

Second Grade Independent Projects

Hello Students, Families and Caregivers,

This resource packet includes multiple projects that students can work on at home independently or with family members or other adults. Each project can be completed over multiple days, and the projects can be completed in any order.

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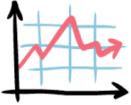
Second Grade Literacy Project: That's a fact! ...Or is it?

Estimated Time	Total Time 90 minutes
Grade Level Standard(s)	<p>W.2.1. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., <i>because, and, also</i>) to connect opinion and reasons, and provide a concluding statement or section.</p> <p>RI.2.5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.</p>
Caregiver Support Option	<ul style="list-style-type: none"> • Write the words “fact” and “opinion” all over a ball, toss the ball back and forth. Whatever word (fact or opinion) your thumb lands closest to, make that kind of statement. • Label two buckets / trash cans “fact” and “opinion.” Have your student write either a fact or an opinion on pieces of scrap paper. Crumple them up and have a “snowball fight.” Afterward, have students retrieve the snowballs, uncrumple them, and decide whether they are a fact or an opinion and place them in the correct bucket. • If technology is accessible, students can record a video of themselves reviewing a book or movie.
Materials Needed	<p>Needed:</p> <ul style="list-style-type: none"> • Pencil • Paper • Scissors • Crayons <p>Optional:</p> <ul style="list-style-type: none"> • Device/Internet to watch learning videos / record work.
Question to Explore	How are facts and opinions different?
Student Directions	See instructions for each activity below.

Activity 1: Let's Explore

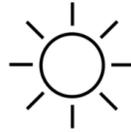
What is a FACT?

Facts can be proven. We can find facts by doing research.



FACT:

Plants need sunlight and water to survive.



What is an OPINION?

An OPINION is what you think or feel. It can not be proven.



OPINION:



Plants are so cool!



I love plants!

Fact or Opinion?

Color the FACTS red. Color the OPINIONS blue.

Dogs are better than cats.

There are 365 days in a year.

I like ice cream.

Soccer is fun.

$$35 + 23 = 58$$

The White Horned Rhino is an endangered species.

Reading every day helps you learn.

Pandas are adorable.

The light will turn on if you flip the switch.

Pizza is the best food!

Activity 2: Let's Write and Move

- A. On a blank piece of paper, write one fact and one opinion about the picture below.



- B. Read the sentence. Decide if it is a fact or an opinion and circle your answer. If it is a fact, do three jumping jacks. If it is an opinion, do two toe-touches.

- | | | | |
|---|------|----|---------|
| 1. Yellow is the best color of all. | Fact | or | Opinion |
| 2. Humans must drink water every day. | Fact | or | Opinion |
| 3. An elephant can weigh over 100 pounds. | Fact | or | Opinion |
| 4. Everyone should play basketball. | Fact | or | Opinion |
| 5. $37 + 41 = 78$ | Fact | or | Opinion |
| 6. I think pandas are fluffy and cute. | Fact | or | Opinion |
| 7. Pandas are black and white. | Fact | or | Opinion |
| 8. Flowers are beautiful. | Fact | or | Opinion |
| 9. Snakes are terrifying. | Fact | or | Opinion |
| 10. Snakes are a type of reptile. | Fact | or | Opinion |
| 11. Spring is my favorite season. | Fact | or | Opinion |
| 12. Many baby animals are born in spring. | Fact | or | Opinion |

Activity 3: Let's Read

- A. Read the article. **Circle** the **facts**. Underline the opinions.

Introduction

LeBron James is a pro basketball player. He has been a top scorer in the **NBA** for many years. He is one of the greatest basketball players of all time.

Early Life

LeBron was born on December 30, 1984. He was an amazing basketball player in high school. Famous **NBA** players went to Ohio to watch him play.

NBA Star

In 2003, the Cleveland Cavaliers **drafted** LeBron with the first pick. In his first season, he was named **Rookie** of the Year. He led his team to the playoffs many times and was named MVP twice.

Becoming a Champion

LeBron joined the Miami Heat in 2010. He led the team to two **NBA championships**. LeBron returned to Cleveland in 2014. He joined the Los Angeles Lakers in 2018.

Contribution

LeBron is active in social issues and charities. He supports education and human rights. LeBron fights against childhood hunger and cancer. He also set up college **scholarships** for kids in Ohio.

Article source: <https://site.pebblego.com/modules/3/categories/3717/articles/8442>

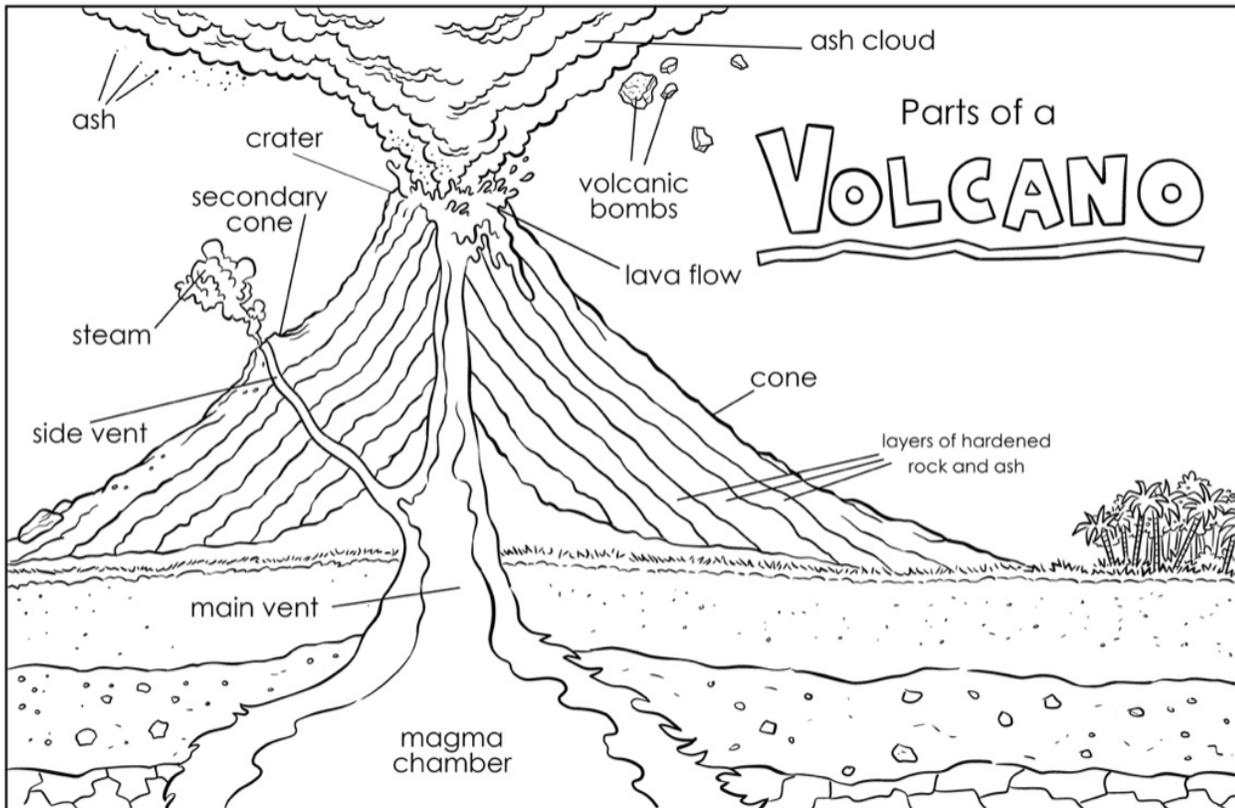
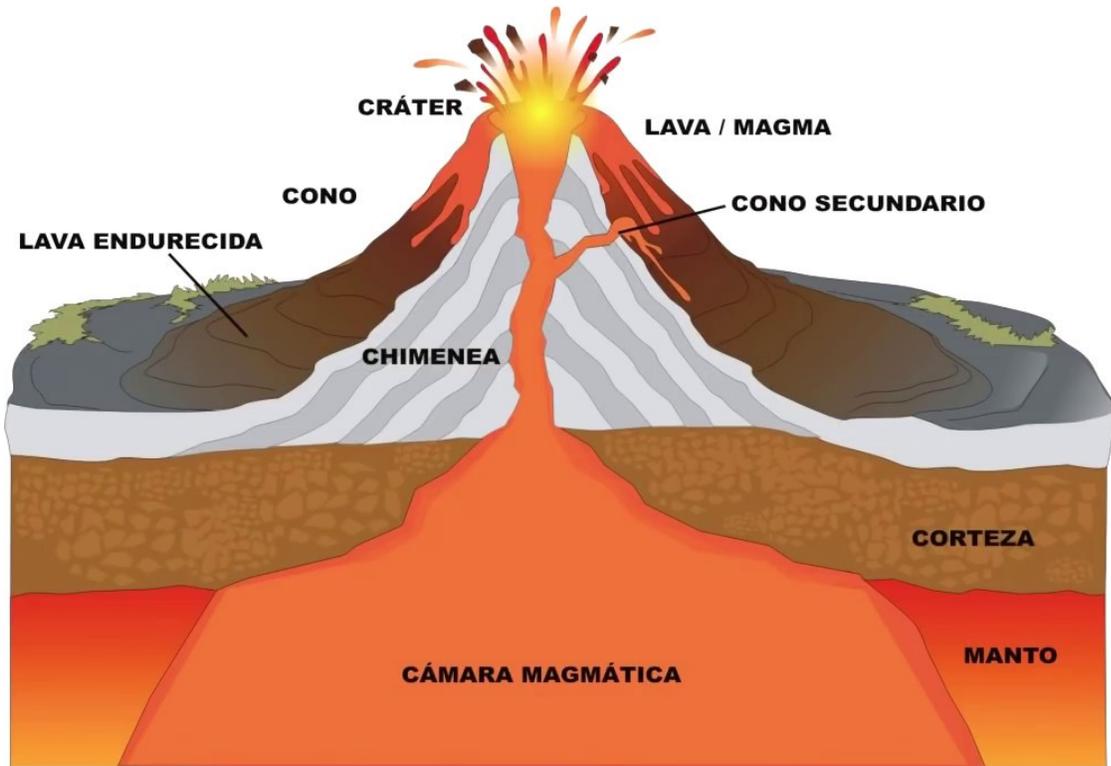
- B. On a blank piece of paper, write a summary of why LeBron James is important. Use at least 5 sentences. Hint: Use transition words (because, and, also, first, next, finally).

Activity 4: Let's Read, Write, and Move

- A. Read a book you have at home. Review it out of 5 stars. With 1 star meaning you like it the least and 5 stars meaning you like it the most. Include at least 3 reasons that support your review. After you've written it, read it aloud as if you are in a commercial trying to convince someone else to read or not read the book. If technology is available, record yourself! **KEY WORDS: Because, also, and, first, next, finally**

Activity 5: Let's Explore and Move

- A. Hunt around your house for an object that is special to you. Make a diagram of it. Remember, a diagram is a detailed drawing that includes labels. Here is an example of a diagram:



- B. On a blank piece of paper, write three facts and three opinions about your special object.
- C. On a blank piece of paper, answer the following prompts:
- What does your object look like?
 - What does your object feel like?
 - How do you use your special object?
 - What makes your object special?

Activity 6: Let's Write

- A. When you use a simile, you compare two things using the words "like" or "as." For example, the sidewalk feels as hot as the sun. Write similes to further describe your object.

_____ is as tall as a _____.

_____ is as heavy as a _____.

_____ sounds like a _____.

_____ feels like _____.

Activity 7: Let's Create

- A. Make a brochure all about your special object.
- Fold your paper into 3 sections.
 - On the first page, make a creative title.
 - On the second page, make a diagram of your object.
 - On the third page make the heading: Facts. Write three facts about your object.
 - On the fourth page make the heading: Opinions. Write three opinions about your object.
 - On the fifth page, make the heading: Simile. Choose your favorite simile about your object. Write it and draw a picture to go with it.
 - On the sixth page, make the heading: All About the Author. Draw a picture of yourself and write two facts and one opinion about yourself.
 - Share the brochure with someone in your home!

Cross Content Connection:

Optional Math Extension

If you have a ruler or tape measure, use it to measure your special object.

- How long is your object in inches and centimeters?
- How tall is your object in inches and centimeters?
- How wide is your object in inches and centimeters?

Optional Movement Extension: Snowball Fight!



1. Find 2 bins/baskets/trash cans etc. and label them "fact" and "opinion."
2. Take a piece of paper and tear / cut it into 10 scraps.
3. On each piece of paper write a fact or an opinion.
4. Crumple the paper into a little ball.
5. Have a snowball fight for 30 seconds with the crumpled papers.
6. Pick up the papers and uncrumple them.
7. Decide if it is a fact or opinion.
8. Sort the papers into the "Fact" or "Opinion" bin!

Optional Movement Extension: Ball Toss

1. Find a ball at home that you wouldn't mind writing on.
2. Write "fact" and "opinion" all over the ball.
3. Toss the ball back and forth with a sibling or parent.
4. Find whatever word your left thumb lands closest to (fact or opinion).
5. Make that kind of statement.

Optional Math and Movement Extension: True or False?

Read the inequality. Decide if it is true or false. If it's true, hop 5 times. If it's false, do 1 push-up.

Inequality	True or False
$34 > 57$	
$12 < 29$	
$123 = 123$	
$365 > 335$	
$417 > 471$	
$567 = 576$	

Additional Optional Resources

Fact and opinion video:

https://www.youtube.com/watch?v=Flyt5pEcE_g

More facts and opinions:

<https://jr.brainpop.com/readingandwriting/communication/factsandopinions/>

Opinion writing:

<https://www.youtube.com/watch?v=KEK2oGBSsHk>

More info on LeBron James:

<https://site.pebblego.com/modules/3/categories/10213/articles/8442>

Second Grade Math Project: Working with Numbers

Estimated Time	Total Time 60 - 70 minutes
Grade Level Standard(s)	2.OA.A: Represent and solve problems involving addition and subtraction. 2.OA.B: Add and subtract within 20. 2.NBT.A: Understand place value. 2.NBT.B: Use place value understanding and properties of operations to add and subtract.
Caregiver Support Option	Students may need support from family members with reading the directions. Caregivers may also have to provide information such as the child's weight (Activity #1).
Materials Needed	pencil, paper, scissors
Question to Explore	<ul style="list-style-type: none">• How can numbers be expressed, ordered, and compared?• Which number is greater/less? How do you know?• What are different ways you can show a number?• Can you explain your thinking?• Can you sequence the numbers from greatest to least? From least to greatest?
Student Directions	Each activity has directions for you to follow.

Day 1

Apple Farm Field Trip:

63 second graders are going on the field trip. 19 parents will also go. How many people are going on the field trip? Show how you know your answer is correct.

_____ people

The Apple Farm is 29 miles away from school. They have traveled 13 miles so far. How many more miles do they have to go? Show how you know your answer is correct.

_____ miles

Time to leave! 36 students got on the bus. They waited until all 63 students were there. How many students

were late to the bus? Show how you know your answer is correct.

_____ students

Day 2

Saving Money:

Louis wants to give \$15 to help kids who need school supplies. He also wants to buy a pair of shoes for \$49.

- a. How much money will he have to save for both? Show your work.

- b. Louis gets \$5 a week for his allowance. He plans to save his allowance every week. How many weeks does it take him to reach this goal? Show your work.

- c. Louis remembers his sister's birthday. He sets a goal of saving \$16 for her gift. How many weeks does he have to save his allowance to reach this goal? Show your work.

Day 3

Representing Numbers About Me:

In this activity, students will show numbers in different ways and identify the special numbers that make them unique.

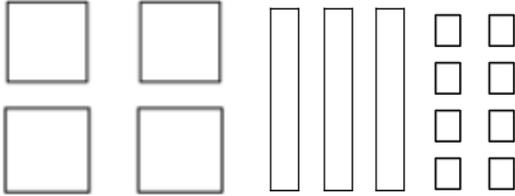
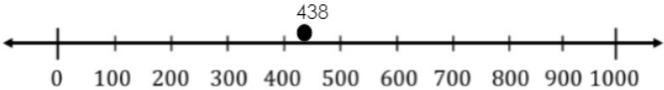
Directions: Answer the questions in each box. Your answer cannot be written using a single number. Be creative and represent the number using pictures, words, equations, or symbols.

How old are you?	How many letters are there in your first and last name?	What is your classroom number?
How many people live in your household?	What is your favorite number?	How many jumping jacks can you do in one minute?
How much do you weigh?	What is your shoe size?	How many pets do you wish you could have?

Day 4

Looking at Numbers Every Which Way:

In this activity, students will write a number in different ways. See the example below. Use paper and pencil to complete.

438	
Written as a sum of 100's, 10s and 1's $400 + 30 + 8$	Written in words Four hundred thirty-eight
Written as a picture 	Written on a number line 

Directions: Represent each number given in four different ways.

a. 127

- Write it as a sum of 100's, 10's and 1's.
- Write its name in words.
- Draw a picture to represent the number.
- Locate it on the number line.

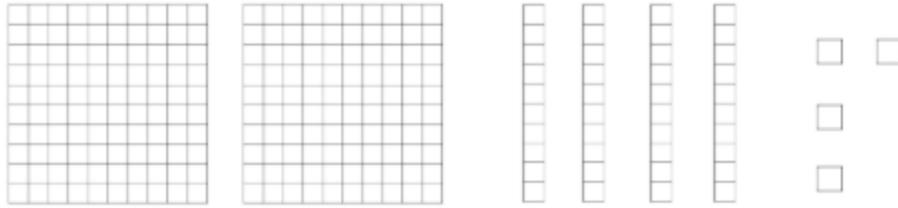
b. $500 + 60 + 8$

- Write it as a three-digit number.
- Write its name in words.
- Draw a picture to represent the number.
- Locate it on the number line.

c. Six hundred and nine

- Write it as a three-digit number.
- Write its name in words.
- Draw a picture to represent the number.
- Locate it on the number line.

- d. The picture represents a number. The big square represents 100, the rectangle represents 10, and the small square represents 1.



- Write it as a three-digit number.
- Write it as a sum of 100's, 10's, and 1's.
- Write its name in words.
- Locate it on the number line.

Day 5

What is the Value of the Place?:

Directions: Circle all the ways the number can be represented. Explain your thinking for each choice.

243	
A) 2 tens and 43 ones	B) 243 ones
C) 2 hundreds and 403 ones	D) 24 tens and 3 ones

487	
C) 48 tens and 7 ones	D) 43 ones
C) 2 hundreds and 287 ones	D) 4 tens and 87 ones

763	
E) 76 tens and 3 ones	F) 763 ones
C) 7 hundreds and 63 ones	D) 7 tens and 63 ones

Day 6

Ordering 3 Digit Numbers:

Directions: Arrange each set of numbers below.

1. Arrange the following numbers from least to greatest.

476 647 74 674 467

2. Arrange the following numbers from greatest to least.

326 362 63 623 632

Day 7:

Numbers Hunt:

Directions: Numbers are all around us. Look around your home for five items that have a label. For each item, select one number from the label, for example a soup can may have the number 380 on the label. Write the name of the item and the number on the label in the boxes below.

Item _____	Item _____	Item _____	Item _____	Item _____
Number on label _____				

Arrange the numbers you found from least to greatest.

--	--	--	--	--

Day 8

Carol's Numbers:

Carol has three number cards.



What is the largest three-digit number Carol can make with her cards? _____

What is the smallest three-digit number Carol can make with her cards? _____

Make another three-digit number with Carol's cards. _____

Directions: Take a sheet of paper and cut it into 9 squares. Write one number on each card from 1-9. Place the cards in a pile face down. Pull one card at a time and place it in the boxes below.

--	--	--

What is the largest three-digit number you can make with your cards? _____

What is the smallest three-digit number you can make with your cards? _____

Make another three-digit number with your cards. _____

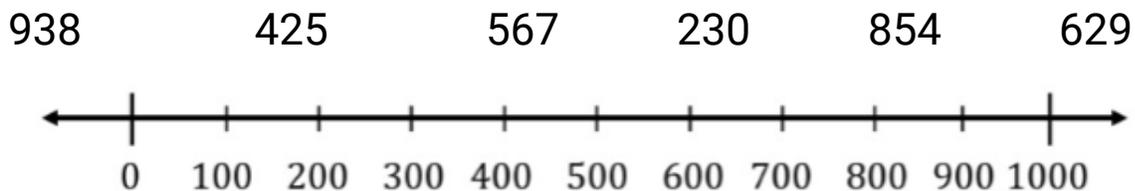
Arrange the three numbers above from greatest to least.

_____ > _____ > _____

Day 9

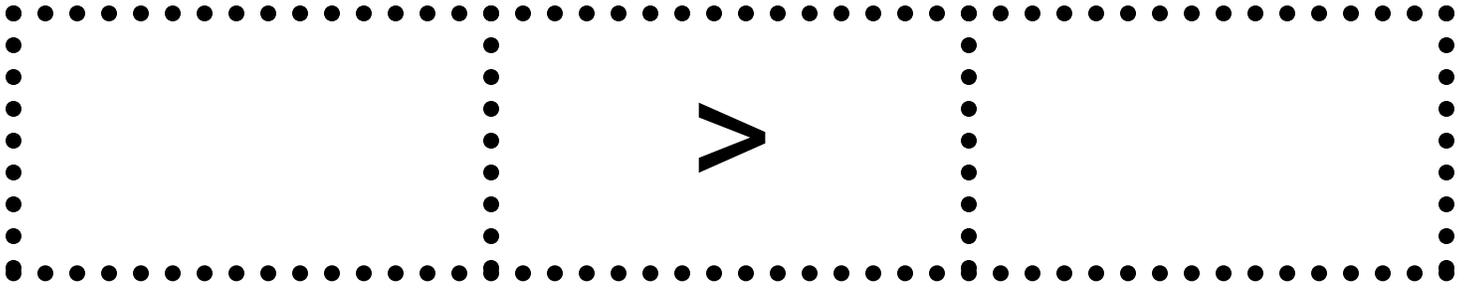
Using Number Lines and Pictures to Compare Numbers:

Directions: Plot the numbers below on the number line. Then choose two numbers and compare them using the symbols $<$ and $>$. Continue with another pair of numbers until all numbers have been used.



_____ $<$ _____ _____ $>$ _____

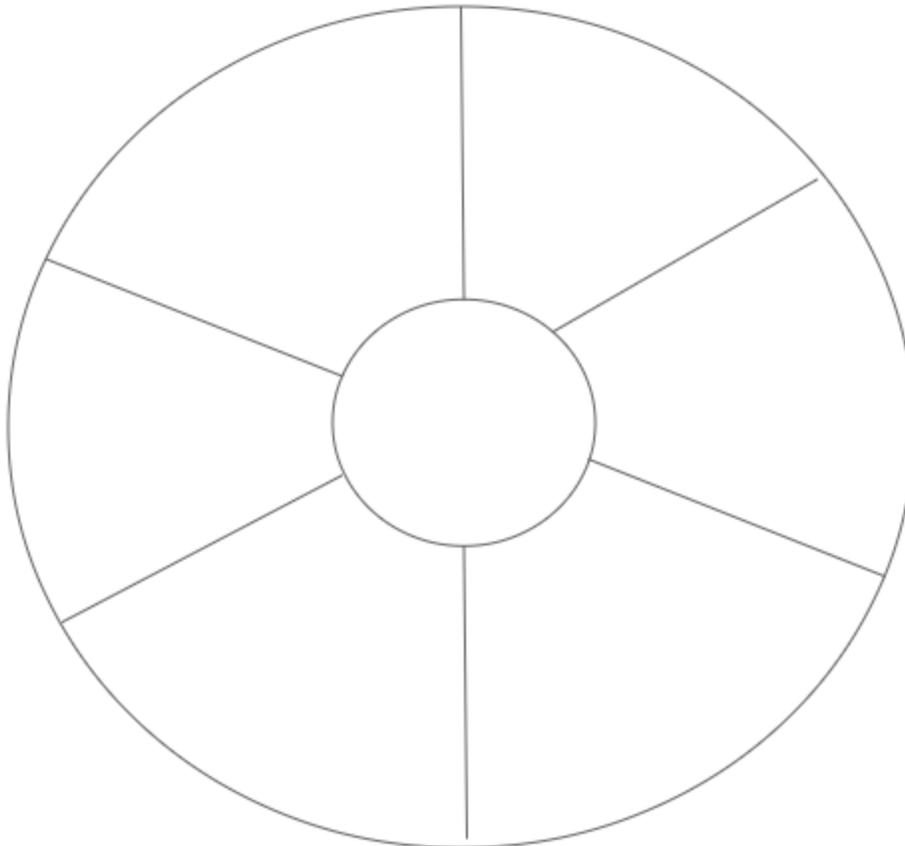
Now select two pairs of numbers to compare using pictures. (For example, if you selected 230, draw a picture showing two hundreds and 3 tens or two hundreds and 30 ones.)



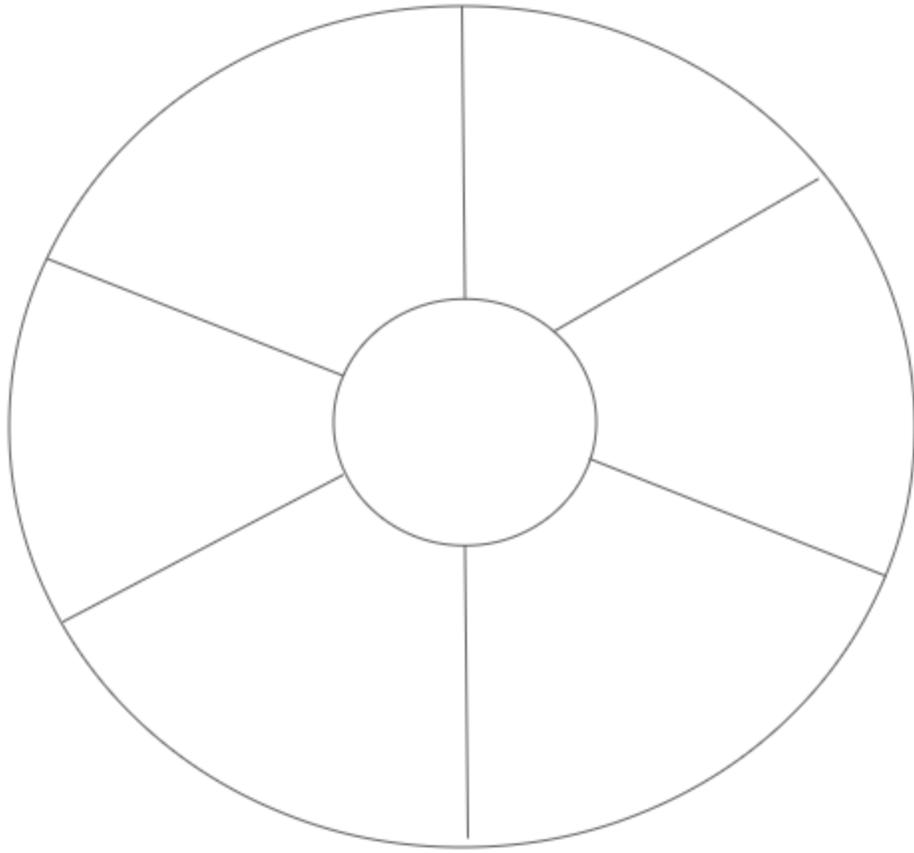
Day 10

Reflection: Number Concept Circles

Directions: Using your number cards from the previous activity, select four cards. Make two sets of two-digit numbers, for example, 36 and 24. Using the concept circles diagram below, place each number in the center of the circle. For each number, think of multiple ways to represent each number. Place each representation in a separate section. (For example, for 36 you could draw 3 tens and 6 ones in one section, draw 36 tally marks in another, etc.)



Repeat the activity from above with a different number here.



Cross-Curricular Connection:

April is National Poetry Month. Write a poem below about Math or numbers. The poem can be about your favorite number or a counting poem about your favorite things. After writing your poem, draw a picture to match.

Title: _____



Second Grade Science Project: Habitats Around the World!

Estimated Time	Total: 60-70 Minutes
Grade Level Standard(s)	2-LS4-1 . Make observations of plants and animals to compare the diversity of life in different habitats.
Caregiver Support Option	Support is optional, but recommended for the following: <ul style="list-style-type: none">● reviewing activity directions● engaging in discussions with the students around the questions embedded in this project (siblings and other members of the household can be engaged in the dialogue as well)● serving as the audience for the final project presentation
Materials Needed	Paper, Pencil, Packet
Questions to Explore	What types of habitats exist? What types of living things (plants and animals) live in different habitats? Why do different animals live where they do? Why do different plants live where they do? How do habitats compare to one another?
Student Directions	Each activity has directions for you to follow.

Activity 1: What types of habitats exist? (10 min)

In this activity, we will be exploring different habitats around the world.

Instructions: Observe the pictures below and answer the questions in the table for each habitat.

Habitat	<u>Observations:</u> What do you notice (see)? Record 3 observations.	<u>Questions:</u> What do you wonder?
 <p>Photo by US Fish and Wildlife</p>	<p>Desert:</p> <ol style="list-style-type: none"> 1. 2. 3. 	
 <p>Photo by Brian Lasenby</p>	<p>Forest:</p> <ol style="list-style-type: none"> 1. 2. 3. 	
 <p>Photo by Darrell Gulin</p>	<p>Grasslands:</p> <ol style="list-style-type: none"> 1. 2. 3. 	
 <p>Photo by Thinglink</p>	<p>Ocean:</p> <ol style="list-style-type: none"> 1. 2. 3. 	
 <p>Photo by Keith Szafranski</p>	<p>Arctic Tundra:</p> <ol style="list-style-type: none"> 1. 2. 3. 	
<p>Which habitat is most interesting to you? Why?</p>		

Activity 2: Habitat Data (15-20min)

In this activity, we will explore data collected about these different habitats.

Instructions: Answer the questions below using the data in the tables.

Habitat	Average Rainfall Per Year	Questions: Answer on separate sheet of paper.
Desert	8 inches	<ol style="list-style-type: none">1. Which habitat(s) have the lowest average rainfall? How do you know?2. How much more rain do the grasslands get than the desert on average?3. If we collected all the rain from these habitats over a year, on average how many inches of rain would we collect?
Forest	45 inches	
Grasslands	30 inches	
Arctic Tundra	8 inches	

Habitat	Hottest Temperature Recorded	Questions: Answer on separate sheet of paper.
Desert	136 °F	<ol style="list-style-type: none">1. True or False: The hottest temperature on record is less for desert habitats than for grassland habitats. Explain how you know using evidence.2. Based on the table, how much warmer was the hottest temperature recorded for grasslands than forests? Explain how you know.3. How much colder is the hottest temperature recorded for the Arctic tundra than the grasslands? Explain how you know.4. Challenge: Create a bar graph to represent the different temperatures!
Forest	70 °F	
Grasslands	100 °F	
Arctic Tundra	54 °F (summer)	

Activity 3: Rain Forest or Desert? (35-40min)

Instructions: Read about the Amazon Rainforest and the Sonoran Desert below, and then answer the questions.

Reading 1: Amazon Rain Forest in Peru

Source: Amplify Science [Handbook of Habitats \(Spanish\)](#)

The Amazon rain forest in Peru is a very wet habitat. It rains there almost every day. Rivers run through the forest. It is often sunny, but the tallest trees block the light with their leaves. It is always shady on the ground under the trees. Many different types of plants and animals live in the rain forest habitat.

Amazon Rain Forest Plants	Amazon Rain Forest Animals
<p><u>Breadnut Trees</u> Breadnut trees are tall. Many animals, including humans, like to eat breadnut fruit. The fruit tastes a little bit like lemon. It has one big seed inside.</p> 	<p><u>Spider Monkeys</u> The Amazon rain forest is full of many different types of monkeys. Spider monkeys use their long limbs and their tails to climb trees. They mostly eat fruit, swallowing it whole. Spider monkeys will also eat leaves, seeds, insects, and bird eggs.</p> 
<p><u>Maranta Plants</u> These plants grow in the shade of the tall rain forest trees. Maranta plants have wide leaves to catch all the sunlight they can.</p> 	<p><u>Jaguars</u> Jaguars are large wild cats with spots. They hunt other animals for food and are usually awake at night.</p> 
<p><u>Orchid Plants</u> Many kinds of orchid plants actually grow on the branches of tall trees! By growing high up, these plants get the sunlight they need. These plants have bright flowers that attract insects and birds. Orchid seeds are some of the smallest seeds in the world.</p> 	<p><u>Macaws</u> The rain forest is home to many birds. Some of these birds are brightly colored, like the macaws. These large birds eat fruit and use their strong beaks to crack open seeds.</p> 
<p><u>Water Hyacinths</u> Not all plants grow in soil. Water hyacinths float in the water of rivers and lakes. They get plenty of sun there, away from the shady trees. Water hyacinths have purple flowers and very sticky seeds. Birds stand on these plants and hunt for fish.</p> 	<p><u>Egrets</u> Other birds get their food from the rivers. Egrets are white birds with long legs and long necks. They stand by the water and hunt for fish. Sometimes they stand on floating plants.</p> 

Reading 2: Sonoran Desert in Arizona

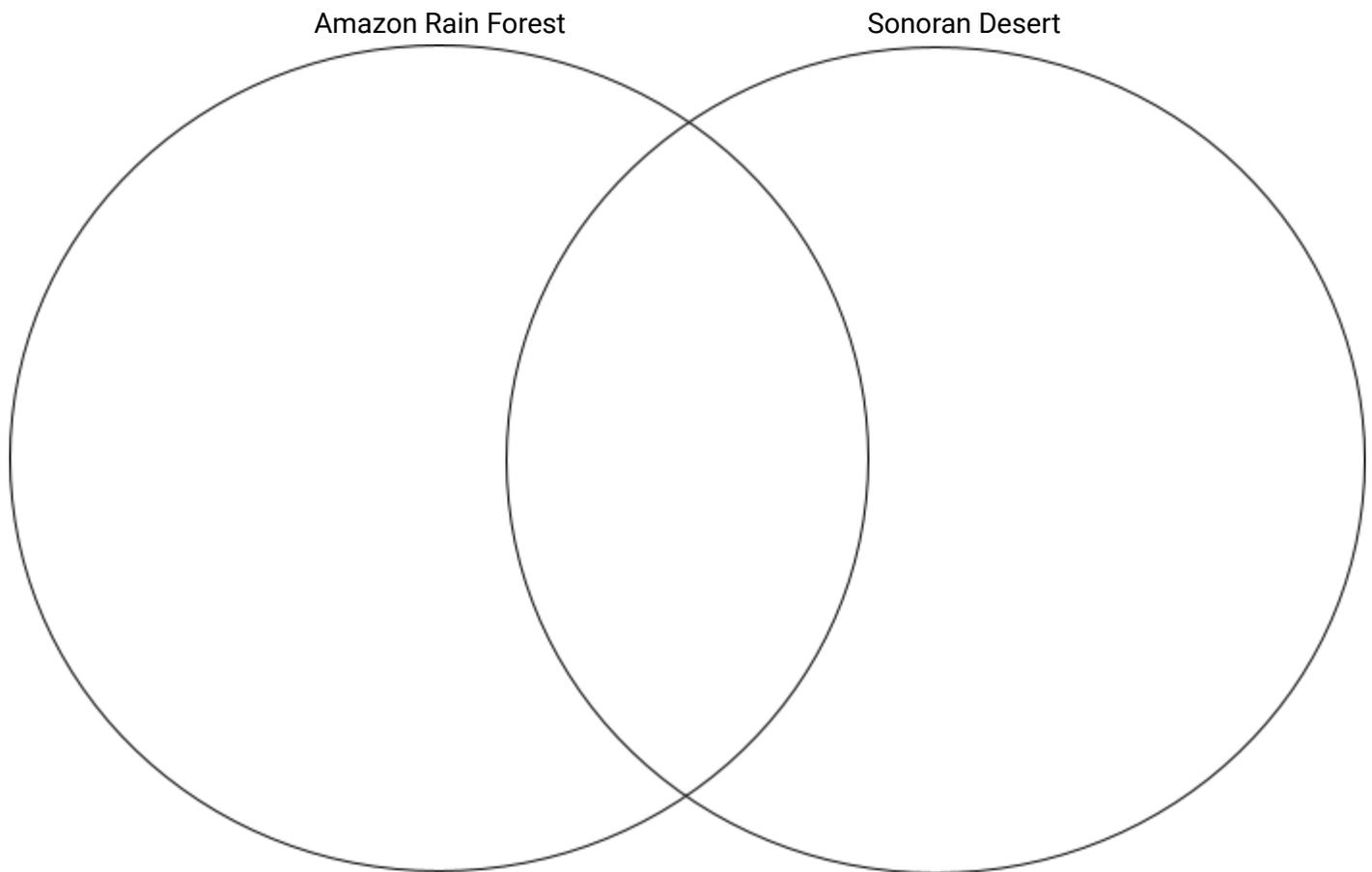
Source: Amplify Science [Handbook of Habitats \(Spanish\)](#)

The Sonoran Desert is a very hot and dry habitat. There are only a few rain storms every year. The Sonoran Desert stretches from Arizona and California in the United States into Mexico. Plants growing in the desert get very little water. They take in as much water as they can when it rains.

Sonoran Desert Plants	Sonoran Desert Animals
<p><u>Saguaro Cactuses</u> can get tall and grow many arms, but they grow very slowly. Its shallow roots spread out far to get water when it does rain. Saguaro cactuses do not have leaves. They get sunlight with their big green stems and arms. They make white flowers that attract bats. Saguaro cactus fruit has many seeds inside.</p> 	<p><u>Coyotes</u> look a lot like pet dogs. They eat plants and animals, including jackrabbits and mesquite seed pods.</p> 
<p><u>Mesquite Trees</u> are small trees that grow very deep roots. Their leaves are made of many tiny parts. Mesquite flowers are small and yellow, and they grow in groups. Mesquite trees need a lot of sunlight to grow. They cannot grow in areas that are very shady. The seeds of the mesquite tree form in long, thin seed pods that are eaten by many animals. Each seed pod has several seeds inside.</p> 	<p><u>Jackrabbits</u> are furry animals with big ears. They eat leaves from grasses, bushes, and trees such as mesquite. They also eat parts of saguaro cactuses if they cannot find other food.</p> 
<p><u>Palo Verde Trees</u> are small trees with smooth, green bark. Their leaves are very small and their flowers are yellow. Their seeds grow inside pods. Sometimes these pods get carried away from the plant during floods.</p> 	<p><u>Mule Deer</u> are large animals that can jump into the air. They eat grass and other plants. They also eat mesquite pods and other seeds.</p> 
<p><u>Tumbleweeds</u> are small shrubs. They have only grown in the Sonoran Desert since people brought them there by accident. When a tumbleweed makes seeds, the whole plant dries out and begins to roll in the wind, leaving its seeds everywhere.</p> 	<p><u>White-Winged Doves</u> are birds that are related to pigeons. White-winged doves eat fruits, seeds, and sometimes nectar from flowers. One of their favorite foods is saguaro cactus fruit.</p> 

Questions: Write your answers on a blank piece of paper.

1. Based on the information in Readings 1 and 2, would you prefer to visit the Amazon Rain Forest or the Sonoran Desert? Why?
2. Based on the two readings, what similarities and differences do you notice between the Amazon Rain Forest and Sonoran Desert?



3. What is one plant or animal in the Amazon Rain Forest that you think would not be able to survive in the Desert. Why? Use evidence from the text to explain your answer.
4. What is one plant or animal in the Sonoran Desert that you think would not be able to survive in the Amazon Rain Forest. Why? Use evidence from the text to explain your answer.
5. Final project:
 - a. Create your own poem, rap, comicstrip, or other form of writing to describe the similarities and differences between the Amazon Rain Forest and the Sonoran Desert.
 - b. Optional: present your final project to someone in your home. Ask them if they have any questions for you about habitats

Grade K-2 Social Science Project: Together when Apart

Estimated Time	Total Time 60 - 70 minutes
Grade Level Standard(s)	<p>SS.IS.2.K-2. Explore facts from various sources that can be used to answer the developed questions.</p> <p>SS.IS.3.K-2. Gather information from one or two sources with guidance and support from adults and/or peers.</p> <p>SS.IS.4.K-2. Evaluate a source by distinguishing between fact and opinion.</p> <p>SS.IS.5.K-2. Ask and answer questions about arguments and explanations.</p>
Caregiver Support Option	<p>Notes on the structure:</p> <ul style="list-style-type: none"> • Activities are designed to be done in order - each one builds on the other so you should not skip activities • Activities are an average of 15-20 mins each. More than one can be done in a day. <p>Before giving the activities to students, caregivers might:</p> <ul style="list-style-type: none"> • spend time reading and discussing the “student directions” together. Encourage them to ask any clarifying questions. • When reading the texts, students should circle or underline any unfamiliar words so you both can define them together <p>In this particular lesson, it’s important to note that:</p> <ul style="list-style-type: none"> • student(s) are developing coded messages, you might want to review the directions and the “Coding Code of Conduct” on p. 11 • Consider making your own coded message for them and ask your student to decipher • Ask them to share and explain their codes to you - on p. 10 students will review and revise their message. Consider using the examples provided to discuss and reflect on what can be better.
Materials Needed	Writing tool, paper
Question to Explore	How can we communicate with others to share our thoughts and ideas?
Student Directions	When we are separate, we have to find ways to communicate ideas, thoughts, and feelings. During certain periods of history, people have wanted to communicate with each other in ways that only friends and allies would understand. So they developed codes! In this weekly inquiry, students examine codes used in history, from the Culper Spy Ring to the use of Morse Code. Throughout the week, they’ll use their learning to develop their own code to communicate with friends near and far.

Day 1 (Activity 1): Examining Historical Codes (15-20 min)

This week we're thinking about the question:
"How can we communicate with others to share our thoughts and ideas?"

Your challenge this week:
Connect to someone using a "Coded Message."

Today you will:

- Examine historical codes
- Decode a message

You will need:

- Paper or notebook
- Writing tool

Let's Get Started! _____

A. THINK: Do you know what these mean?

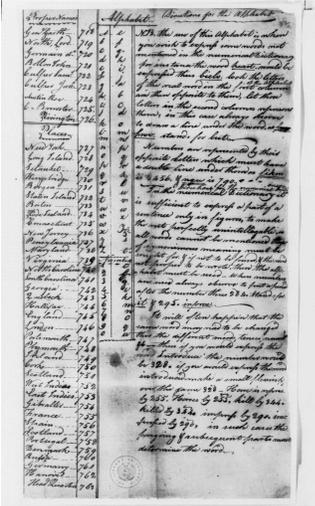


Guess what? You just cracked a code!

B. EXPLORE:

Many amazing codes have been used throughout history.

Code: a system of signals, letters, numbers, or symbols used to send messages, sometimes secretly

	<p>Culper Spy Ring Code from the American Revolution</p> <p>It may be hard for us to read this writing, but in 1778 this code was used to send secret messages to George Washington during the Revolutionary War. It has 763 numbers that are code for different words, names, and places.</p>																																																																																
<p>International Morse Code</p> <ol style="list-style-type: none"> 1. The length of a dot is one unit. 2. A dash is three units. 3. The space between parts of the same letter is one unit. 4. The space between letters is three units. 5. The space between words is seven units. <table border="0"> <tr> <td>A</td><td>• —</td> <td>U</td><td>• • • —</td> </tr> <tr> <td>B</td><td>• • • —</td> <td>V</td><td>• • — —</td> </tr> <tr> <td>C</td><td>• — • •</td> <td>W</td><td>• — • •</td> </tr> <tr> <td>D</td><td>• — • •</td> <td>X</td><td>• — • —</td> </tr> <tr> <td>E</td><td>• • • •</td> <td>Y</td><td>• — • • •</td> </tr> <tr> <td>F</td><td>• • • •</td> <td>Z</td><td>• — • — •</td> </tr> <tr> <td>G</td><td>• — • •</td> <td></td><td></td> </tr> <tr> <td>H</td><td>• • • •</td> <td></td><td></td> </tr> <tr> <td>I</td><td>• • • •</td> <td></td><td></td> </tr> <tr> <td>J</td><td>• — • • •</td> <td>1</td><td>• — — — —</td> </tr> <tr> <td>K</td><td>• — • —</td> <td>2</td><td>• • • — —</td> </tr> <tr> <td>L</td><td>• — • • •</td> <td>3</td><td>• • • — —</td> </tr> <tr> <td>M</td><td>• — — —</td> <td>4</td><td>• • • • —</td> </tr> <tr> <td>N</td><td>• — • —</td> <td>5</td><td>• • • • •</td> </tr> <tr> <td>O</td><td>• — — —</td> <td>6</td><td>• — • • •</td> </tr> <tr> <td>P</td><td>• • — • —</td> <td>7</td><td>• — • • •</td> </tr> <tr> <td>Q</td><td>• — • — •</td> <td>8</td><td>• — • • •</td> </tr> <tr> <td>R</td><td>• • — • —</td> <td>9</td><td>• — • • •</td> </tr> <tr> <td>S</td><td>• • • —</td> <td>0</td><td>• — — — —</td> </tr> <tr> <td>T</td><td>• — • •</td> <td></td><td></td> </tr> </table>	A	• —	U	• • • —	B	• • • —	V	• • — —	C	• — • •	W	• — • •	D	• — • •	X	• — • —	E	• • • •	Y	• — • • •	F	• • • •	Z	• — • — •	G	• — • •			H	• • • •			I	• • • •			J	• — • • •	1	• — — — —	K	• — • —	2	• • • — —	L	• — • • •	3	• • • — —	M	• — — —	4	• • • • —	N	• — • —	5	• • • • •	O	• — — —	6	• — • • •	P	• • — • —	7	• — • • •	Q	• — • — •	8	• — • • •	R	• • — • —	9	• — • • •	S	• • • —	0	• — — — —	T	• — • •			<p>Morse Code</p> <p>This code was created to send messages by telegraph, which is a way to send sound messages far away through a wire. It uses short and long sounds (called dots and dashes) to make letters and numbers. It was used more often in the 1800s and 1900s.</p>
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	<p>Binary Code</p> <p>This is a way for computers and electronics to talk to each other. It is made up of two numbers: "1" and "0." Putting these numbers together in different ways is how computers send messages and information.</p>																																																																																

C. DO:

Your challenge this week:

Connect to someone using a “Coded Message.”

Today, you will read some coded messages!

DIG DEEPER

Want to learn more about codes?

You can read about the pigpen cipher, which turns a tic-tac-toe board into an easy-to-use and memorable code!

https://en.wikipedia.org/wiki/Pigpen_cipher

Day 2 (Activity 2): Developing Your Code (15-20 min)	
This week we’re thinking about the question: "How can we communicate with others to share our thoughts and ideas?"	Your challenge this week: Connect to someone using a “Coded Message.”
Today you will: <ul style="list-style-type: none">• Learn about Morse code• Create your “Coded Message”	You will need: <ul style="list-style-type: none">• Paper or notebook• Writing tool

Let’s Get Started! _____

A. THINK

Before telephone, television, or internet, how do you think people might have sent messages across a great distance?

B. EXPLORE

OPTIONAL: Watch the video to hear each letter of the alphabet in Morse code, one of the most famous codes in the world! https://www.youtube.com/watch?v=6PRY-LczCB4&feature=emb_title

Read on to learn more about Morse code.



Morse code is named after Samuel Morse, who helped invent it more than 200 years ago.



A telegraph is used to make and send the sounds used in Morse code.



People everywhere can use Morse code. It can be as easy as flashing a light or making sounds to represent the dashes and dots that make each letter.

C. DO

Keep in mind your challenge this week: Connect to someone using a “Coded Message.”

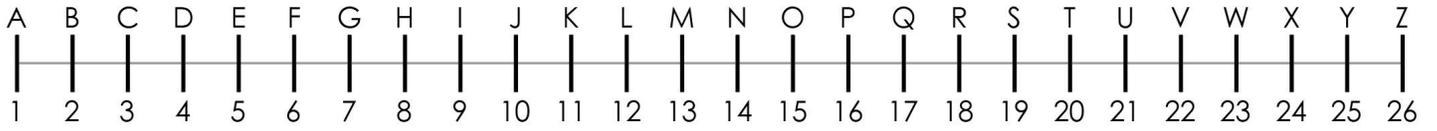
Today, you will create your first draft of your “Coded Message.”

Your “Coded Message” should:

- Tell who you would like to communicate with
- Explain why it’s important to communicate with this person
- Include a message that can be decoded using the suggested number line code below or by making up your own code! (You may use the “Drafting Template” handout to write out your idea.)

Be sure to save the draft of your “Coded Message” so you can work on it next time!

Number Line Code:



Make Your Own Code:

A	B	C	D	E	F	G

H	I	J	K	L	M	N

O	P	Q	R	S	T	U

V	W	X	Y	Z

Drafting Template

I want to say "Hi" to: _____

Because: _____

Write your message here using **regular words**. Remember to leave a space between words!

Change your message to **code** here! Remember to leave a space between words!

Day 3 (Activity 3): Evaluating the Work (15-20 min)

This week we're thinking about the question:
"How can we communicate with others to share our thoughts and ideas?"

Your challenge this week:
Connect to someone using a "Coded Message."

- Today you will:
- Reflect on your progress
 - Make a plan to improve your work

- You will need:
- Your work from previous activities
 - Paper or notebook
 - Writing tool

Let's Get Started! _____

A. THINK

You've already created the first draft of a "Coded Message."
Pause to look at your work.

B. EXPLORE

<p>...you prefer, you can download a PDF packet including all of this week's materials!</p> <p style="text-align: center;">DAY 2 Drafting Template</p> <p>Say "Hi" to someone in a secret code!</p> <p>I want to say "Hi" to: <u>My cousin</u></p> <p>Because: <u>I miss him</u></p> <p>First, write the person's name in the TOP ROW of boxes below. Write one letter per box and leave a space between words.</p> <table border="1" data-bbox="100 1325 808 1444"><tr><td>H</td><td>I</td><td></td><td>S</td><td>A</td><td>M</td><td>V</td><td>E</td><td>L</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td>9</td><td></td><td>19</td><td>1</td><td>18</td><td>21</td><td>5</td><td>21</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>Next, use a key to write your message in code in the BOTTOM ROW of boxes.</p>	H	I		S	A	M	V	E	L							8	9		19	1	18	21	5	21							<p>Look at this student's "Coded Message" and ask:</p> <ul style="list-style-type: none">● Is it clear who the message is for?● Does the plan explain why they want to send a message to that person?● Is the coded message accurate using the code key below?
H	I		S	A	M	V	E	L																							
8	9		19	1	18	21	5	21																							

C. DO

Keep in mind your challenge this week: Connect to someone using a "Coded Message."

You already have a first draft, and today you will complete the next step of the challenge!

1. Pencils down! This is a thinking exercise!
2. Look at your work and ask:
 - Is it clear who my message is for?
 - Did I explain why I want to send a message to this person?
 - Is my coded message accurate?
3. Wait, still don't touch your work! First, make a work plan! Complete one of these sentences:
 - I will add...
 - I will try...
 - I will adjust...

DIG DEEPER

Test your code!

Share your message and key with someone else.

Can they decode your message?

Day 4 (Activity 4): Finalizing the Work (15-20 min)	
This week we're thinking about the question: "How can we communicate with others to share our thoughts and ideas?"	Your challenge this week: Connect to someone using a "Coded Message."
Today you will: <ul style="list-style-type: none">● Finalize your "Coded Message"	You will need: <ul style="list-style-type: none">● Your work from previous activities● Paper or notebook● Writing tool

Let's Get Started! _____

A. THINK

It's time to take steps to finalize your work based on your work plan.

Remember your work plan? That's when you said:

- I will add...
- I will try...
- I will adjust...

Decide or discuss:

What will you do next to finalize your work?

B. EXPLORE

Check out some "Coded Messages" by other students.

What changes did this person make to their work?

How do these changes help to make the message clearer?

<p>DAY 2 Drafting Template</p> <p>Say "Hi" to someone in a secret code!</p> <p>I want to say "Hi" to: <u>My cousin</u></p> <p>Because: <u>I miss him</u></p> <p>First, write the person's name in the TOP ROW of boxes below. Write one letter per box and leave a space between words.</p> <table border="1"><tr><td>H</td><td>I</td><td></td><td>S</td><td>A</td><td>M</td><td>V</td><td>E</td><td>L</td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td>9</td><td></td><td>19</td><td>1</td><td>13</td><td>2</td><td>15</td><td>2</td><td></td><td></td><td></td><td></td></tr></table> <p>Next, use a key to write your message in code in the BOTTOM ROW of boxes.</p>	H	I		S	A	M	V	E	L					8	9		19	1	13	2	15	2					<p>First Draft</p>
H	I		S	A	M	V	E	L																			
8	9		19	1	13	2	15	2																			
<p>DAY 2 Drafting Template</p> <p>Say "Hi" to someone in a secret code!</p> <p>I want to say "Hi" to: <u>My COUSIN</u></p> <p>Because: <u>I miss him.</u></p> <p>First, write the person's name in the TOP ROW of boxes below. Write one letter per box and leave a space between words.</p> <table border="1"><tr><td>H</td><td>I</td><td></td><td>S</td><td>A</td><td>M</td><td>V</td><td>E</td><td>L</td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td>9</td><td></td><td>19</td><td>1</td><td>13</td><td>2</td><td>15</td><td>12</td><td></td><td></td><td></td><td></td></tr></table> <p>Next, use a key to write your message in code in the BOTTOM ROW of boxes.</p>	H	I		S	A	M	V	E	L					8	9		19	1	13	2	15	12					<p>Final Draft</p>
H	I		S	A	M	V	E	L																			
8	9		19	1	13	2	15	12																			

C. DO

Today, you will work to finalize your “Coded Message” to best represent your setting.

1. Get out your first draft and any other materials from previous activities.
2. Think about your work plan.
3. Decide: Do you need a fresh piece of paper to start over? Or will you just edit your first draft to make your final draft?
4. Get to work finalizing your “Coded Message”!

Be sure to save your “Coded Message” so you can share it later!

Day 5 (Activity 5): Reflecting and Sharing (15-20 min)	
This week we’re thinking about the question: “How can we communicate with others to share our thoughts and ideas?”	Your challenge this week: Connect to someone using a “Coded Message.”
Today you will: <ul style="list-style-type: none">● Reflect on your “Coded Message”● Share your “Coded Message” and its code key	You will need: <ul style="list-style-type: none">● Your finished “Coded Message” and copy of its code key● “Sharing” handout (optional)

Let's Get Started! _____

A. THINK

Like spies of the past, could you and other people in your life communicate through more coded messages?

B. EXPLORE

Anytime we share messages, we need to be thoughtful about how they will be received.

The Coding Code of Conduct:

- Be Responsible, Respectful, and Safe when sending and sharing messages.
- For more about mindful messaging, check out this important video.
<https://www.common sense.org/education/videos/mindful-messaging>

C. DO

Now that you've completed your "Coded Message" it's time to share your work with others!

Here are some ideas for connecting with others:

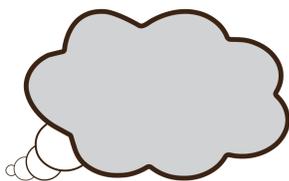
- Share your "Coded Message" and its code key with the person who it was intended for (or use the "Sharing" handout to get a written response)
- Share your code key with others and continue sending messages back and forth!
- Ask an adult to help you share your code key and a new message online with the #inquirEDtogether hashtag.
- Keep your "Coded Message" and its code key as a historical record that you and others can look back on later.

Sharing

Please take a look at my work and fill this out.

Thank you!

This work made me... (circle one)



think...



feel...



wonder...

Want to write a message back?

Use my code key to make your own message!

Additional Activities:

By examining codes used in history, from the Culper Spy Ring to the use of Morse code, and by developing your own code to communicate with friends near and far, you are using many social science skills, but also so much more! There are so many connections to language arts, math and science that you can continue to explore. Here a few ways to extend your learning and make connections to other subjects.

Math: As we’ve learned this week, coding is all about identifying patterns. “Patterns” are models and/or designs that help us identify things in common with one another. To get a better understanding of patterns try thinking about all the different patterns you notice in your home. Rugs and blankets often have different patterns that repeat. What about kitchen or bathroom tiles? Maybe the bricks on the outside of your home?

Science: Think about the world we live in and the different ways we can decode and find patterns in nature. Go for a walk around the block with your family and pick a couple of leaves from different types of trees on your way. Study the veins of the leaves? What do you notice among the different leaves? Similarities? Differences? Consider journaling your findings.