K-1 At-Home Learning Resources (Yellow Packet) Week #11

The Richland School District cares deeply about the well-being of our students and families. We highly encourage our students and families to set a daily routine that includes the following:

For our elementary families:

- Read daily with your child
- Play family games (board games, cards, puzzles, charades, pictionary, etc.)
 - Engage in an outside activity
 - Cook/bake with your child
 - Maintain relationships with your child's teacher

These supplemental activities, readings, and other resources are available to students and families to continue learning and exploring while schools are closed in response to the novel coronavirus.

Students are not required to complete and/or turn in any assignments nor will any of these materials be used to assess students academically. Please feel free to use these optional resources as needed. Additional resources are available at:

https://www.rsd.edu/programs/at-home-learning/pre-k-elementary-resources

IMAGINE YOUR STORY

SUMMER READING CHALLENGE

Featuring challenges, prizes, and more for every age!

Babies





Children

Middle & High Schoolers





Adults

June 1 - August 31, 2020

Register and log your reading online at richland.beanstack.org and with the <a>Image: Beanstack app on your phone or tablet





Can't log online? Get started on this log!

Each space in the grid counts as 30 minutes. Date each space as you read.

Name		Are you a	Child Teen	or Adult
30	30	30	30	(30)
	30	30	30	30
	30	30	30	30
30				

Is there another person in your family who wants to start logging reading minutes?

Use this grid:

Name			Child Teen	Adult
30	[] 30	[30	[] 30	() 300
30	[] 	[] _/_/_	[] 30]	[] 30
30	30	(*) J/_	30	(*) 30

Bring this sheet to the library to find out which prizes you are eligible for.



Phonics



Syllable Patterns

P.055

Syllable Closed Sort



Objective

The student will segment syllables in words.



Materials

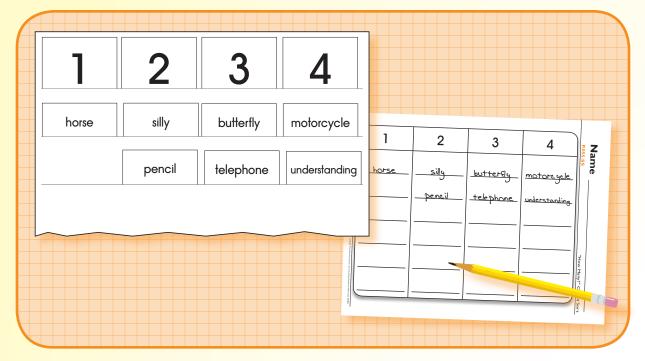
- Pocket Chart
- ▶ Header cards (Activity Master P.055.AM1)
- Syllable word cards (Activity Master P.055.AM2a P.055.AM2d)
- ▶ Student sheet (Activity Master P.055.SS)
- Pencils



Activity

Students sort words by the number of syllables.

- 1. Place the header cards across the top row of the pocket chart. Place the word cards face down in a stack. Provide each student with a student sheet.
- 2. Taking turns, students select the top card and read the word (e.g., "basket").
- 3. Say the word again segmenting it by syllables (i.e., "bas-ket"). Count the number of syllables (i.e., "2").
- 4. Place the word in the column on the pocket chart that corresponds to the number of syllables. Record the word in the corresponding column on the student sheet.
- 5. Continue until all words are sorted and recorded.
- 6. Teacher evaluation





Extensions and Adaptations

- Sort by number of phonemes.
- Make and use other word cards (Activity Master P.055.AM2d).

Phonics

P.055.AMI	Syllable Closed Sort
header	To the second of
Leader Leader	Peader

3

K-I Student Center Activities: Phonics

Syllable Closed Sort P.055.AM2a

3

window

tomorrow

elephant

syllable word cards: peanut - 2, pencil - 2, silly - 2,

window - 2, tomorrow - 3, elephant - 3

Syllable Closed Sort P.055.AM2c

elephone oanana atermelon caterpillar

syllable word cards: butterfly - 3, telephone - 3, banana - 3, watermelon - 4, caterpillar - 4, alligator - 4

3/

Syllable Closed Sort

P.055.AM2d		Syllable Closed Sort
understanding	motorcycle	

9 - 4

3



Syllable Closed Sort

P.055.SS

4			
3			
2			

Fluency



Connected Text F.020

Express It!



Objective

The student will read with proper phrasing, intonation, and expression in connected text.



Materials

Sentence strips (Activity Master F.020.AM1a - F.020.AM1c) Copy on card stock, laminate, and cut.



Activity

Students read sentences with expression.

- 1. Place the sentence strips face up in a stack at the center.
- 2. Working in pairs, student one selects the top sentence strip and reads it silently. Reads the sentence(s) again, this time orally, using proper phrasing, intonation, and expression.
- 3. Student two then reads the same sentence(s) aloud. If the sentence(s) is read with different phrasing, intonation, or expression, students discuss why.
- 4. Reverse roles and continue until all sentences are read.
- 5. Peer evaluation

The lion roared loudly, "Mouse, please help me get this thorn out of my paw!"

The lion roared loudly, "Mouse, please help me get this thorn out of my paw!"



Extensions and Adaptations

- Read the sentences chorally.
- Write and read other sentences (Activity Master F.020.AM1c).
- Use longer sentences or passages.



F.020.AMIa Express It!

Little Red Riding Hood said, "Grandmother, what big eyes you have!" The wolf replied in a high voice, "The better to see you with, my dear."

"This bowl of porridge is too cold! This one is too hot! But this one is just right," said Goldilocks.

"Little pig let me come in or I'll huff and puff and blow your house down!" yelled the wolf.

The lion roared loudly, "Mouse, please help me get this thorn out of my paw!"

TRIP! TRAP! TRIP! TRAP! "Who's that trip-trapping over my bridge?" shouted the troll.

K-I Student Center Activities: Fluency

Fluency

Express It! F.020.AMIb

The mouse was very afraid. "Please let me go," the mouse begged.

"Oh, Turkey-Lurkey, the sky is falling! We are going to tell the king," cried Goosey-Loosey.

"Somebody has been sitting in my chair!" growled Papa Bear.

"Run, run as fast as you can! You can't catch me! I'm the Gingerbread Man!"

"Somebody has been sitting in my chair and they broke it!" whined Baby Bear.

~



F.020.AMIc Express It!

The goose said, "Stop Gingerbread Man! I would like to eat you!"

The first little pig shouted, "Not by the hair on my chinny, chin, chin!"

"Grandmother, what big teeth you have!" said Little Red Riding Hood.

The third goat had a big voice. "IT IS I, THE BIGGEST BILLY GOAT GRUFF!" he bellowed.



K-I Student Center Activities: Fluency



Morphemic Elements **V.010**

Compound Word Flip Book



Objective

The student will identify the meaning of compound words.



Materials

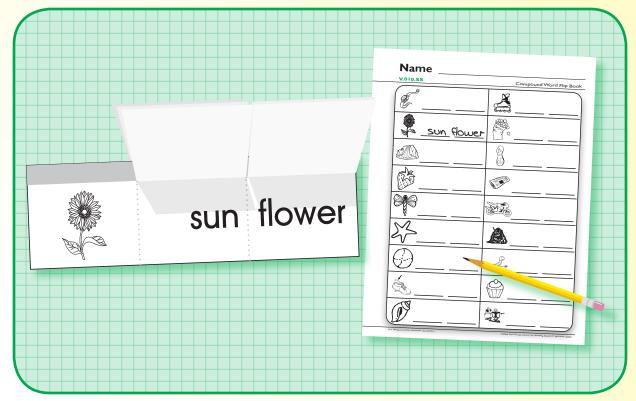
- Flip pages (Activity Master V.010.AM1a V.010.AM1c) Copy, laminate, cut, compile book, and staple.
- ▶ Student sheet (Activity Master V.010.SS)
- Pencil



Activity

Students make compound words and match them to corresponding pictures in a flip book.

- 1. Place flip book at the center. Provide the student with a student sheet.
- 2. The student "flips" the pages in the flip book, selects a picture card on the left hand side, and names the picture (e.g., "sunflower").
- 3. "Flips" through the middle and right-hand pages to find two words that make the corresponding compound word (i.e., sun, flower). Reads the word (i.e., "sunflower") and records on student sheet.
- 4. Continues until student sheet is complete.
- 5. Teacher evaluation





Extensions and Adaptations

Add pages to the compound word flip book (Activity Master V.010.AM2).

Compound Word Flip Book

V.010.AM1a

news worm











wrist fly



dragon fall

flip pages

Vocabulary

V.010.AMIb

Compound Word Flip Book

V.UIU.AMID			Соттро	und vvord Flip Book
flower	berrv		fish	book
water	SUD		shoe	dod
	Pop (orn) E3	e	arth	paper
flip pages	000		cup	ball

Compound Word Flip Book

V.010.AMIc

cook cycle

star blade

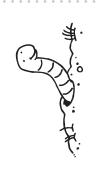
oller shel













base corn



sea nut

flip pages

V.010.SS

	Aproxin E3
\$\frac{1}{2} \rightarrow \righ	

Vocabulary

Compound Wor	d Flip Book	V.010.AM2
3		
blank flip pages	0 0 0 0	0 0 0 0

Questions to Ask Before, During, and After Reading

These are questions to help engage students in discussions and conversations about reading. These questions are just suggestions and other questions can be added to this list based upon the type of reading students are involved in.

Before Reading

- What is the title of the book or text?
- What does this title make you think about?
- What do you think you are going to read about? (Make a Prediction)
- Does this remind you of anything?
- Are you wondering about the text or do you have any questions before reading?
- Skim through the article. Do any pictures, key words, and/or text features stand out to you?

During Reading

- What is happening so far?
- What does the word _____ mean on this page?
- What do you think the author is trying to communicate in this part?
- What do you think was important in this section? Why do you think it was important?
- What can you infer from this part of the text?
- Where is the story taking place?
- Who are the characters so far?
- What do you think will happen next?
- What does this part make you think about?
- What questions do you have?
- What words help you visualize what the author is saying?
- Is there a word that you struggled with? What is the word? Let's break the word into parts and look at context clues.

After Reading

- What was this text about?
- What was the main idea? What details from the text helped you determine the main idea?
- What did you learn from this text?
- How did the author communicate his/her ideas?
- What does this text remind you of?
- What was your favorite part and why?
- Did this text have a problem? If so, what was the problem and what was the solution?
- What is your opinion about this text? What are some parts that helped you make that opinion?
- What are some questions you still have about the text?
- Does this text remind you of other texts you have read? How are they alike and/or different?
- What is a cause and effect from the text you read?

Bear and Fox



By Clark Ness

Visit www.clarkness.com and www.readinghawk.com for more free ebooks and stories.

Reading Level: Flesch-Kincaid Grade Level -0.6 Fiction



Bear and Fox are friends.



They live in a forest.



One day Bear and Fox met.



Bear read a book to Fox.



"That is a good book," said Fox.



"I like this book too," said Bear.



"Thanks for reading it to me," said Fox.



"It is fun to read a good book with a friend," said Bear.

Fishing from a Boat

By Clark Ness www.clarkness.com



One day Matthew was out in his yard.

"I think I will go fishing," said Matthew.

"That would be fun," said one of his cats.

"Yes, I think you should go fishing," said the other cat. "Can we go with you?"

"Yes, you can come with me. We will go fishing," said Matthew.

Matthew went and asked his mother about going fishing. His mother said it would be okay. Matthew and his two cats then started walking down the road with their fishing poles. Soon they came to a stream.

"There should be fish in this stream," said the bigger cat.

"Look, there is a boat. It would be cool to go fishing in a boat," said the smaller cat.

The three walked up to the boat to get a better look at it.

"Do you like my boat?" asked a turtle that was swimming near by.

"Yes, it is a nice boat. Can we go fishing in your boat?" asked Matthew.

"Yes, you can go fishing in my boat, but only one at a time. It is a small boat," said the turtle.

"Matthew, you can go first," said the smaller cat. "We can fish from shore."

"Thank you," said Matthew. He put on a PFD1 that was in the boat.

"This will keep me from sinking if I fall out of this boat," said Matthew. He rowed out into the stream and started fishing. Soon he had a fish on his line. He pulled the fish into the boat.

"Please let me go back into the stream," said the fish. "I want to stay in the water with my friends."

"I think that would be okay," said Matthew.

The bigger cat heard the fish from shore and said, "I think that would be okay, too."

"He seems like a smart fish," said the smaller cat.

Matthew took the hook out of the fish's mouth. He then put the fish back into the stream.

"Thank you," said the fish. "Here is a magic rock. It can sing any song to you that you want to hear."

"Thank you," said Matthew. "I will let it sing to me when I go home."

Matthew then rowed back to shore, tied up the boat, took off the PFD, and put it into the boat.

"Turtle, thank you for letting me use your boat," said Matthew.

"I am glad that you liked it," said the turtle. Matthew and his two cats walked home. They let the singing rock sing to them all the way back home.

¹ PFD - personal floatation device or life jacket

Flesch-Kincaid Grade Level - 1.8 Flesch Reading Ease - 98.2

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More free stories and books are available at www.clarkness.com.

A Job For Bob

Name:

Focus: Words in the -ob family

Bob needs a job. There is a job for Bob. Rob can use Bob on his farm.

Rob can use bob on this failin. —
Bob can pick corn on the cob.
Rob and Bob each pick the cobs.
Bob likes his job with Rob.

There is a mob at the farm.

They want the cobs of corn.

Rob and Bob sell the cobs.

They like their jobs.

They like to sell the cobs.

The mob likes the cobs of corn.



1) What does Bob need? 2) What is Bob's job?

3) Who likes the cobs of corn?

The Note Was in Code!

Name:

Focus: Long "o" with _o_e Words



She broke the code with the card. The note said he loved her in all the boy left a note for the girl. After they spoke on the phone, She used a card with a hole The note was in code! to read the note.

Kinds of weather and in all seasons.

The girl loved the note.

She held it to her nose.

It had a sweet smell, like a rose.

They spoke on the phone again.

Now they are not alone.

She loved the boy, too.

3) Does the girl love the boy? 1) Why did she need a card? 2) How did the note smell?



Good news! Some butterfly populations bounced back in 2019

By How Stuff Works, adapted by Newsela staff on 04.01.20 Word Count **418**



Image 1. The marbled white butterfly (Melanargia galathea) population rose by up to 66 percent in 2019 in England. Photo: lan Kirk/Wikimedia Commons. Licensed under CC BY 2.0

The number of butterflies in the world has been going down. However, there is some happy news for butterflies.

Butterfly populations have been growing. Many of these butterflies are in the United Kingdom. It is called the U.K. for short. The United Kingdom includes several countries. This includes England and Ireland. Other butterflies are in parts of North America. Last year was a good year for many butterflies. Their populations grew more in 2019 than in any of the last 20 years. The Butterfly Conservation shared the results. It is a wildlife group. It is trying to save butterflies.

Perfect Weather

The weather was unusually warm and wet in these places. This perfect weather helped the butterflies grow. There were more caterpillars. The caterpillars were able to make cocoons. Eventually, they became healthy butterflies.

Monarchs are a type of butterfly. They are orange and black. They travel from Canada to Mexico every year. Monarch numbers doubled from 2018 to 2019. Something similar happened in the U.K. The marbled white butterfly lives there. It is white and black. Its population grew by more than half.

Some butterflies live in only one place. Their numbers have gone up, too. This could help save these butterflies from extinction. The Lulworth skipper is one of these butterflies. It is green and copper-colored. It lives on the coast of England. The number of Lulworth skippers has dropped lately. However, its numbers more than doubled in 2019.

Experts say good weather was helpful. More butterflies were able to grow. Conservation groups have helped, too. Conservation groups protect butterflies and their habitats. Before, butterfly numbers were going down. Conservation groups have helped the numbers go up.

More Work To Do

This is great news for butterflies. It is great news for butterfly fans, too. Still, scientists say there is more work to do. Not all butterflies are safe. Take the monarch butterflies of California. Their cousins in Mexico had many babies. However, nearly nine out of every 10 California monarchs was lost in 2019.

Tom Brereton is a scientist. He works at Butterfly Conservation. He is excited that many butterfly populations are growing. However, Mr. Brereton is still worried. Most butterfly populations have been getting smaller.

Quiz

1	Where do Lulworth skipper butterflies live?		
	(A)	Mexico	
	(B)	Ireland	
	(C)	Canada	
	(D)	England	
2	What is a reason why butterfly numbers have gone up?		
	(A)	Many monarch butterfly populations are growing.	
	(B)	Conservation groups protect the monarch butterfly habitats.	
	(C)	Some types of butterflies live in the United Kingdom.	
	(D)	Scientists have been studying many butterflies.	
3	How are m	nonarch butterflies in Mexico different from monarchs in California?	
	(A)	Monarchs in Mexico need more habitats.	
	(B)	Monarchs in Mexico had many babies.	
	(C)	Monarchs in Mexico are black and white.	
	(D)	Monarchs in Mexico grew in cocoons.	
What happened because of warm and wet weather?			
	(A)	There were more caterpillars making cocoons.	
	(B)	Butterflies traveled from Canada to Mexico.	
	(C)	The marbled white butterfly went to the U.K.	
	(D)	Tom Brereton worked for Butterfly Conservation.	



Mystery of the white monarchs

By Cricket Media, adapted by Newsela staff on 03.19.20 Word Count **638**



A white monarch butterfly in Hawaii. White monarchs, also known as nivosus morphs, are rare creatures. Most monarch butterflies are orange and black. Photo: Lisa/Flickr

Monarch butterflies are known for their orange and black wings. They are easy to spot. You might have seen them before.

However, there is another type of monarch that most people have never seen. Instead of being orange and black, its wings are white and black.

Both orange and white monarchs are from the same species. A species is a group of living things. They are closely related. They are able to have babies with one another.

The white monarch is called the *nivosus* morph. A morph is a group within a species. It looks or acts differently than the rest of the species. Many species have morphs. Tigers sometimes have black stripes on a white coat. These differences are called "polymorphisms."

Polymorphisms come from DNA, the basic building block of life. It creates genes. Genes carry instructions that tell living bodies how to grow and work.

Genes Change The Wing Colors

Humans and butterflies get two copies of every gene. These copies can be different forms of a gene. For example, one form might create white wings. The other form might create orange wings. One form is sometimes stronger than the other. The stronger copy hides the effects of the weaker copy.

White wings are a weaker form than orange wings. That is why white monarchs are unusual. Monarchs must have two copies of the white gene. When this happens, they appear white.

The white monarch is very rare. It is also a target for predators. Both white and orange monarchs store poisons in their bodies. Birds who eat orange monarchs learn to avoid others that look like them. However, birds do not learn to avoid white monarchs. They are too rare. They often get eaten.

White monarchs show up in random places now and then. They have been spotted in Florida and California. They have even been spotted in Indonesia. Often, they just disappear.

However, sometimes they become more common. This happened in the 1960s on the island of Oahu in Hawaii. By the 1980s, they made up 8 percent of the total monarch population on the island. Something had given these white monarchs an advantage.

Pretty But Poisonous

John Stimson is a scientist. He works at the University of Hawaii. He noticed when the white monarchs appeared on Oahu. What had caused them to become more common?

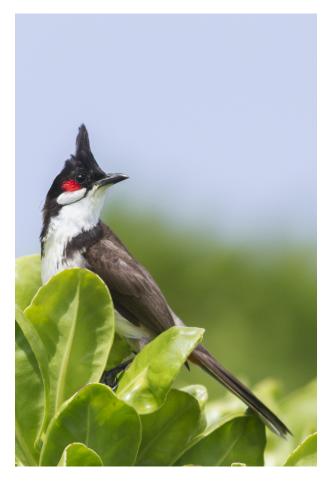
Stimson studied the monarchs to find answers. He learned that a type of bird likes to eat orange monarchs. These birds are called bulbuls. They do not mind the monarchs' poisons. The orange monarchs might be easier for bulbuls to see. Their color stands out.

Other scientists studied the white monarchs' DNA. They found that the monarchs carry a certain gene. This gene is responsible for their white color. But it is unclear how the gene creates the white wings.

Scientists Want To Learn More

Today, white monarchs have become rare again in Hawaii. Nobody knows why.

Scientists still have many questions about white monarchs. Why do they appear out of the blue? In 2001, white monarchs appeared on Aneityum. This is an island in the Pacific Ocean. They were more common there than anywhere else in the world. Why did this happen? Scientists are visiting the island to find out.



What we know for now is that the environment creates forces. These forces help or hurt a morph's survival. They make a particular version of a gene more or less common. One version might get

squeezed out. Sometimes, it might seem to have disappeared.

However, an unusual gene can hide within a species. This can be helpful for a species in case the environment changes. The gene might become more common again.

Quiz

(A)

(B)

(C)

(D)

1 Which sentence from the article states a MAIN idea of the entire article? (A) The white monarch is called the nivosus morph. (B) Genes carry instructions that tell living bodies how to grow and work. (C) This gene is responsible for their white color. (D) Scientists still have many questions about white monarchs. 2 The main idea of the section "Genes Change The Wing Colors" is that genes control an organism's appearance. Which key detail from the section supports the section's MAIN idea? (A) One form is sometimes stronger than the other. The stronger copy hides the effects of the weaker copy. (B) The white monarch is very rare. It is also a target for predators. Birds who eat orange monarchs learn to avoid others that look like them. (C) By the 1980s, they made up 8 percent of the total monarch population on the island. (D) 3 If readers are looking for information on how genes change the monarch's appearance, which section should they read? (A) Introduction [paragraphs 1-5] "Genes Change The Wing Colors" (B) (C) "Pretty But Poisonous" "Scientists Want To Learn More" (D) What does the section "Scientists Want To Learn More" show the reader?

some questions about white monarchs that still are not answered

the differences between orange monarchs and white monarchs

where scientists found the first white monarchs in the world

how scientists explained the increase in white monarchs on Oahu

English Language Learner Supplement K-1

Excerpt from <u>My Shadow</u> By Robert Louis Stevenson	Reading: Read the poem with help. Listening: Listen as someone reads	
I have a little shadow that goes in and out with me,	the poem to you. Make pictures in your mind of what is happening in	
And what can be the use of him is	the poem.	
more than I can see.	Speaking: Tell someone in English what the poem is about.	
He is very, very like me from the heels up to the head;	<u>Writing:</u> Write the rhyming words from the poem.	
And I see him jump before me, when I	<u>Me</u> and	
jump into my bed.	<u>Head</u> and	
Poem in the Public Domain		
Poem in the Public Domain Writing: Draw and label a picture of wh	nat is happening in the poem.	
	nat is happening in the poem.	
	nat is happening in the poem.	
	nat is happening in the poem.	
	nat is happening in the poem.	
	nat is happening in the poem.	

Suplemento para

Estudiantes que Aprenden Inglés K-1

Se recomienda que los niños completen la página en inglés para practicar las habilidades en inglés.

Extracto de Mi Sombra

Por Robert Louis Stevenson

Tengo una pequeña sombra que entra y sale conmigo,

Y lo que puede ser su uso es más de lo que puedo ver.

Él es muy, muy parecido a mí desde los talones hasta la cabeza;

Y lo veo saltar delante de mí, cuando salto a mi cama.

Poema en el Dominio Público

<u>Lectura</u>: Lee el poema con ayuda.

Escucha: Escucha mientras alguien te lee el poema. Haz fotos en tu mente de lo que está sucediendo en el poema.

<u>Hablando:</u> Cuéntale a alguien en inglés de qué trata el poema.

<u>Escritura:</u> Escribe las palabras que riman de la versión inglesa del poema.

<u>Me</u> y _____

Head y _____

Escritura: Haz un dibujo de lo que está sucediendo en el poema. Etiqueta tu dibujo.

Writing Ideas K-1 Elementary Week #11

Students can draw pictures and/or compose sentences and/or paragraphs to respond to the prompts and ideas below. This will vary depending on their grade level.

Narrative

• What did you do over the weekend? Write a personal narrative to tell about your weekend. You should include what you did, the order you did it in, and who and/or what was involved. Be sure to include details and have a beginning, middle, and end.

Opinion/Argument

• What is your favorite color? Why is it your favorite color? Write an opinion piece on your favorite color and why it is the best. Add reasons, examples, and/or details to support your opinion.

Informational/Explanatory

Did you know there are many things that fly! There are airplanes, hot air balloons, kites, spaceships, various birds, bats, insects, and even flying squirrels. Talk to someone in your family or do some research to find out more about things that fly. Pick your favorite thing that can fly and write an informational piece about it. Learn as much as you can about it. Introduce your topic and add facts, information, and/or details.

Writing in Response to Reading Bingo

Complete the Bingo board by engaging in various writing ideas from this week's reading selections. Try to get 3-in-a row!

What was something important that you learned from this week's reading? Write about something you thought was important and why you thought it was important. Include details from what you read to help support your opinion.

In the story **Bear and Fox**, they shared a book! What are some other adventures Bear and Fox could have? Draw a picture of Bear and Fox on an adventure! Write your own Bear and Fox story to go with it!

In the story **Fishing from a boat**, Matthew was in a boat. What do you know about boats? Do some research on boats and write an informational piece about your findings. Draw a picture of a boat and label the parts! For extra fun, watch the video on boats at https://bit.ly/2ZFzimQ

Rhyming words is fun! Write your own rhyming sentences, paragraphs, poem, song, or story that has words that end with –ob, –ote and/or –ode!

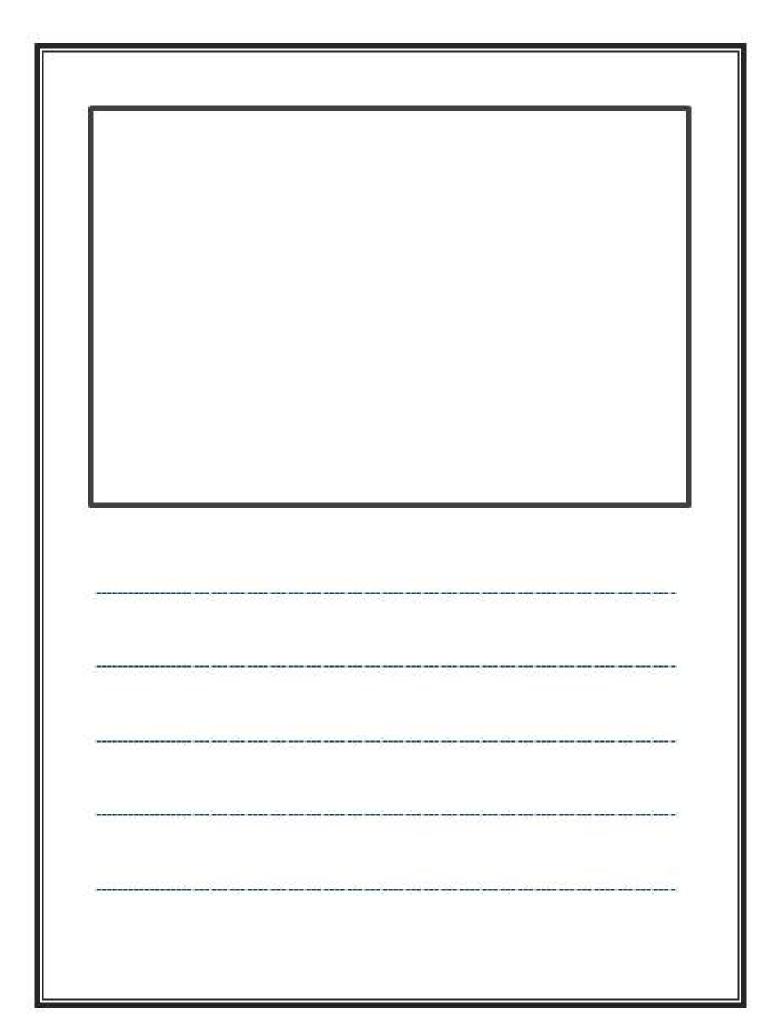
What do you know about butterflies? Do you have any butterflies that you can look at where you live? Look closely at the butterfly and write about what you see. Do some research on butterflies and include that in your writing.

WRITER'S CHOICE

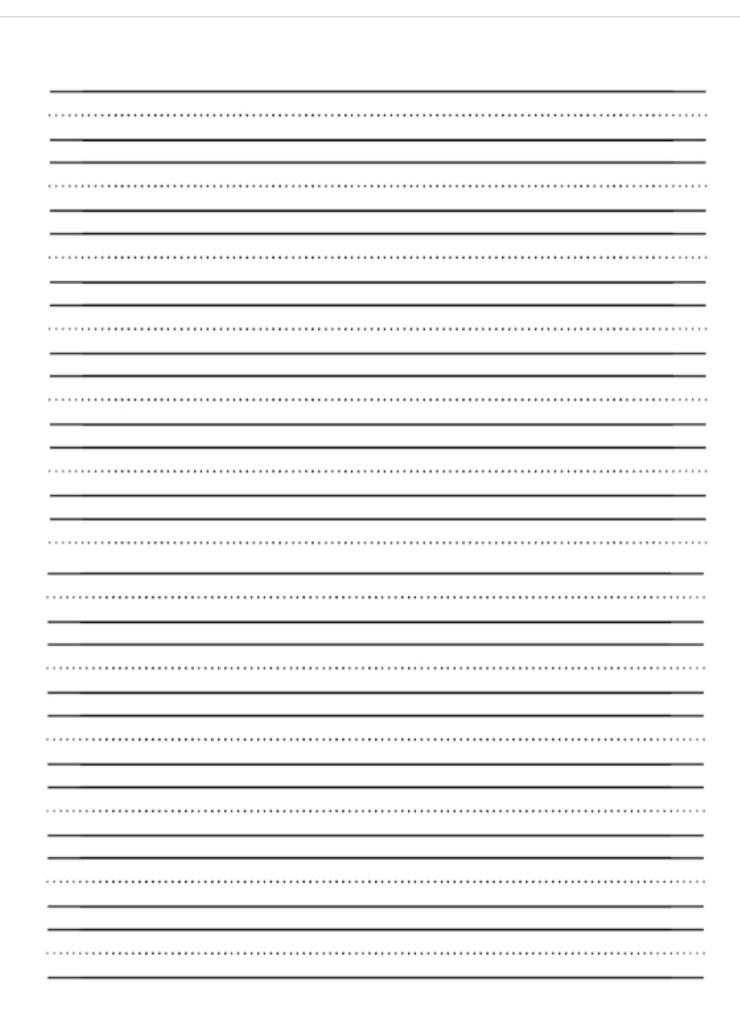
In **A Job for Bob**, Bob got a job working on a farm. When you grow up what kind of job would you like to have? Write an opinion or informational piece about your dream job! Add details and have a beginning, middle, and end.

Vocabulary words are fun! Write a poem or song with some of the words from this week's readings! You can also create a bingo board with the words or draw pictures to go with each word and make your own word/picture memory game!

Write about how the two reading selections Good news! Some butterfly populations bounced back in 2019 and Mystery of the white monarchs are similar and/or different. For more fun, watch the video about a butterfly life at https://bit.ly/3gvP61i







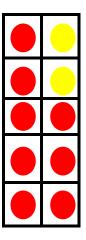
Make Ten on the Ten Frame

4 + 6 = 10

Materials: numeral cards (0-10), ten frames, two-color counters

- 1. Choose a numeral card. Put this number of red counters on a ten frame.
- 2. Add yellow counters to fill the ten frame. How many yellow counters did you need?
- 3. Record your work using a picture and an equation.
- 4. Repeat with other numeral cards. How many different ways can you find to make ten on the ten frame?

Make Ten on the Ten Frame



Materials: two color counters (red and yellow), blank ten frame

were red and some were yellow. What might my placed ten counters on my ten frame. Some ten frame have looked like? Draw a picture and write an addition equation for each solution that you find.

How many different solutions did you find?

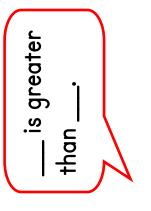
Double Ten Frame

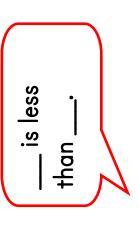
Comparing Two Digit Numbers

Materials: numeral cards (0-9), cards with symbols <, >, and =

- 1. Use your 0-9 cards. Turn over 4 cards and make two different 2-digit numbers.
- Use the symbols <, > or = to compare the numbers you make. ر ا
- 3. Record and repeat.

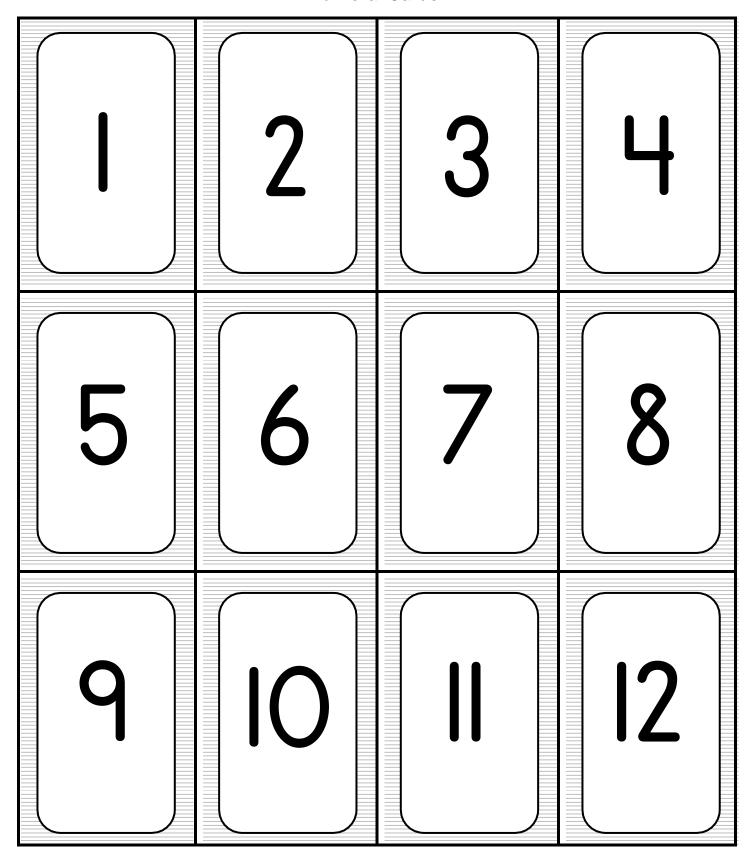






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Numeral Cards



Lesson 8: Binary Bracelets

Overview .

Binary is extremely important in the world of computers. The majority of computers today store all sorts of information in binary form. This lesson helps demonstrate how it is possible to take something from real life and translate it into a series of one and offs.

Purpose

In this lesson students will learn how information is represented in a way such that a computer can interpret and store it. When learning binary, students will have the opportunity to write codes and share them with peers as secret messages. This can then be related back to how computers read a program, translate it to binary, use the information in some way, then reply back in a way humans can understand. For example, when we type a sentence into a document then press save, a computer translates the sentence into binary, stores the information, then posts a message indicating the document has been saved.

Agen**d**a

- Warm Up (15 min)
 - Vocabulary
 - Off and On
- Main Activity (20 min)
 - Binary Bracelets Worksheet
- Wrap Up (5 min)
 - Flash Chat: What did we learn?
 - Journaling
- Assessment (15 min)
- Extended Learning

Teaching Guide

Warm Up (15 min)

Vocabulary

This lesson has one new and important word:

Binary - Say it with me: Bye-nair-ee

A way of representing information using only two options

Off and On

If you've written a short message on the board in binary, call the students' attention to it and ask if
anyone knows what it is or what it means.

- Put the message aside and move on to prepping for the activity.
- You can start by asking the class if they have ever seen inside a computer.
 - O What's in there?
 - This is a good place to actually show them the inside of a computer (or pictures of the inside of a computer).



- Wires carry information through the machine in the form of electricity.
 - The two options that a computer uses with respect to this electrical information are "off" and "on." Just like the lights in this room!
 - When computers represent information using only two options, it's called "Binary."
 - That theme of two options doesn't stop when the information gets to its destination.
- Computers also store information using binary.
 - Binary isn't always off and on.
 - Hard Disk Drives store information using magnetic positive and magnetic negative.
 - DVDs store information as either reflective or non-reflective.
 - How do you suppose we can convert real-life things that we want to store in a computer into binary?
 - Let's start with letters.
 - Use the Binary Bracelets Worksheet to show how a computer might represent capital letters.
 - This is a good time to mention that each spot where you have a binary option is called a "binary digit" or "bit" for short.
 - Ask if anyone knows what a grouping of eight bits is called (it's a byte.)
 - Fun fact: A grouping of four bits is called a nibble.
 - Watch the Bits Versus Bytes Student Video (~1 minute)

- Go over a few examples of converting letters into binary, then back.
- Afterward, write an encoded letter and give the class a few seconds to figure out what
 it is
- When the class can figure out that encoded letter on their own, you can move on to the activity.

Main Activity (20 min)

Binary Bracelets - Worksheet

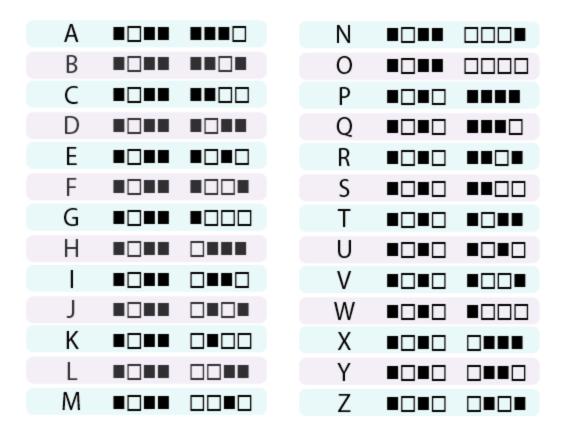
Lesson Tip

You know your classroom best. As the teacher, decide if students should do this individually or if students should work in pairs or small groups.

You do not need to cover the whole of binary, like counting and converting numbers back and forth from decimal. This lesson is intended to be a fun introduction to how computers store information, not a frustrating lesson in bases.

Directions:

- Find the first letter of your first name on the activity sheet.
- Fill in the squares of a bracelet to match the pattern of the squares next to the letter that you selected.
- Cut the bracelet out.
- Tape the bracelet around your wrist to wear it!
- Share your bracelet with your classmates to see if they can figure out your letter.



Lesson Tip

If your class has extra budget for materials, try doing this exercise using thread (or pipe cleaners) and beads to create the binary bracelets instead of pen and paper. You can provide any combination of two colors in beads to the students, but black and white tend to be easiest, given the way that the key is done.

After the activity, revisit the message that was on the board and see if your class can decypher it using what they've learned.

Wrap Up (5 min)

Flash Chat: What did we learn?

- What else do you think is represented as binary inside of a computer?
- How else might you represent binary instead of boxes that are filled or not filled?
- What was your favorite part about that activity?

Journaling

Having students write about what they learned, why it's useful, and how they feel about it can help solidify any knowledge they obtained today and build a review sheet for them to look to in the future.

Journal Prompts:

- What was today's lesson about?
- How did you feel during today's lesson?
- Use the activity worksheet to write out the rest of your name or your favorite word in binary.
- Imagine a world where we spoke in binary, saying "on" or "off", but nothing else. Draw two characters trying to talk to each other in binary.

Assessment (15 min)

- Hand out the Binary Bracelets Assessment and allow students to complete it independently after the instructions have been well explained.
- This should feel familiar, thanks to the previous activities.

Extended Learning

Use these activities to enhance student learning. They can be used as outside of class activities or other enrichment.

Binary Images

- There are several great resources on the web for taking this activity to the next level.
- If your students are interested in how images (or even music) can be represented as binary, you can find more details in Thinkersmith's Binary Baubles.

Binary Bracelets



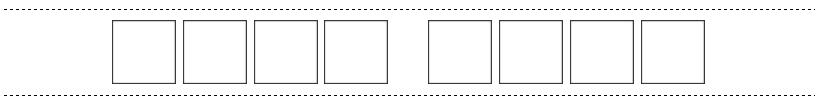
Binary Decoder Key

Letter	Binary	Letter	Binary
Α		N =	
В		0	
С		P •	
D		Q	
E		R •	
F		S	
G		Τ ■	
Н		U	
I		V •	
J		W	
K		X	
L		Y	
M		Z	

Find the first letter of your first name.

Fill in the squares of the bracelet below to match the pattern of the squares next to the letter that you found.

Cut the bracelet out and tape it around your wrist to wear it!



Binary Bracelets

Binary Decoder Key

Letter	Binary	Letter	Binary
Α		N	
В		0	
С		P =	
D		Q	
Е		R ■	
F		S	
G		Т =	
Н		U	
		V •	
J		W	
K		X	
L		Y	
М		Z	

Can you figure out what the message says?

 Write the message here!