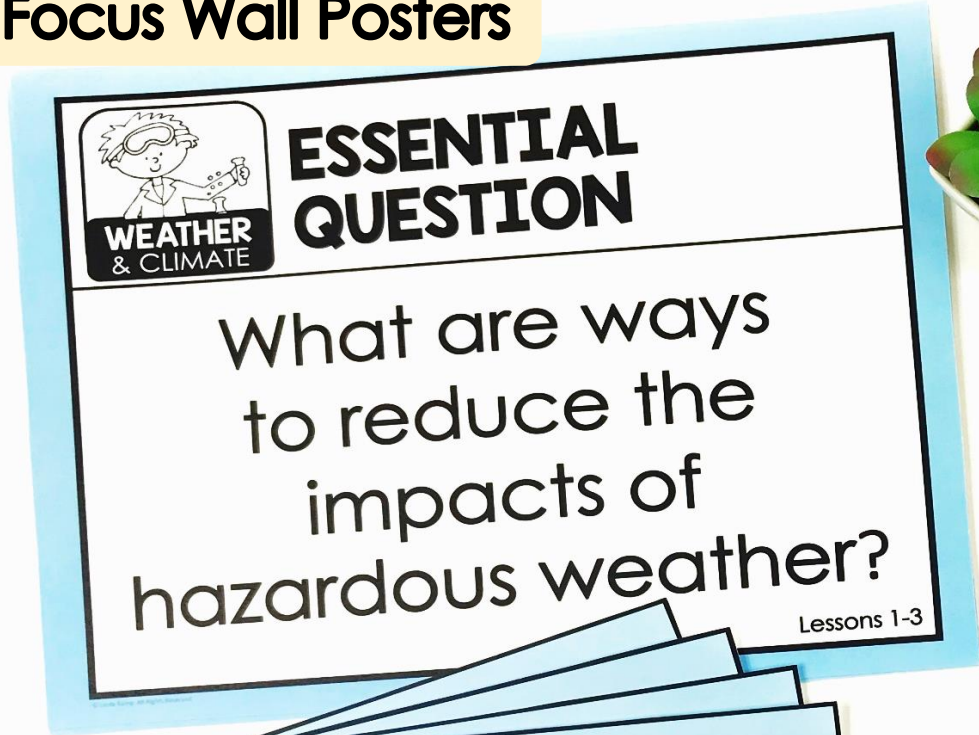
Lesson 2

Why Do Animals Live in Groups?  
[https://www.youtube.com/watch?v=r2\\_npl4d](https://www.youtube.com/watch?v=r2_npl4d)

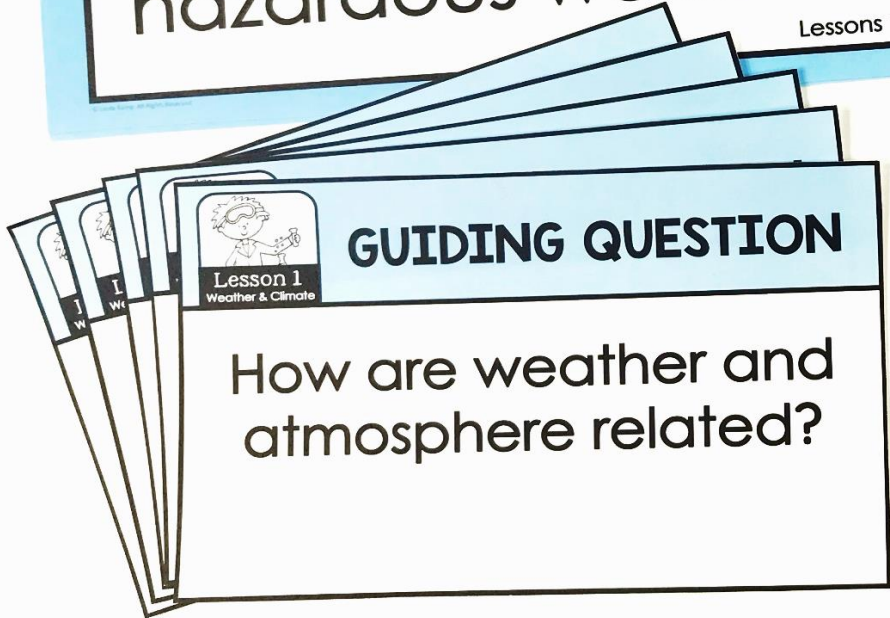
- Lesson plans
- Teacher notes
- Management & prep tips
- Lab directions with photos
- Materials list
- Related book lists
- Clickable video guide
- Pacing guides
- Standard alignment pages
- Answer keys

# STANDARDS-BASED FOCUS WALLS

## Focus Wall Posters



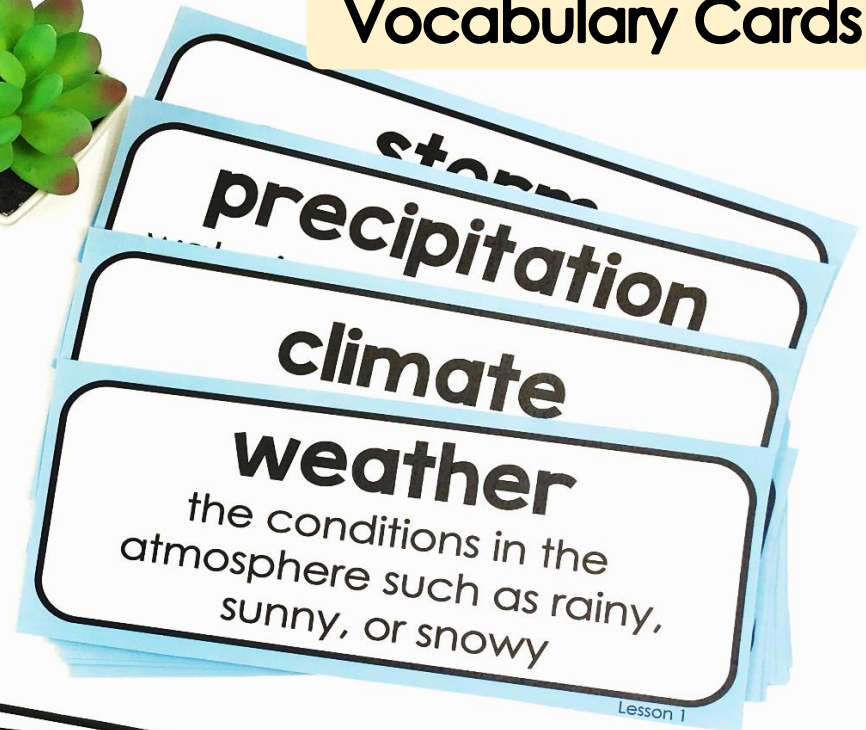
**WEATHER & CLIMATE**  
**ESSENTIAL QUESTION**  
What are ways to reduce the impacts of hazardous weather?  
Lessons 1-3



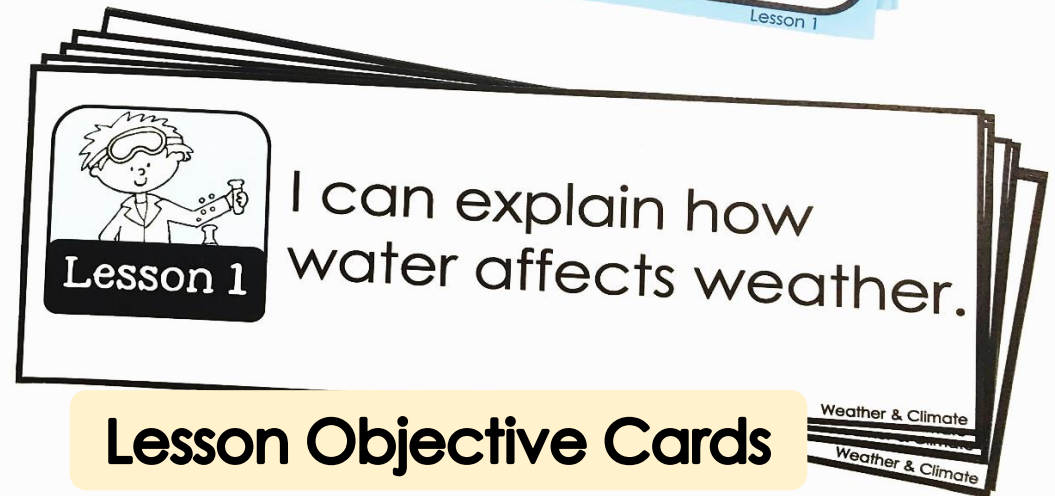
**Lesson 1**  
Weather & Climate  
**GUIDING QUESTION**  
How are weather and atmosphere related?



## Vocabulary Cards



storm  
precipitation  
climate  
**weather**  
the conditions in the atmosphere such as rainy, sunny, or snowy  
Lesson 1



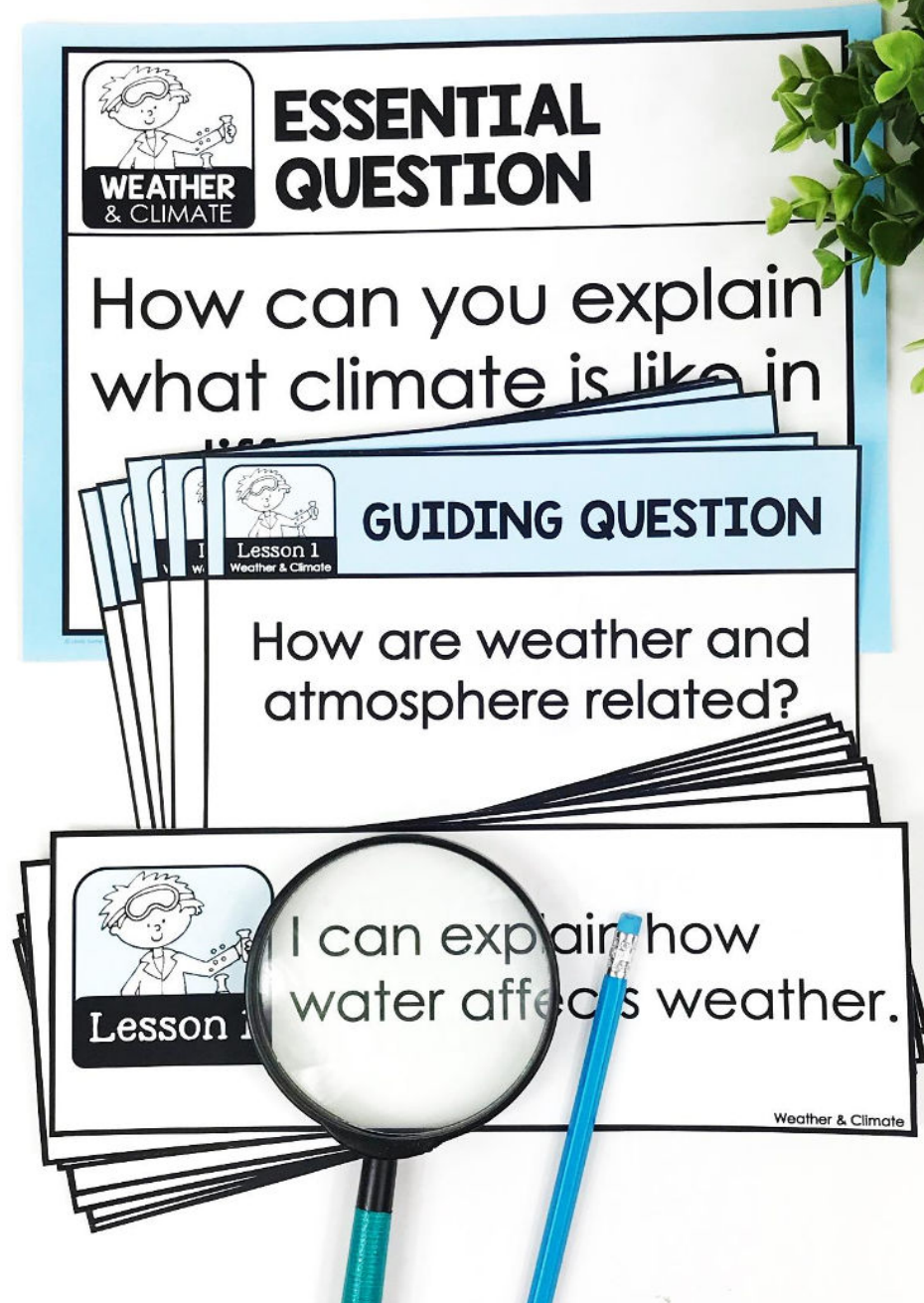
**Lesson 1**  
I can explain how water affects weather.  
Weather & Climate  
Weather & Climate

## Lesson Objective Cards

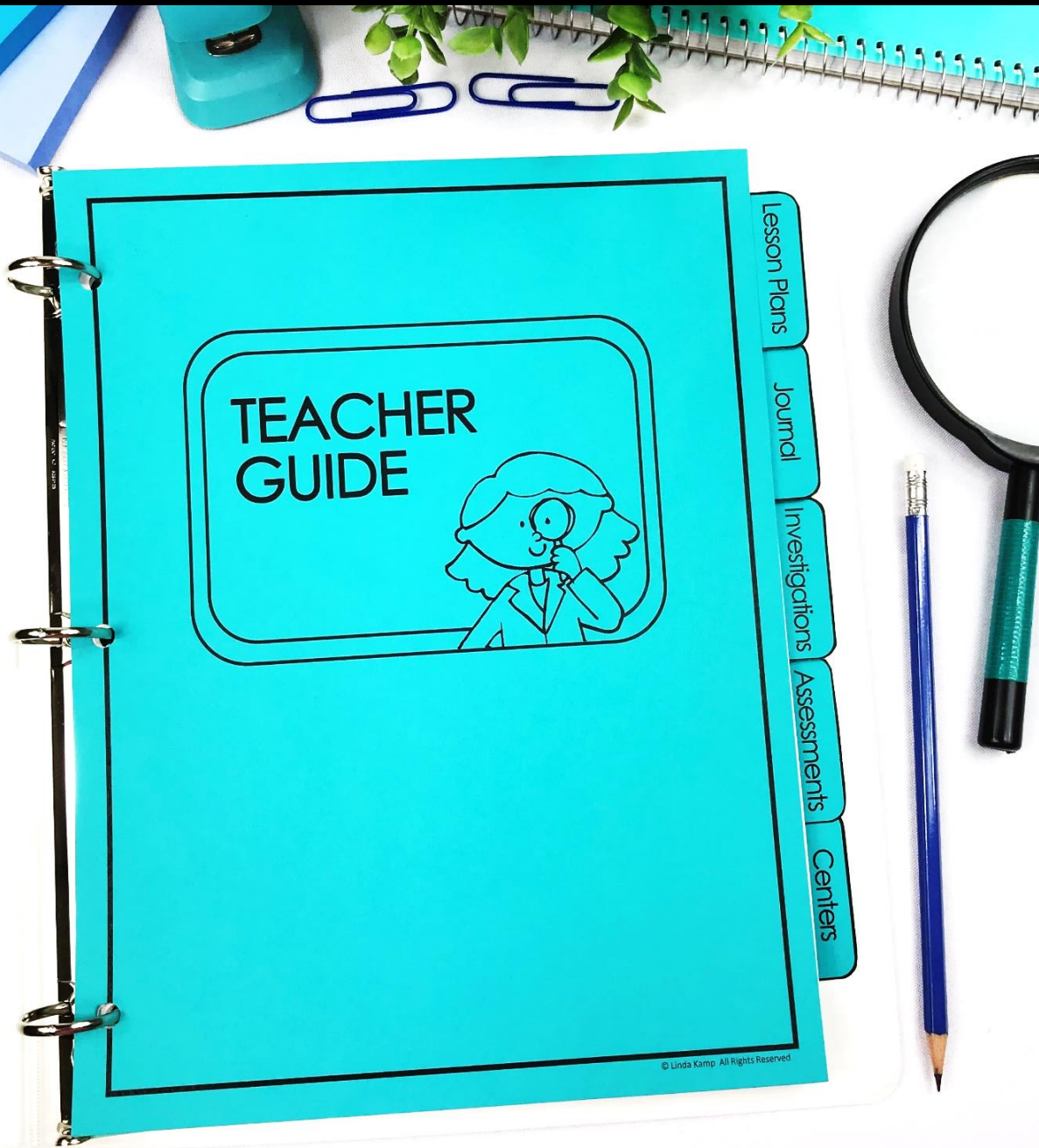
# FOCUS WALLS INCLUDE:

- Big Idea posters
- Guiding questions cards
- Objectives cards
- Vocabulary display cards

Each lesson closely aligns to the Next Generation Science Standards for Second Grade



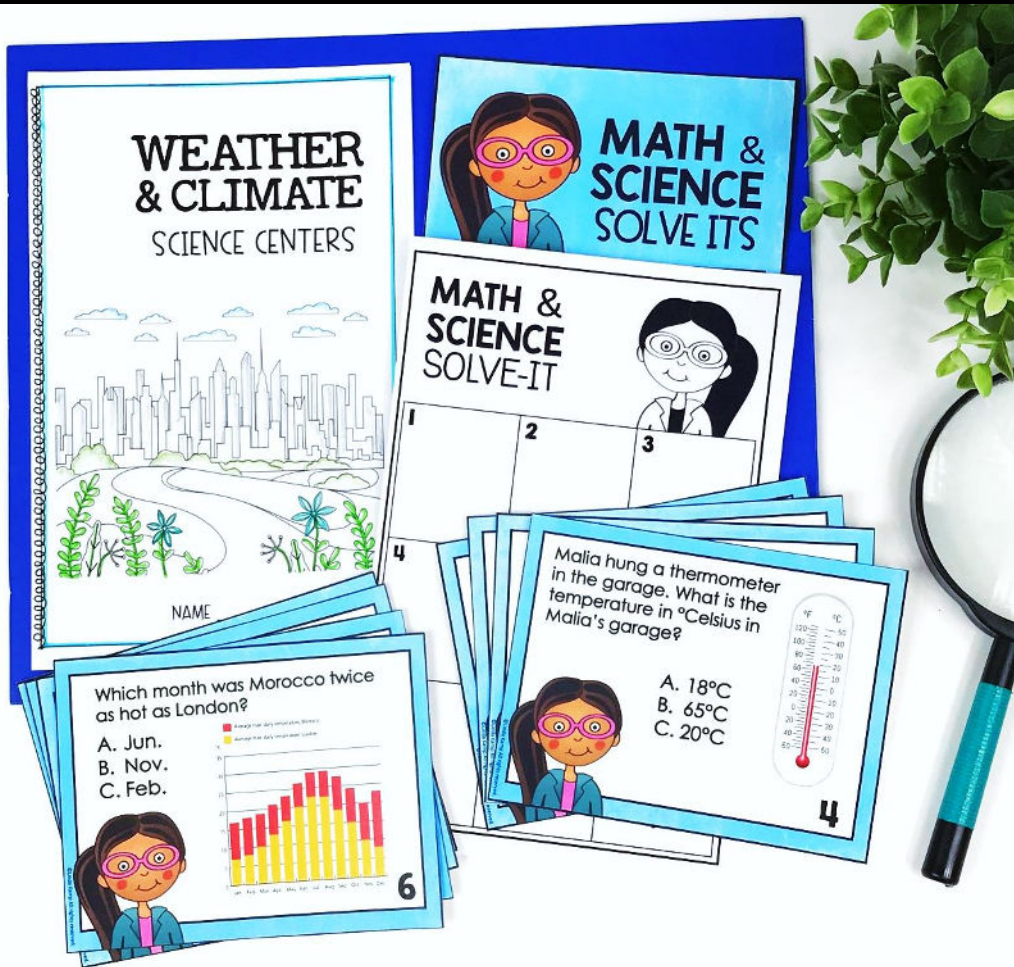
# UNIT PLANNING BINDERS



## UNIT BINDERS INCLUDE:

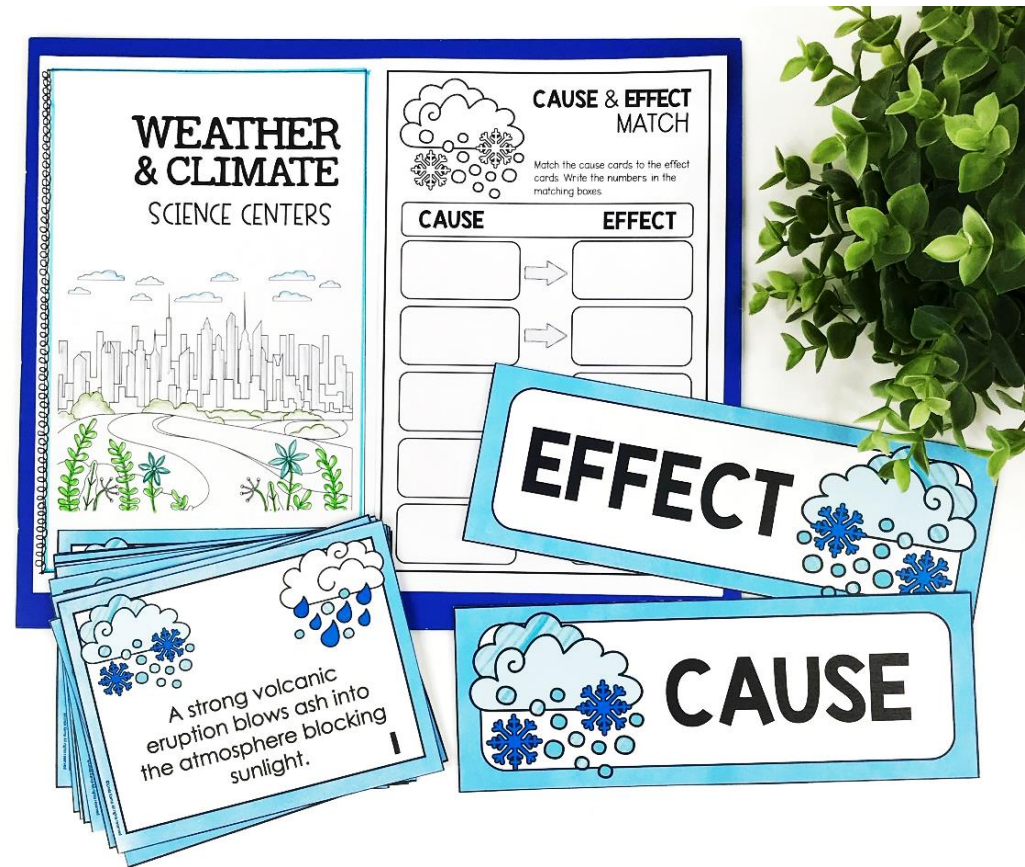
- Binder cover
- Spine label
- Divider tabs
- Section pages
  - lesson plans
  - student journal
  - science centers
  - assessments

# MATH & LITERACY-BASED EXTENSIONS



Practice math & reading skills

Reinforce science content

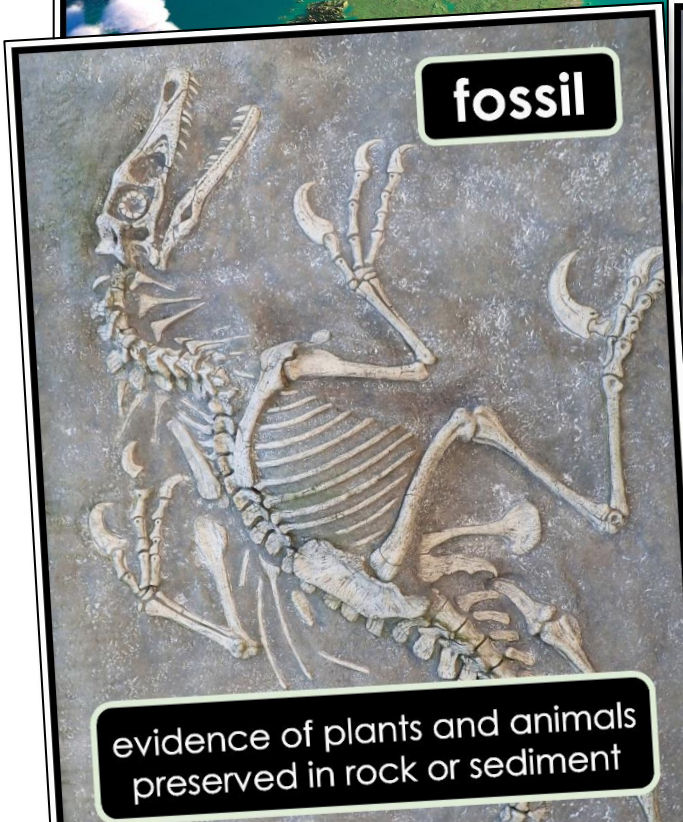


# VOCABULARY POSTERS & DIAGRAMS



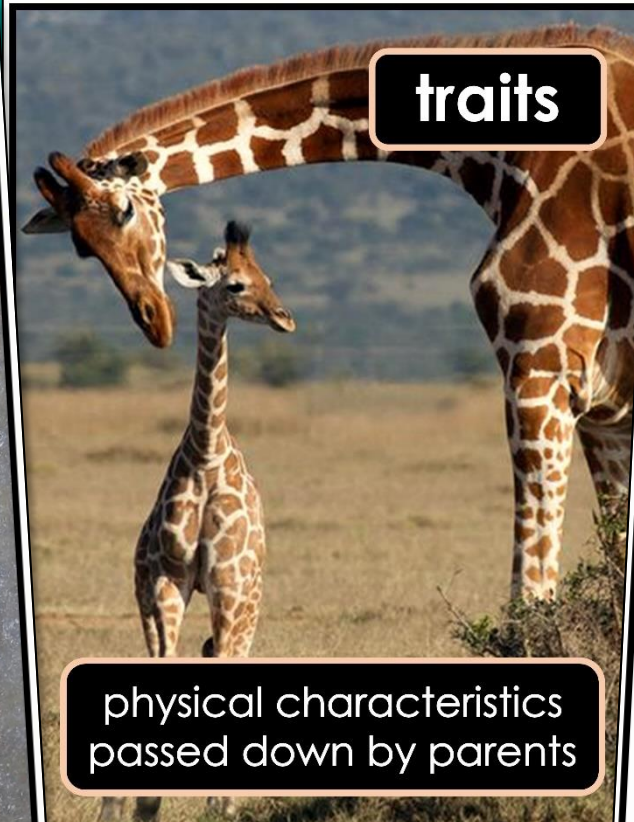
atmosphere

Each unit includes full-page vocabulary posters and diagrams



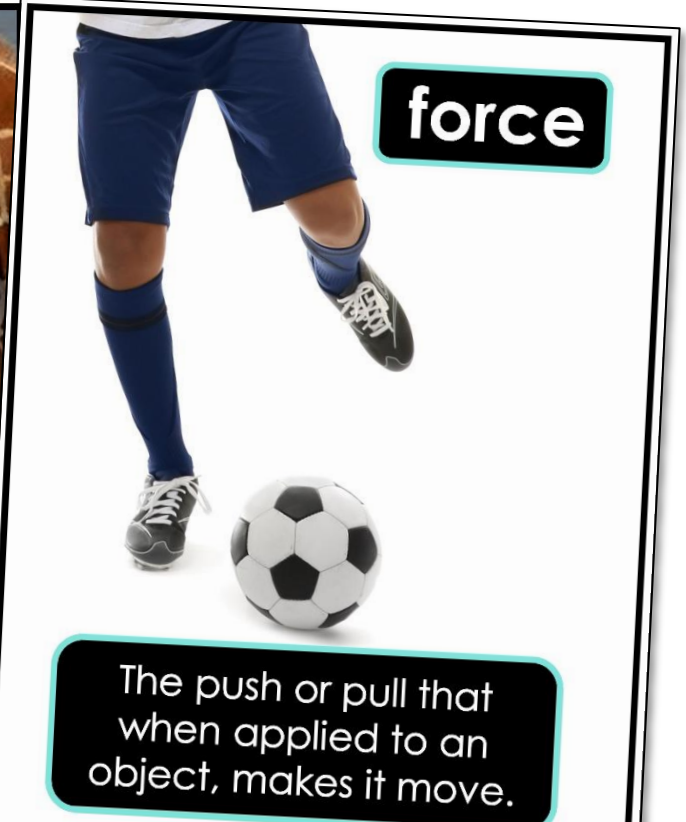
fossil

evidence of plants and animals preserved in rock or sediment



traits

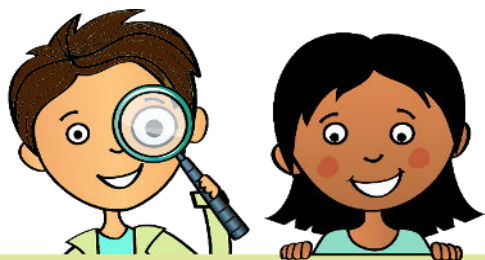
physical characteristics passed down by parents



force

The push or pull that when applied to an object, makes it move.

# BONUS BULLETIN BOARD DISPLAYS



**ENVIRONMENTS**  
Survival & Fossils

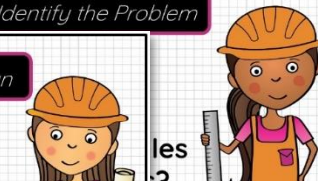
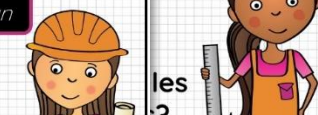




 **Guiding Questions**

 **Objectives**

 **Vocabulary**

 **Learning Targets**

<p><b>PLAN</b> <i>Draw a design</i></p> <ul style="list-style-type: none"><li>• Draw a diagram</li></ul>	<p><b>ASK</b> <i>Identify the Problem</i></p> 
<p><b>IMAGINE</b> <i>Brainstorm ideas</i></p> <ul style="list-style-type: none"><li>• Brainstorm ideas</li></ul>	<p><b>CREATE</b> <i>Follow your plan</i></p> <ul style="list-style-type: none"><li>• Follow your plan to build your design.</li></ul> 
<p><b>PRESENT</b> <i>Show others</i></p> <ul style="list-style-type: none"><li>• Share your design with others.</li><li>• Explain its parts.</li><li>• Share how it solves a problem.</li></ul> 	<p><b>IMPROVE</b> <i>Make it better</i></p> <ul style="list-style-type: none"><li>• What works in your design?</li><li>• What doesn't work?</li><li>• How could your design be better?</li></ul> 

Title letters & unit themed elements

# BUILD A SCIENCE FOUNDATION

## Third Grade NGSS SCIENCE BUNDLE

Science  
PROCESSES

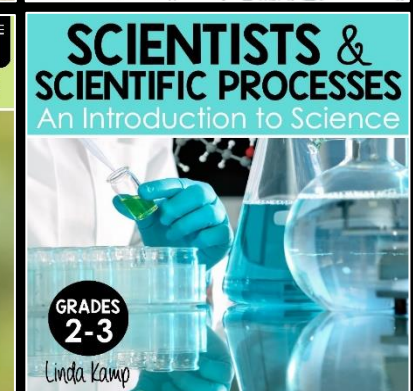
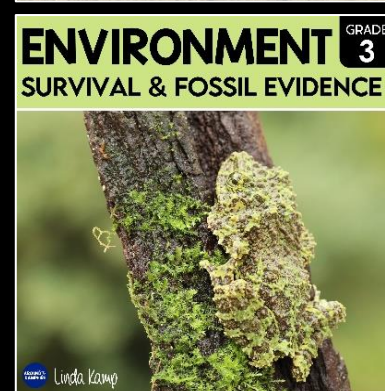
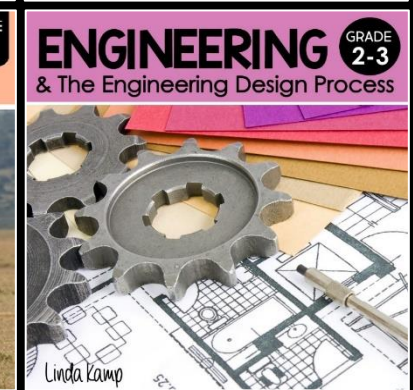
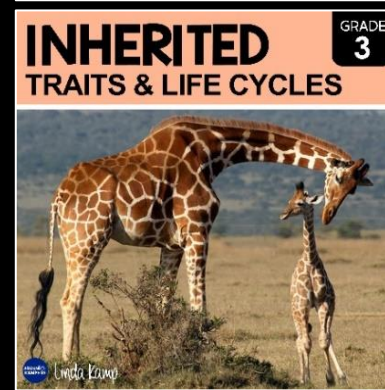
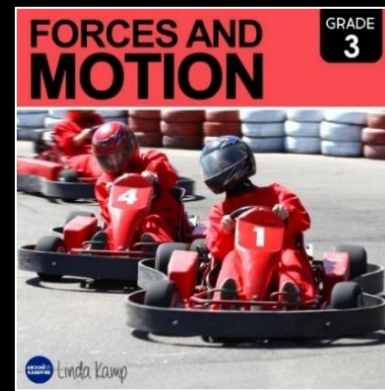
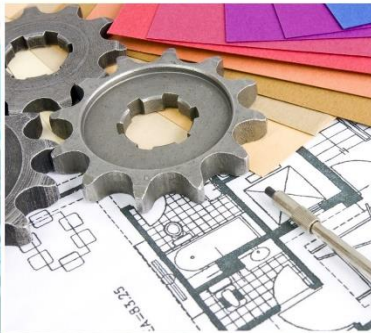
Forces &  
MOTION

Weather &  
CLIMATE

Environment &  
SURVIVAL

Inherited  
TRAITS

Engineering  
DESIGN



YEARLONG CURRICULUM

# YEARLONG CURRICULUM BUNDLE