

Fifth 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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Fifth Grade Literacy Project: Poetry

Estimated Time	Total Time 70-80 minutes
Grade Level Standard(s)	RL.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. RL.5.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. W.5.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
Caregiver Support Option	Read the poems with students. Discuss the meaning of the poem and any lines that seem important.
Materials Needed	Lined Paper Pen/Pencil
Question to Explore	How can we use poetry to describe everyday experiences or objects?
Student Directions	Poetry is a genre of writing that typically uses vivid description and rhythm to describe an author's feelings or thoughts about a topic. In this project, you will: • Read a variety of poems. • Learn how authors use description in poetry. • Write poems to describe topics that are important to you

Activity 1: Reading Poetry

Directions: In a poem, the speaker is the one who is narrating the poem. As you read each of these poems, annotate lines where the speaker shows you how they feel about the topic. Also find details that help the reader imagine what the topic looks like, sounds like, feels like, and/or smells like. The first example has been done for you.

A. My Example:



Poem

Ode to My Shoes — Topic — Shoes BY FRANCISCO X. ALARCÓN

my shoes
rest
all night
under my bed] Shows what the shoes do
where they are

tired
they stretch
and loosen
their laces] Shows what the shoes do
and how they look

wide open Shows how they look
they fall asleep
and dream
of walking] What?! Shoes dream? and sleep?

they revisit
the places
they went to
during the day

and wake up
cheerful
relaxed
so soft] Shows how they
feel

* The speaker of this
poem must really
like their shoes!

Source: [Poetry Foundation](#)

- B. **Your turn!** As you read each of these poems, annotate lines where the speaker shows you how they feel about the topic. Also find details that help the reader imagine what the topic looks like, sounds like,

feels like, and/or smells like.

Poem

April Is a Dog's Dream

BY MARILYN SINGER

april is a dog's dream
the soft grass is growing
the sweet breeze is blowing
the air all full of singing feels just right
so no excuses now
we're going to the park
to chase and charge and chew
and I will make you see
what spring is all about

Source: [Poetry Foundation](#)

Recess! Oh, Recess!

BY DARREN SARDELLI

*Recess! Oh, Recess!
We love you! You rule!
You keep us away
from the teachers in school.
Your swings are refreshing.
Your slides are the best.
You give us a break
from a really hard test.*

*Recess! Oh, Recess!
We want you to know,
you're sweeter than syrup,
you're special like snow.
You don't assign homework.
You make the day fun.
You let us play kickball
and run in the sun.*

*Recess! Oh, Recess!
You're first on our list.
We'd be in despair
if you didn't exist.
We're happy we have you.
You're awesome and cool.*

Recess! Oh, Recess!
We love you! You rule!
Source: [Poetry Foundation](#)

Which poem was your favorite? _____

- C. Answer **one** of the following questions about your favorite poem. Write your response on a separate piece of paper.

Option 1	Option 2
Write a paragraph: 1. What is the topic of this poem? 2. How does the speaker of the poem feel about the topic? 3. Use evidence from the text to support your answer.	Draw: Create a drawing that illustrates the poem. In your drawing: 1. Show what the topic of the poem is 2. What pictures come to mind when you read this poem? 3. Draw what you are imagining. In your image, include at least 3 details from the text.

Activity 2: Observe Your World

Directions: Poets use powerful language to describe the things they see, feel, or experience in their daily lives. Today, you will begin planning for a poem you will write.

- A. On a separate piece of paper, brainstorm a list of objects, events, or topics that are really important in your life.
- B. Select the 2 most interesting objects and write them in the graphic organizer on the next page.
- C. Use the graphic organizer to describe the two objects, topics, or events you chose. When you are completing the graphic organizer, it will be helpful to look at the object you chose or to imagine the event in your mind. NOTE: you might not be able to complete all rows. Try to complete at least two!

Topic 1: _____

How do you feel about this topic?

Topic 2: _____

How do you feel about this topic?

Describe what it looks like		
Describe what it sounds like		
Describe what it feels like		
Describe what it smells like		

Activity 3: Write Your Own Poem!

Directions:



- A. Select one of the poem topics you described using the graphic organizer.
- B. On a separate piece of paper, write a poem about that object/topic/event.
 - a. Use descriptive words and phrases to show the reader your thoughts and feelings about that object/topic/event.
 - b. Refer to the poems in activity 1 to get ideas for how to write your own!
 - c. Create a title
- C. Repeat steps 1 and 2 with the second topic from your graphic organizer.
- D. **OPTIONAL:** Use the internet to research types of figurative language. Try to incorporate metaphor, simile, and personification into your poem as a way to describe your topic.

Activity 4: Reflection

Directions: Use a separate piece of paper to respond to the following questions.

- A. How is poetry similar to other types of texts that you have read? How is it different?
- B. Of the poems you wrote, which one do you like best? Why?

Cross Content Connections:

- **Science:** After reading about the water cycle, write a poem that uses descriptive language to describe what you learned.
- **Visual Arts:** Create an image, video, or other visual to represent the feeling you are conveying in your poem.

Fifth Grade Math Project: Planning a Welcome Back Party	
Estimated Time	Total Time 70-80 minutes
Grade Level Standard(s)	5.NBT.A: Understand the place value system. 5.NBT.B: Perform operations with multi-digit whole numbers and with decimals to hundredths.
Caregiver Support Option	Discussion about what supplies would be needed for a party, calculator
Materials Needed	Paper, pencil, crayons or markers
Question to Explore	What are some important things to think about when planning a party for your class? How could your math skills help you to plan a fun party for your class?
Student Directions	In this project, you will plan a Welcome Back Party for your class. There are 28 total students in your class. For your Welcome Back Party, you will order pizza for all the students, choose items that will go into goody bags for each student, and design a banner to decorate your classroom for the party.

Activity 1: Ordering Pizza for the Welcome Back Party

- You plan to order pizza for all of the 28 students in your class. You decide that the average student would eat 2.5 pieces of pizza at the party. How many pieces of pizza do you need for all of the students in the class? Show how you solved this by writing an equation or drawing a picture.
- When you order the pizza you learn that there are 14 slices of pizza in each whole pizza. How many whole pizzas would you need to order for the party? Explain in writing how you got your answer.
- Each pizza costs \$16.75. The cost to have the pizzas delivered is \$7.00. The total tax for all of the pizzas is \$8.65. What is the total cost for all of the pizzas to be delivered to your school for the party? Show how you got your answer.
- Finally, if you wanted to split the total cost of the pizza evenly between all of the 28 students in your class, how much money should each student pay for their share of the pizza? Explain how you got your answer.

Activity 2: Making Goody Bags for the Welcome Back Party

- You decide to make one goody bag for each of the 28 students at the party. First, you need to buy bags to put all of the goodies in. The bags come in packages of 10 bags in each package. How many whole packages of bags do you need to order so that each student gets a goody bag? Show how you got your answer in words or a drawing.
- Each package of bags costs \$1.75. How much money will you need to spend to purchase the number of packages that you will need for the party? Write an equation to show how you got your answer.
- You get to choose what goodies will go into the goody bags. Your school is giving you \$40 to spend on the goodies that will go into the goody bags. Each goody bag must have the exact same goodies as all of the other goody bags. Below is a table that contains all of the available goodies and their costs. First, find the cost of 28 of each item in the table and write that total cost in the column on the right.

Goodies	Cost for Each Item	Cost for 28 items
Welcome Back Water Bottle	\$0.75	
Welcome Back Pencil	\$0.22	
Welcome Back Vinyl Sticker	\$0.36	
Welcome Back Eraser	\$0.14	
Welcome Back Highlighter	\$0.30	
Welcome Back Magnet	\$0.50	
Welcome Back Gel Pens	\$1.09	

Which items can you buy for your goodie bags? Remember to make sure that the total cost for all of your items does not go over \$40.00. Show how you got your answer.

What is the total cost of Items? _____

- D. Now look at your total cost from Part C. How much of the \$40.00 is left over?

Activity 3: Designing a Banner for your Welcome Back Party

- You have a giant rectangular piece of paper that you're going to use to make a Welcome Back Banner. The piece of paper measures $10\frac{1}{2}$ ft wide and $6\frac{2}{3}$ ft high. What is the total area of the banner that you will design?
- The banner would look even better if you glue ribbon along the outside edges of the whole banner. If you glue ribbon along all of the edges, how much ribbon will you need? Write an equation to show how you got your answer.
- You have a total of six yards of ribbon. Will six yards of ribbon be enough to go around the outside of your banner? Explain your thinking in writing or draw a picture.
- On another sheet of paper, design the banner for the Welcome Back Party. You can use crayons or markers or other things that you have at home to decorate it.

Activity 4: Reflection

What are some of the most important things to think about when planning a party for your entire class?

How do your math skills help you with planning such a big party? Explain what kind of math thinking is the most helpful when planning a big party.

Fifth Grade Science Project: Water Cycle + Invention

Estimated Time	Total Time 70-80 minutes
Grade Level Standard(s)	5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. 5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem
Caregiver Support Option	- Support students with materials during the Activity 2 investigation. - Engage 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) - Serve as the audience for the final project presentation
Materials Needed	Needed: - Scratch paper 2 cups 1 plate or plastic wrap - salt - warm/hot water (microwaved or boiled) - spoon Optional: - Markers, crayons, or colored pencils (if available) 1 sheet of colored construction paper (if available)
Question to Explore	How does water move on Earth? Does the amount of water on Earth stay the same? How can evaporation and condensation be used to create an invention to collect clean freshwater?
Student Directions	Each activity has directions for you to follow.

Activity 1: Water Cycle Observations (20 min)

Part 1: My initial ideas: (5 min)

- Read the definitions below:
 - evaporation: when a liquid turns into a gas
 - condensation: when a gas turns into a liquid
- Find an example of evaporation in your home. On a separate sheet of paper, draw your example and write a sentence to describe it.
- Find an example of condensation in your home. On a separate sheet of paper, draw your example and write a sentence to describe it.

Part 2: Evaporation Investigation:

- A. Get two cups:
- Add about $\frac{1}{4}$ of a cup of warm water to each cup.
 - Add about 1 teaspoon of salt to one cup and mix it up well.
 - Don't add any salt to the other cup.



- B. Using different spoons (so you don't contaminate), carefully drop a little bit of water from each cup onto a sheet of paper (colored construction paper works best, if you have it, or you can use any blank paper you have).



- C. Label the drops of water: "salt water" and "freshwater."
- D. Leave this paper somewhere that it will not get moved overnight.
- E. Leave the cup with salt water out for several days in a place that it won't get moved (until there is no liquid left) -- you need to observe this "salt water" cup in Activity 4.
- F. In the morning, observe the paper that had the "salt water" and "freshwater" on it. On a separate sheet of paper answer the following questions:
- What happened to the water? Why do you think that happened?
 - What happened to the salt? Why do you think that happened?
 - What do you think caused the water in your examples from Part 1 and the investigation in Part 2 to evaporate or condense?

Activity 2: Explore water at the nanoscale and around the world! (15 min)

A. Read Source A below and then answer the following questions on a sheet of paper:

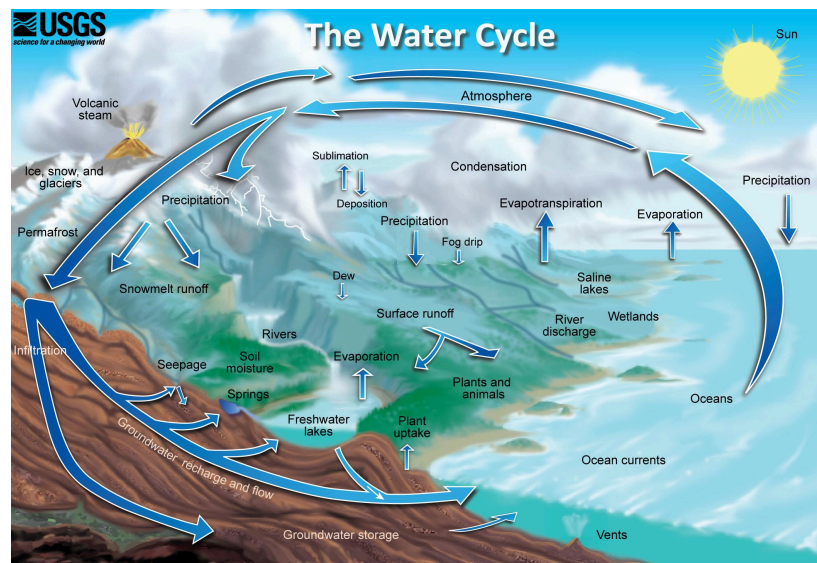
1. What are 3 states of matter? How can water change between the 3 states of matter? Draw a diagram to help you explain your ideas.
2. Why is water vapor important to the water cycle?
3. Why have the oceans gotten higher, according to the Source A article?
4. What 2 processes allow water to be recycled?
5. Circle temperature words (such as cool, warm, and heat) in the reading. How is temperature important when water changes from state to state?

Source A: [The Water Cycle](#) - NASA.gov, adapted by Newsela staff. Published 12/14/2016

Water covers as much as 75 percent of the Earth's surface. The presence of the oceans makes Earth different from the other planets. Water also appears to be a necessary ingredient for the development of life.

Matter can be found in one of three states: gas, liquid or solid. Increasing or decreasing temperature and pressure can make an object switch from one state to another. Water is special. It can easily be found in any of the three states.

Almost all the water on Earth is in its oceans. A much smaller amount is concentrated in polar ice caps, glaciers and snow. Another small amount is stored in groundwater, lakes, rivers, streams and soil. Only a tiny fraction of the water on Earth exists as water vapor in the atmosphere. Vapor is water that has been heated enough to switch from liquid to gas.



Water Vapor Plays A Big Role On Earth

Despite its small amount, water vapor plays a huge role. By transporting heat around the globe as it moves, vapor drives the Earth's climate. This heat is obtained when water switches from liquid or solid to vapor. The heat is released when water condenses from vapor back to liquid or solid. This results in droplets that fall back to the Earth's surface. The water that falls is called freshwater. It fills up lakes and rivers.

We often talk about the water cycle in order to understand how the Earth's climate works. The water cycle describes how water changes states to move across the planet.

When the sun heats the water on the planet's surface, the water changes from liquid to gas. The change is called evaporation. Through evaporation, the atmosphere receives most of its water. The atmosphere is the air that surrounds the Earth's surface. Alongside evaporation, another way in which water reaches the

atmosphere is through plant transpiration. Plants take in water through their roots. Then they release it through small holes called pores, on the underside of their leaves.

How Rain, Snow And Hail Happen

It is also possible for water to change directly from solid to gas. This change is known as sublimation. Evaporation, transpiration and sublimation account for almost all the natural water vapor in the atmosphere.

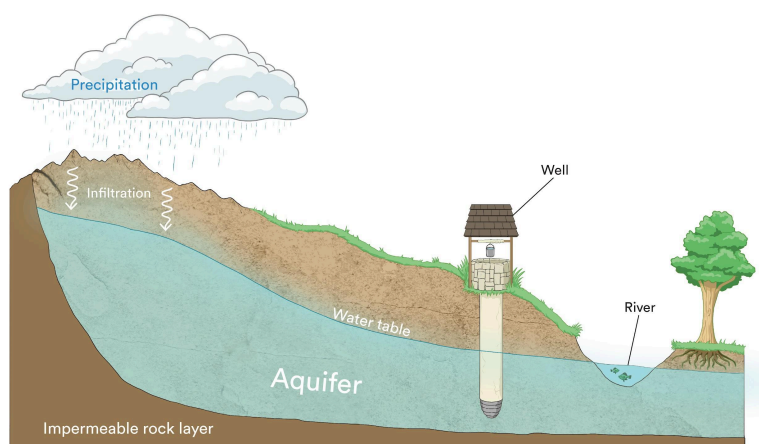
In the lower atmosphere, rising air currents carry water up where the air is cooler. In the cool air, the water vapor condenses from a gas to a liquid. This results in rain, snow, freezing rain or hail.

Once on the surface, water can take various paths. Some of it evaporates, returning to the atmosphere; some seeps into the ground, or runs off into rivers and streams. Almost all of the water eventually flows into the oceans or other bodies of water. At different stages of the cycle, some of the water is used by humans or other life forms.

Water's Journey From Earth To The Air And Back

Water continually evaporates, condenses and falls back to the surface; in a year, it is as if the entire amount of water in the air were removed and replenished nearly 40 times. Overall, the same amount that evaporates then falls back to the earth. However, more water tends to fall over continents; over the oceans, more water tends to evaporate.

The continued evaporation would eventually leave the oceans empty if they were not replenished. Ocean water is returned largely through runoff from the land areas. Over the past 100 years, oceans have in fact been over-replenished; in one century, the sea level around the globe rose by approximately 17 cm (about 7 inches). One reason is that oceans have been getting warmer; as a result, the water has expanded. On top of this, more water has been entering the ocean due to melting ice sheets and glaciers.

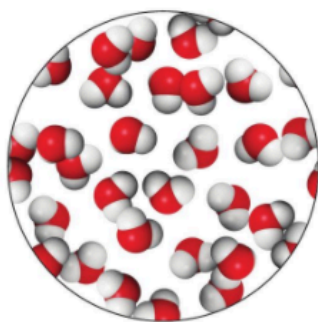


During the complete cycle, water can take many different routes and change states repeatedly. The same water that rained on your great-grandparents' farmhouse years ago might now be falling as snow on your driveway.

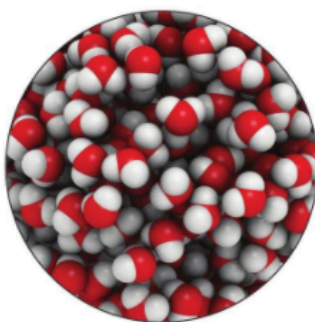
Activity 3: Let's Zoom in to the Nanoscale! (15 min.)

- A. Read Source B below and then answer the following questions on a sheet of paper:
1. When you zoom in at the "nanoscale" (molecular level), what is different about the 3 states of matter?
 2. Look at the molecules in each image. How are they similar?

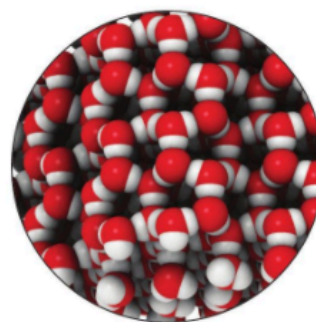
Source B: [Phases of Water](#) - Water Encyclopedia, Amplify Education.



gas



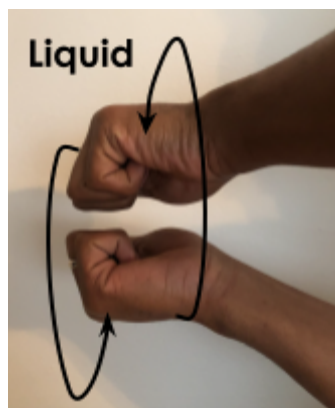
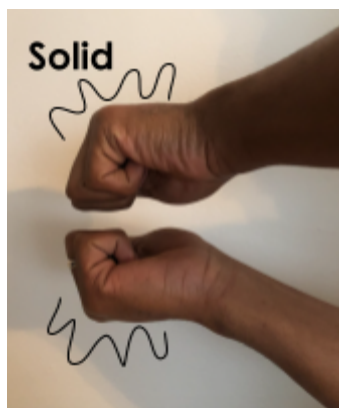
liquid



solid

Water molecules in the gas phase are far apart, while water molecules in the liquid and solid phases are close together.

B. Let's act it out! Make fists with your hands and follow the directions below:

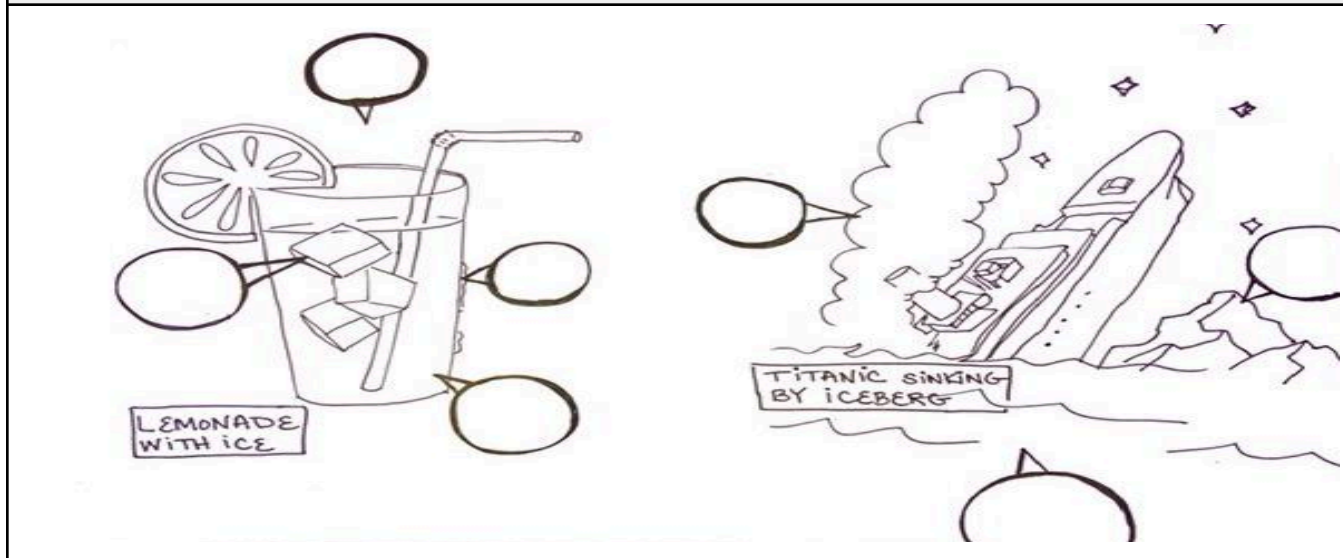


- Solid: vibrate your fists in place → say: **"SOLID!"** → say: **"Least amount of energy!"**
- Liquid: move your fists by flowing them past and around each other in random directions while keeping them close together → say: **"LIQUID!"** → say **"More energy!"**
- Gas: move your hands apart and move them really fast in random directions → say: **"GAS!"** → say: **"Greatest amount of energy!"**
- (optional) Make a dance using these three hand movements for the states of matter. Record your new dance and start a new virtual TikTok trend!

C. Lemonade and the Titanic:

- Look at the pictures below.
- Determine which phases of water each "circle balloon" is pointing to and draw the molecules appropriately for each. Think about how close or far apart the molecules are in each state of matter (check out Activity 3 Source B on the previous page for help!).

Lemonade and Titanic Model



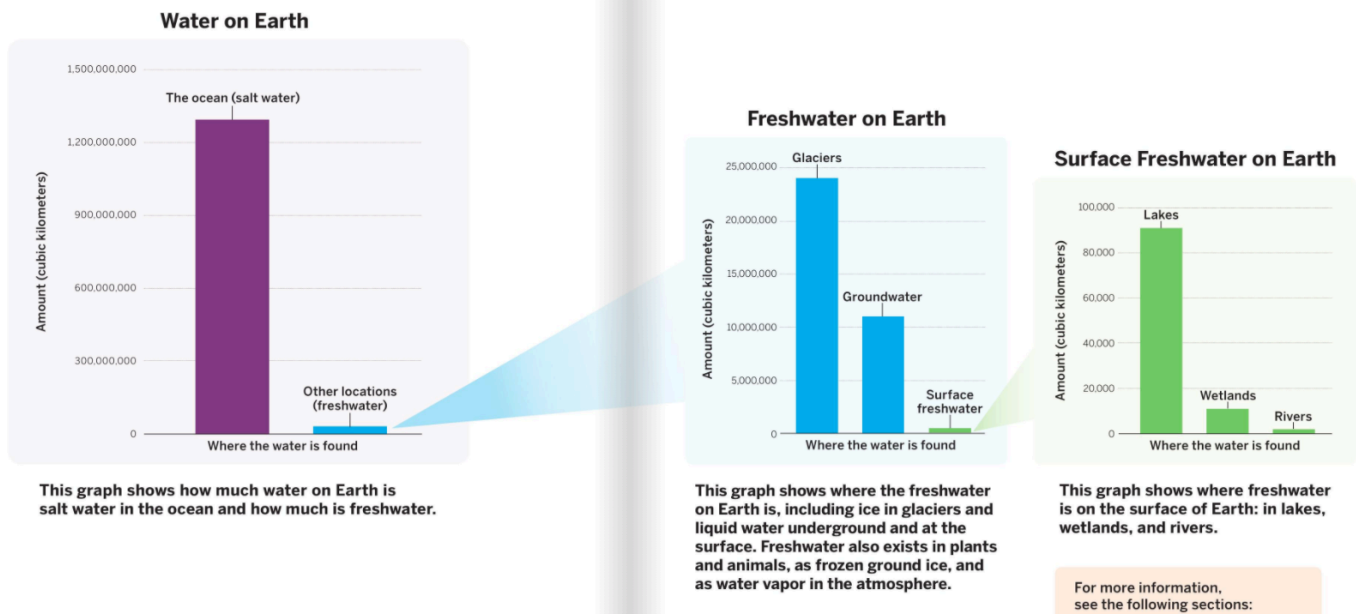
- D. Reflect on your diagrams by answering the following questions on another sheet of paper:
1. Are liquid water and ice made up of the same thing? How do you know?
 2. Which part of the models was an example of condensation? How do you know?
 3. Which parts of the models were examples of evaporation/water vapor? How do you know?

Activity 4: Freshwater (30 min)

- A. Read Source C below and then answer the following questions on a sheet of paper:
1. Where is there the most water on Earth?
 2. Where is there the most freshwater on Earth?
 3. How can you make a fraction to represent how much water is available for humans to drink?
(Hint: Remember that humans can only drink freshwater!)

Source C: [Places Where Water Exist on Earth](#)- Water Encyclopedia, Amplify Education.

If you picture a globe, most of the blue that you see is ocean. In fact, 96.5% of water on Earth is salt water in the ocean. This means that a very small amount of water on Earth is freshwater. Of this freshwater, an even smaller amount is liquid water at the surface—much of it is frozen in glaciers, ice caps, and permanent snow, or fills the space between rocks and soil underground as **groundwater**. Only a tiny percentage of the water on Earth is in the form of surface freshwater, which is readily available for human use.



B. Clean, Freshwater Invention:

Most of the water on earth is salt water, which makes up the oceans. Humans cannot drink salt water or they will get very sick. Design a water purification system that uses evaporation and condensation to get salt out of salt water.

- Answer the following questions on a sheet of paper (your answers will help you design your water purification system):
 - How can you speed up the evaporation process (how can you more quickly change liquid water into water vapor)?
 - How can you speed up the condensation process (how can you more quickly change a water vapor into liquid water)?
 - In Activity 1, Part 2, you left out a piece of paper that had salt water on it and a cup that had salt water in it. What happened to the water over time? Did the same thing happen to the salt? What happened to the salt?
- Create a model of your invention on another sheet of paper. Make sure your model includes all of the following:
 - ☐ Draw your invention
 - ☐ Label your drawing
 - ☐ Use the following science ideas to create your invention:

- ☐ Evaporation
- ☐ Condensation
- ☐ Explain (through drawing and writing) how your invention works at the “nanoscale” (molecular level). What’s going on that we can’t see with our eyes when it comes to purifying (removing the salt from) the water.
- c. Optional: Present your invention to someone in your home.
 - ☐ Explain how your invention uses the ideas of evaporation and condensation to purify salt water.
 - ☐ Ask them if they have any questions for you about your invention.

Extension Activities (Optional):

1. Reflection:
 - ☐ What do you know now that you didn’t know before?
 - ☐ How does condensation and evaporation affect your life?
 - ☐ What was easy and what was difficult about your invention?
 - ☐ What are you still curious about?
2. Read about a water shortage on NewsELA:
 - a. [Water Crisis Grips South Africa](#)
 - b. [Move Over Flint, Older cities have even worse lead problems](#)
 - c. [California’s drought emergency finally ends](#)

Grade 3-5 Social Science Project: Together When Apart

Estimated Time	Total Time 70-80 minutes (average of 15-20 mins per activity)
Grade Level Standard(s)	SS.IS.3.3-5. Determine sources representing multiple points of view that will assist in answering essential questions. SS.IS.4.3-5. Gather relevant information and distinguish among fact and opinion to determine credibility of multiple sources. SS.IS.6.3-5. Construct and critique arguments and explanations using reasoning, examples, and details from multiple sources.
Caregiver Support Option	Notes on the structure: - 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 10-20 mins each. More than one can be done in a day. Before giving the activities to students, caregivers might: - 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 In this particular lesson, it’s important to note that: - student(s) are developing coded messages, you might want to review the directions and the “Coding Code of Conduct” on p. 10 - 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. 9 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?

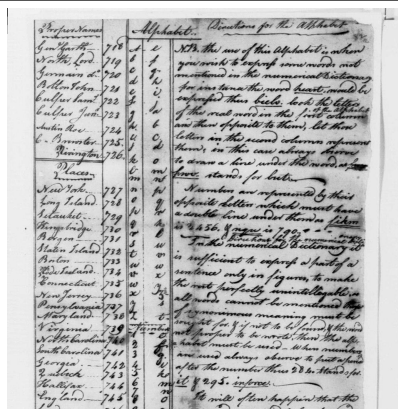


Guess what? You just cracked a code!

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

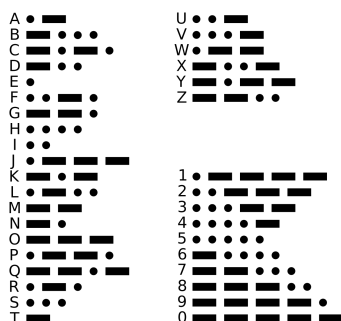


Culper Spy Ring Code from the American Revolution

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.

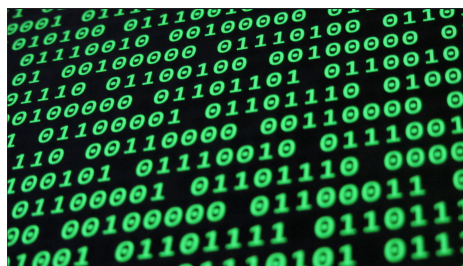
International Morse Code

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.



Morse Code

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 represent letters, numbers, and punctuation. It was used more often in the 1800s and 1900s, including in World Wars I and II. It is not commonly used anymore.



Binary Code

This is a way for computers and electronics to communicate. It is made up of two numbers: "1" and "0." Using these numbers in different combinations, computers can talk to each other and represent data. Ever heard of a bit or a byte? A single "0" or "1" is a bit, and a group of eight "0s" and "1s" together make a byte!

C. DO

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

Today, you will read some coded messages!

Use this key...	...and try to solve these codes!																																																								
<table><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td></tr><tr><td>∴</td><td>✓</td><td>7</td><td>∩</td><td>∴</td><td>∩</td><td>-.</td></tr><tr><td>H</td><td>I</td><td>J</td><td>K</td><td>L</td><td>M</td><td>N</td></tr><tr><td>↘</td><td>2</td><td>∴</td><td>!</td><td>∴</td><td>^</td><td>∩</td></tr><tr><td>O</td><td>P</td><td>Q</td><td>R</td><td>S</td><td>T</td><td>U</td></tr><tr><td>□</td><td>∴</td><td>2</td><td>///</td><td>↘</td><td>↘</td><td>2</td></tr><tr><td>V</td><td>W</td><td>X</td><td>Y</td><td>Z</td><td></td><td></td></tr><tr><td>∩</td><td>!</td><td>=</td><td>!</td><td>✕</td><td></td><td></td></tr></table>	A	B	C	D	E	F	G	∴	✓	7	∩	∴	∩	-.	H	I	J	K	L	M	N	↘	2	∴	!	∴	^	∩	O	P	Q	R	S	T	U	□	∴	2	///	↘	↘	2	V	W	X	Y	Z			∩	!	=	!	✕			! □ 2 7 /// ∴ 7 ∴ - ∴ ∩ ↘ ∩ ∴ 7 □ ∩ ∴ 7 /// ∴ 7 ∴ - 2 ∩ - 7 □ ∩ ∴ ∩ 2 ∩ ∩ 2 ∩ answer: you cracked the code answer: cracking codes is fun
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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: - Learn about Morse code - Create your "Coded Message"	You will need: - Paper or notebook - Writing tool

Let's Get Started! _____

A. THINK

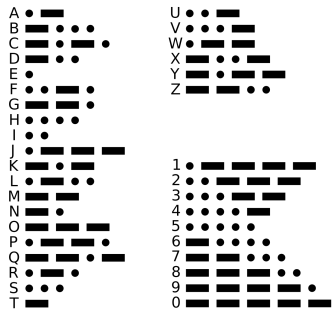
Before telephone, television, or internet, how do you think people might have sent messages across a great distance?

B. EXPLORE



inquirED

Read on to learn more about Morse code...

International Morse Code 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. 	Morse code is a system of sending messages that uses combinations of short (the dot) and long (the dash) sound signals to spell out messages. • a "dot" is a short signal — a "dash" is a long signal
	Morse code is named after artist and inventor Samuel Morse, who helped invent the code more than 200 years ago.
	A telegraph is a machine that turns Morse code into electrical signals and sends them across a wire. The machine on the receiving end turns these signals back into messages.
	Morse code is used across languages and around the world. Anyone can use it by simply writing symbols, flashing a light, or making sounds to represent dots and dashes. Modern technology has largely replaced Morse code, but it is still used for remote or emergency situations, radio communication, and in the military.

https://newsela.com/read/lib-morse-code-overview/id/2000001049/?collection_id=339	Optional: Read the “Creation of Morse Code Helped Open Communications Around Globe” article to learn even more about it!
https://www.youtube.com/watch?v=iy8BaMs_Jul&feature=emb_title	Optional: If you have internet access, check out this video about Morse code

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 at this moment in time
- Include a message that can be decoded using the suggested code below, Morse code (pictured above), or by making up your own code! (If you like, you may use the “Drafting Template” handout to write out your idea.)

A	B	C	D	E	F	G
••	√	7	∩	••	↷	-•
H	I	J	K	L	M	N
↙	≈	•••	•-	••	∧	∩
O	P	Q	R	S	T	U
□	••	↶	///	↙	↷	↶
V	W	X	Y	Z		
↷	•	=	•	✕		

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		

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

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 because you are going to reflect and revise next.

B. EXPLORE

if you prefer, you can download a PDF packet including all of this week's materials! DAY 2 Drafting Template Say "Hi" to someone in a secret code! I want to say "Hi" to: <u>My cousin</u> Because: <u>I miss him</u> First, write the person's name in the TOP ROW of boxes below. Write one letter per box and leave a space between words. <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>1</td><td>9</td><td>1</td><td>1</td><td>5</td><td>2</td><td>1</td><td></td><td></td><td></td></tr></table> Next, use a key to write your message in code in the BOTTOM ROW of boxes. <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	H	I		S	A	M	V	E	L					8	9		1	9	1	1	5	2	1																	Look at this student's "Coded Message" and ask: • Is it clear who the message is for? • Does the plan explain why it is important to communicate with that person at this moment? • Is the coded message accurate?
H	I		S	A	M	V	E	L																																
8	9		1	9	1	1	5	2	1																															

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 it is important to communicate with this person at this moment?
 - 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?
Why or why not? Would you change anything?

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: • Finalize your "Coded Message"	You will need: • Your work from previous activities • 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?
- Today, you will work to finalize your "Here and Now Snapshot" to best represent your setting.

if you prefer, you can download a PDF packet including all of this week's materials!

DAY 2

Drafting Template

Say "Hi" to someone in a secret code!

I want to say "Hi" to: My cousin

Because: I miss him

First, write the person's name in the TOP ROW of boxes below.
Write one letter per box and leave a space between words.

H	I		S	A	M	V	E	L						
8	9		1	9	1	1	5	2	1					

Next, use a key to write your message in code in the BOTTOM ROW of boxes.

First Draft

DAY 2

Drafting Template

Say "Hi" to someone in a secret code!

I want to say "Hi" to: My cousin

Because: I miss him.

First, write the person's name in the TOP ROW of boxes below.
Write one letter per box and leave a space between words.

H	I		S	A	M	V	E	L						
8	9		1	9	1	1	3	2	1	5	1	2		

Next, use a key to write your message in code in the BOTTOM ROW of boxes.

Final Draft

C. DO

Today, you will work to finalize your "Here and Now Snapshot" 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:

- Reflect on your "Coded Message"
- Share your "Coded Message" and its code key

You will need:

- Your finished "Coded Message" and copy of its code key

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.commonsense.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!
- Share your code key and a new message with your classroom community (if this is an option).
- 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



inquirED

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

Thank you!

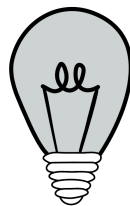
This work made me... (circle one)



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.