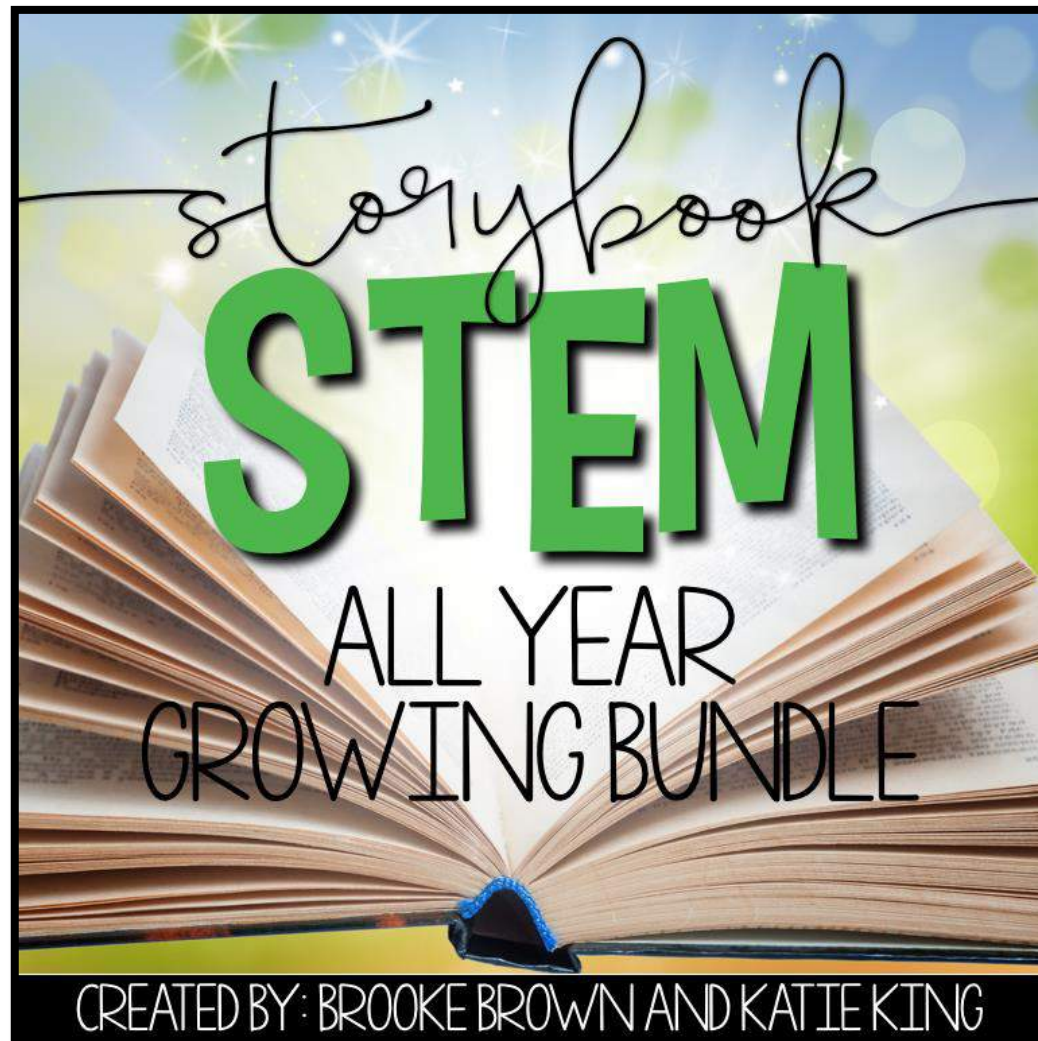
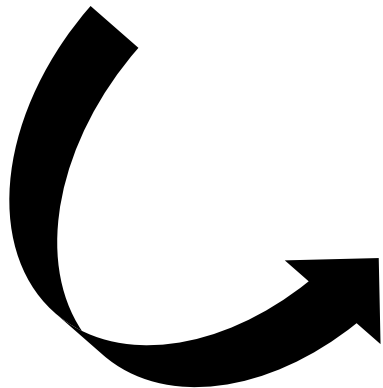


Love *Storybook* STEM?

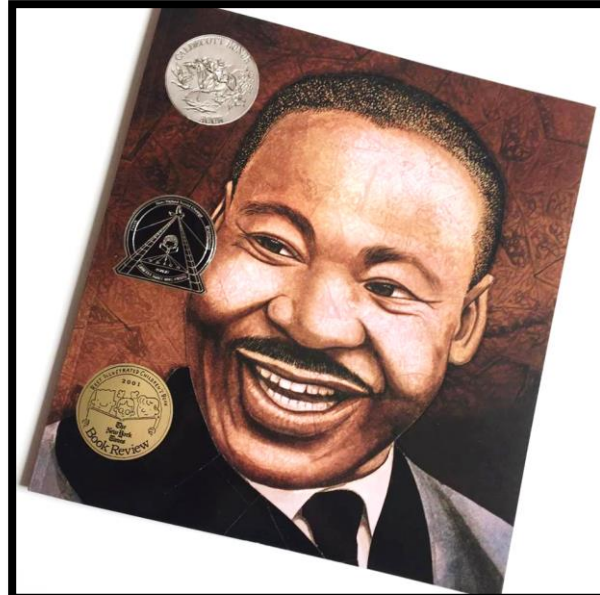
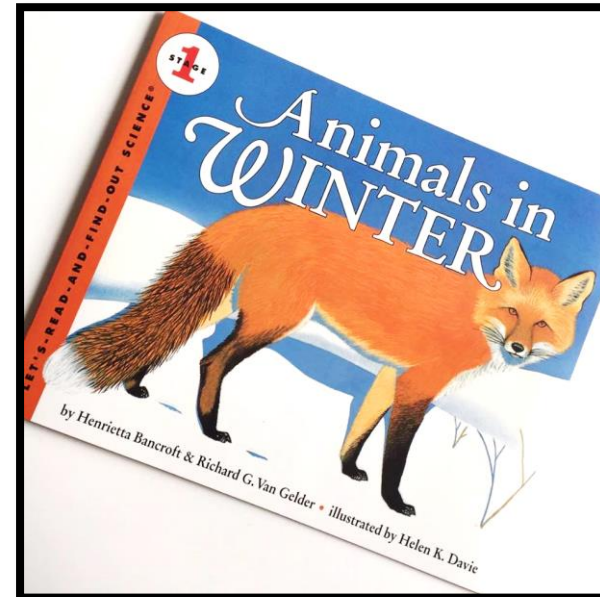
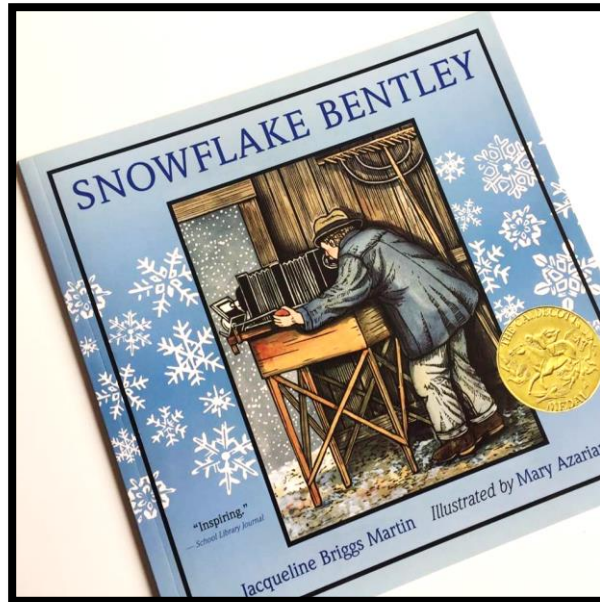
Save BIG with the All Year Bundle!

Click
Here!



January BOOK SELECTIONS

Click the pictures below to purchase each book through affiliate links on my website.



January

Storybook STEM



Read Aloud (20 minutes)	Comprehension and Grammar (30 minutes)	Vocabulary (30 minutes)	Math (10 minutes)	STEM Whole Group Intro (10 minutes)	STEM Challenge (40 minutes)	STEM Whole Group Reflection (10 minutes)
<u>Snowflake Bentley</u> by Jacqueline Briggs Martin	Setting and Apostrophes	4 vocab words: failures, foolishness, evaporate, delicate	Symmetry	•Share challenge and introduce materials and vocabulary •Project and discuss characteristics of snowflakes and how they are formed	Paper Snowflakes	•Share successes, struggles and improvements •Review science, engineering, and math skills that were practiced
<u>Martin's Big Words</u> by Doreen Rappaport	Making Connections and Antonyms	4 vocab words: blistering, courage, protest, freedom	Timelines	•Share challenge and introduce materials and vocabulary •Project and discuss towers and big (powerful) words from the book	Word Tower	•Share successes, struggles and improvements •Review science, engineering, and math skills that were practiced
<u>Animals in Winter</u> by Henrietta Bancroft	Compare and Contrast and Proper Nouns	4 vocab words: migrate, hibernate, twigs, discover	Miles	•Share challenge and introduce materials and vocabulary •Project and discuss how animals survive in winter and types of animal feeders	Animal Feeder	•Share successes, struggles and improvements •Review science, engineering, and math skills that were practiced
<u>Snowballs</u> by Lois Ehlert	Punctuation and Commas	4 vocab words: sack, shrinking, mush, blob	Temperature	•Share challenge and introduce materials and vocabulary •Project and discuss properties •Allow students to sort/classify their objects by properties & create snowball friends.	Snowball Friend	•Share successes, struggles and improvements •Review science, engineering, and math skills that were practiced

Dig Deeper Into the Text!



Teacher Questions for **Snowflake Bentley**

*Why does the author start the book "In the days when farmers worked with ox and sled..."? What is the purpose?

* What is the camera like that Willie's parents bought for him? Why is the camera so big?

*How do you know that Willie is a hard worker?

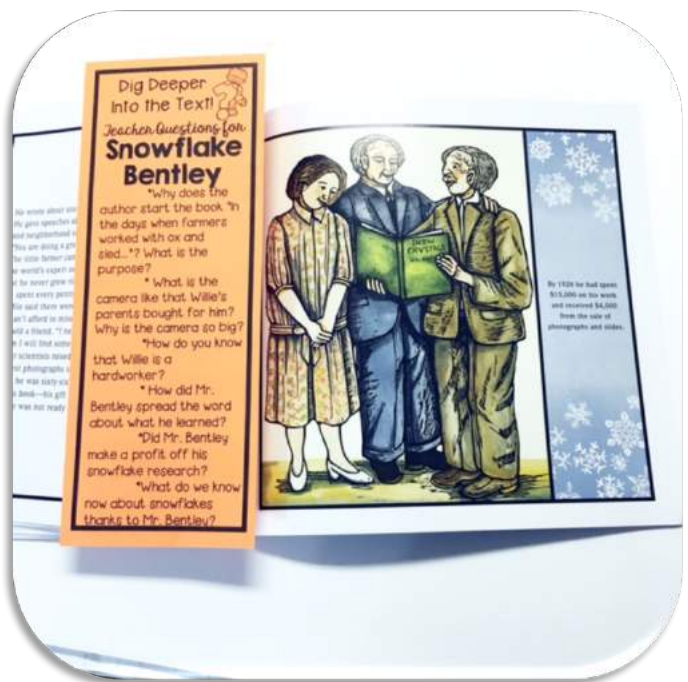
* How did Mr. Bentley spread the word about what he learned?

*Did Mr. Bentley make a profit off his snowflake research?

*What do we know now about snowflakes thanks to Mr. Bentley?

TEACHERS: PRINT ON COLORED PAPER AND LAMINATE. USE THIS BOOKMARK YEAR AFTER YEAR TO HELP EXTEND STUDENTS' THINKING!

Intended Use



COMPREHENSION

1. Show students the Setting poster and discuss the setting in Snowflake Bentley.

2. Use the posters to discuss the questions on each one. Discuss how setting impacts the storyline. Also discuss why the “when” part of setting is important.

The Setting

The setting of a book is **WHEN** and **WHERE** the story takes place.



Describe the Setting

What time of day? Where is this?
Could this be a setting for Snowflake Bentley?

Describe the Setting

What is the setting? What might a scientist observe in this setting? Is this just any body of water or a specific one?

Describe the Setting

Pair up with a partner. Describe a story that you could write that takes place in this location. What might be a possible **PROBLEM** in that story?



SETTING: Describe the Setting

Name: _____




COMPREHENSION

3. Students complete the half sheet to demonstrate their understanding of setting.

Name: _____

Setting





Why is setting important in the story?


4. Optional Extension Activity for High Flyers! Introduce apostrophes to students who are ready by using this poster.

Apostrophe

An apostrophe can be used to show possession.

Willie's camera 

 **his father's herd**

the world's expert 

© Brooke Brown and Katie King

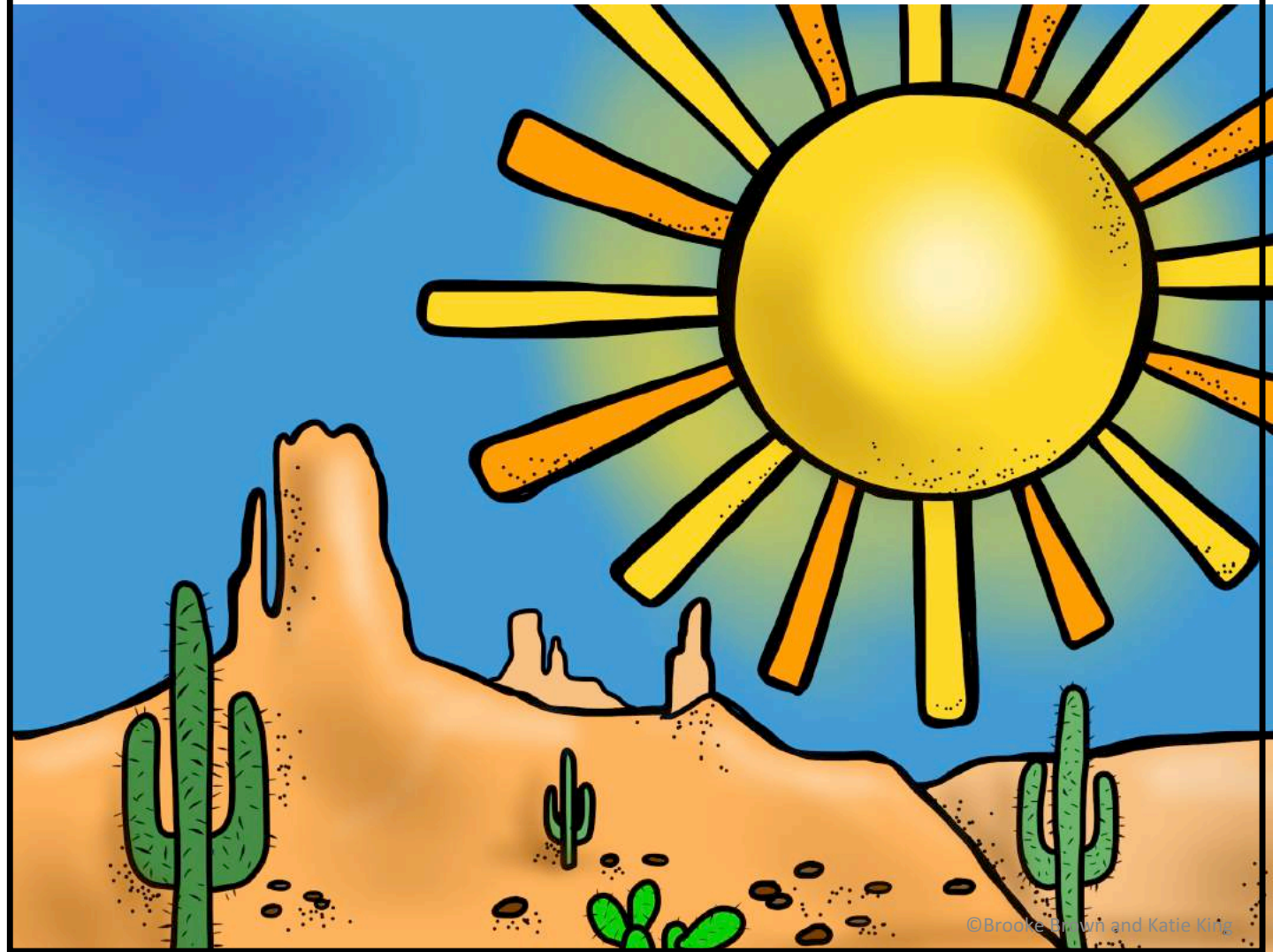
The Setting

The setting of a book is **WHEN** and **WHERE** the story takes place.



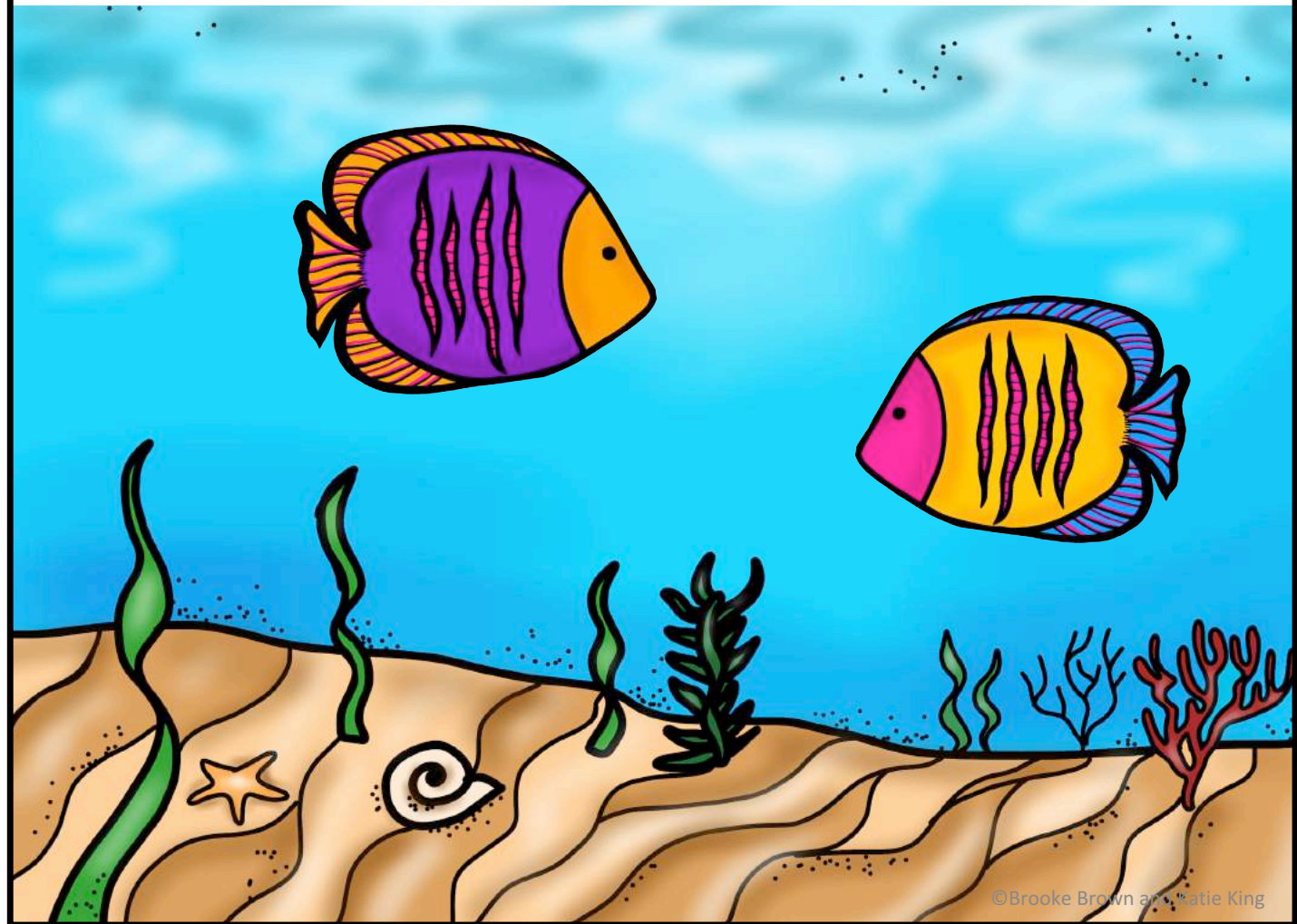
Describe the Setting

What time of day? Where is this?
Could this be a setting for
Snowflake Bentley?



Describe the Setting

What is the setting? What might a scientist observe in this setting? Is this just any body of water or a specific one?



Describe the Setting

Pair up with a partner. Describe a story that you could write that takes place in this location. What might be a possible **PROBLEM** in that story?



SETTING: Describe the setting

Name: _____



Name: _____

Setting



Why is setting important in the story?

Name: _____

Setting



Why is setting important in the story?

Apostrophe

An apostrophe can be used to show possession.

**Willie's
camera**



**his father's
herd**

**the world's
expert**



failures



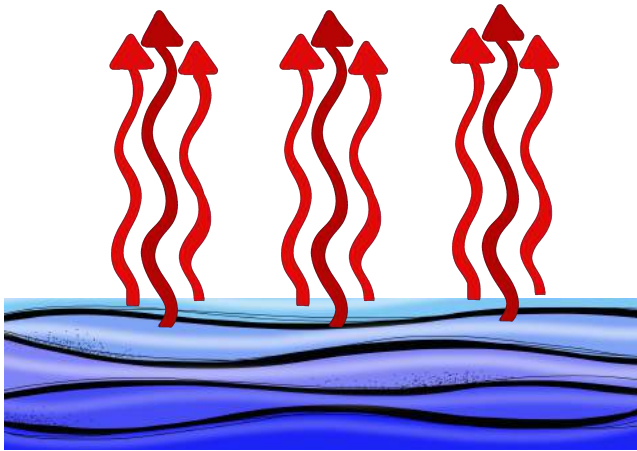
lack of
success

foolishness



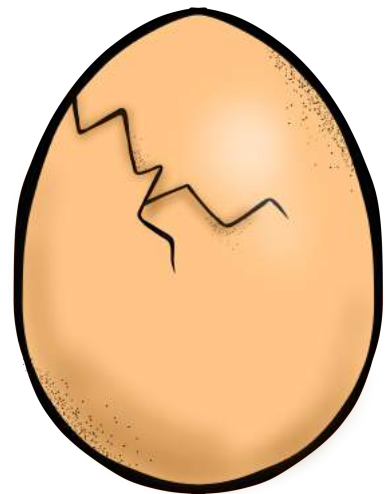
silliness

evaporate



water vapor
rises into the
air

delicate

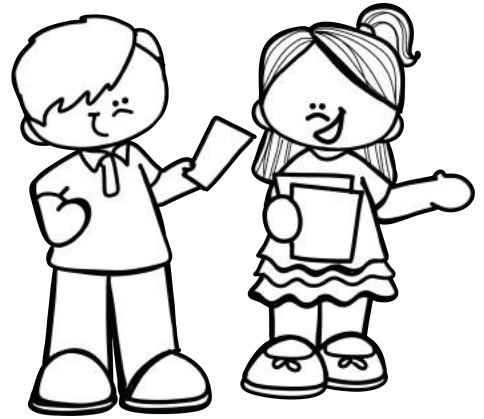


easily broken

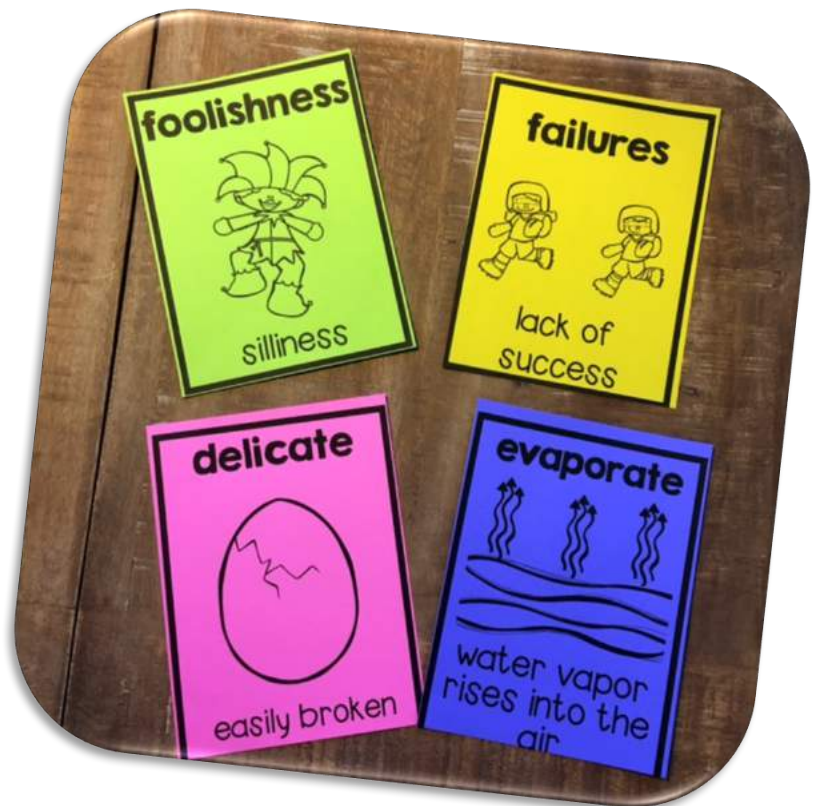
ACT IT OUT!

*After going over the definition of the words, split the class into groups of 2-4 students. Students should use their bodies and faces to show what the words mean. Give the students about five minutes to work through their words. Kids should be up and moving!

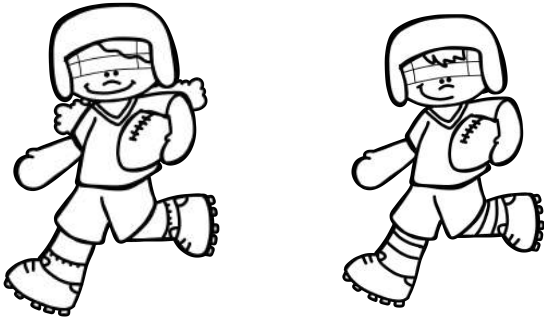
*Each group should pick out one word to act out to the class. The groups will hold up their version of the vocab words (black and white version) to show which word they think is being represented!



TEACHERS: PRINT ON COLORED PAPER AND HAVE STUDENTS HOLD UP. USE THIS AS A QUICK WAY TO GAUGE UNDERSTANDING! SCAN THE ROOM TO LOOK FOR THE COLOR YOU ARE LOOKING FOR!

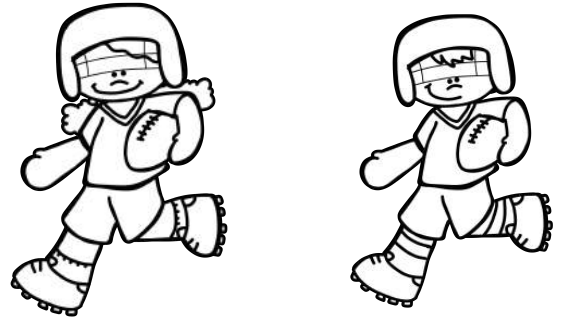


failures



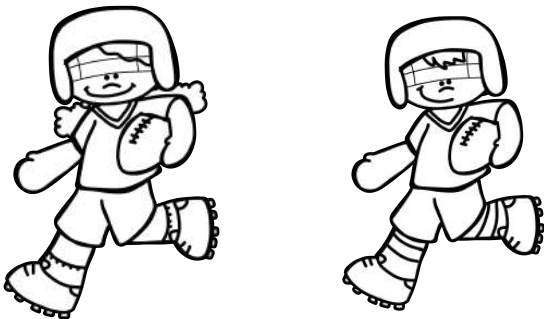
lack of
success

failures



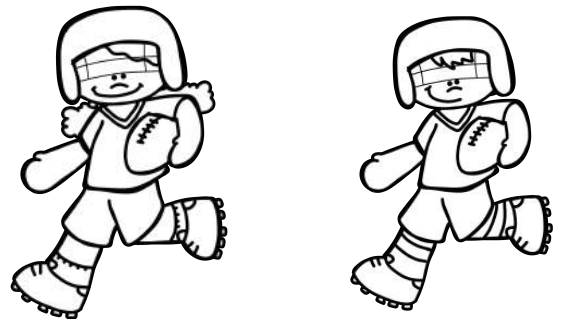
lack of
success

failures



lack of
success

failures



lack of
success

foolishness



silliness

foolishness



silliness

foolishness



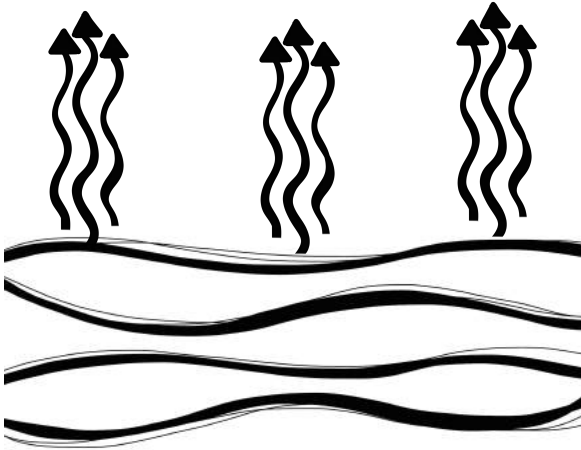
silliness

foolishness



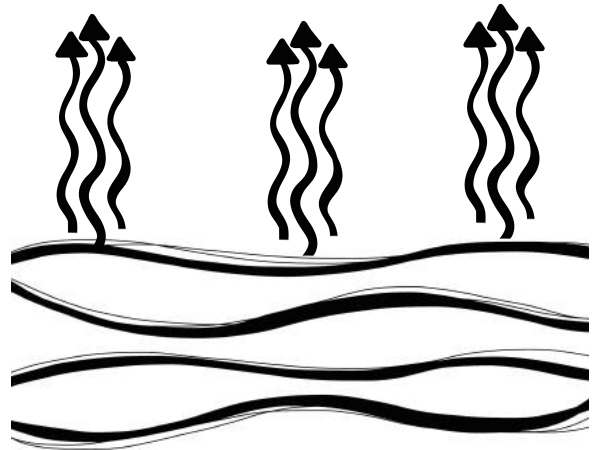
silliness

evaporate



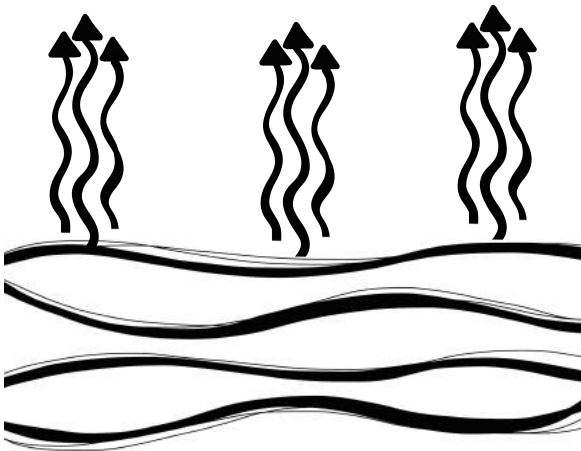
water vapor
rises into the
air

evaporate



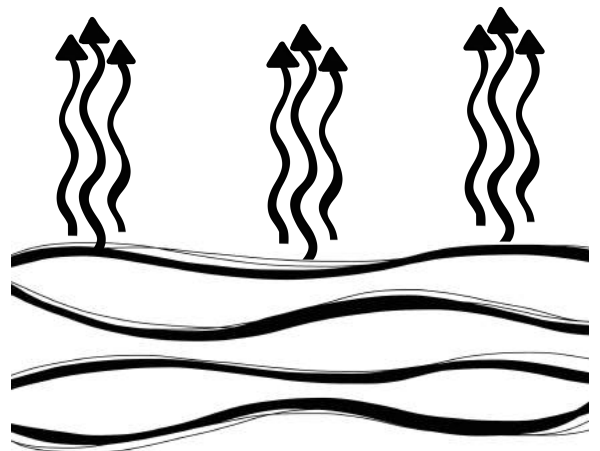
water vapor
rises into the
air

evaporate



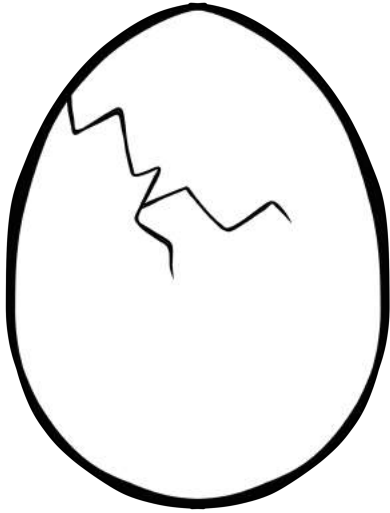
water vapor
rises into the
air

evaporate



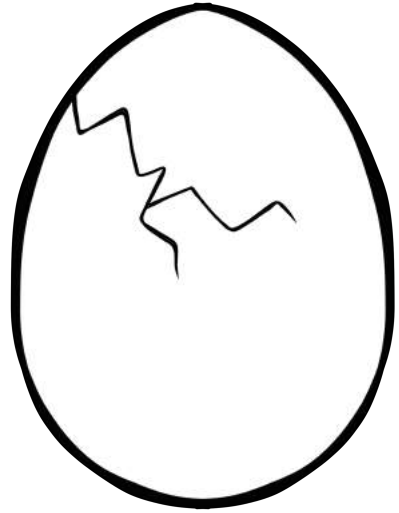
water vapor
rises into the
air

delicate



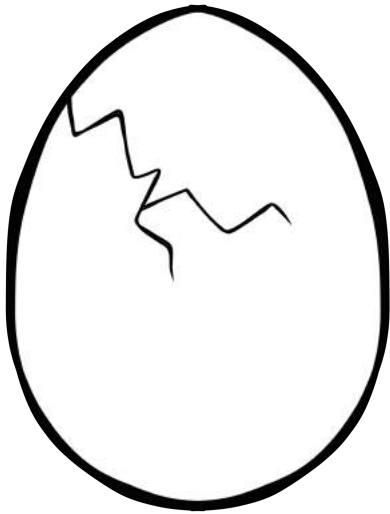
easily broken

delicate



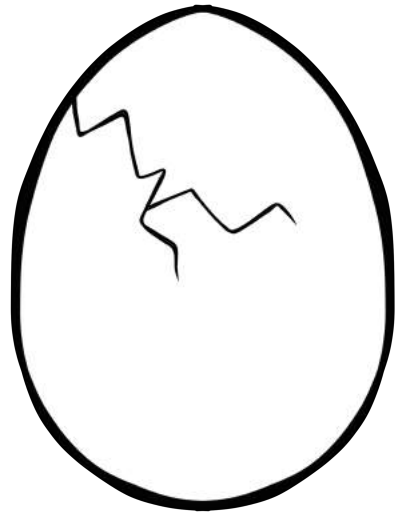
easily broken

delicate



easily broken

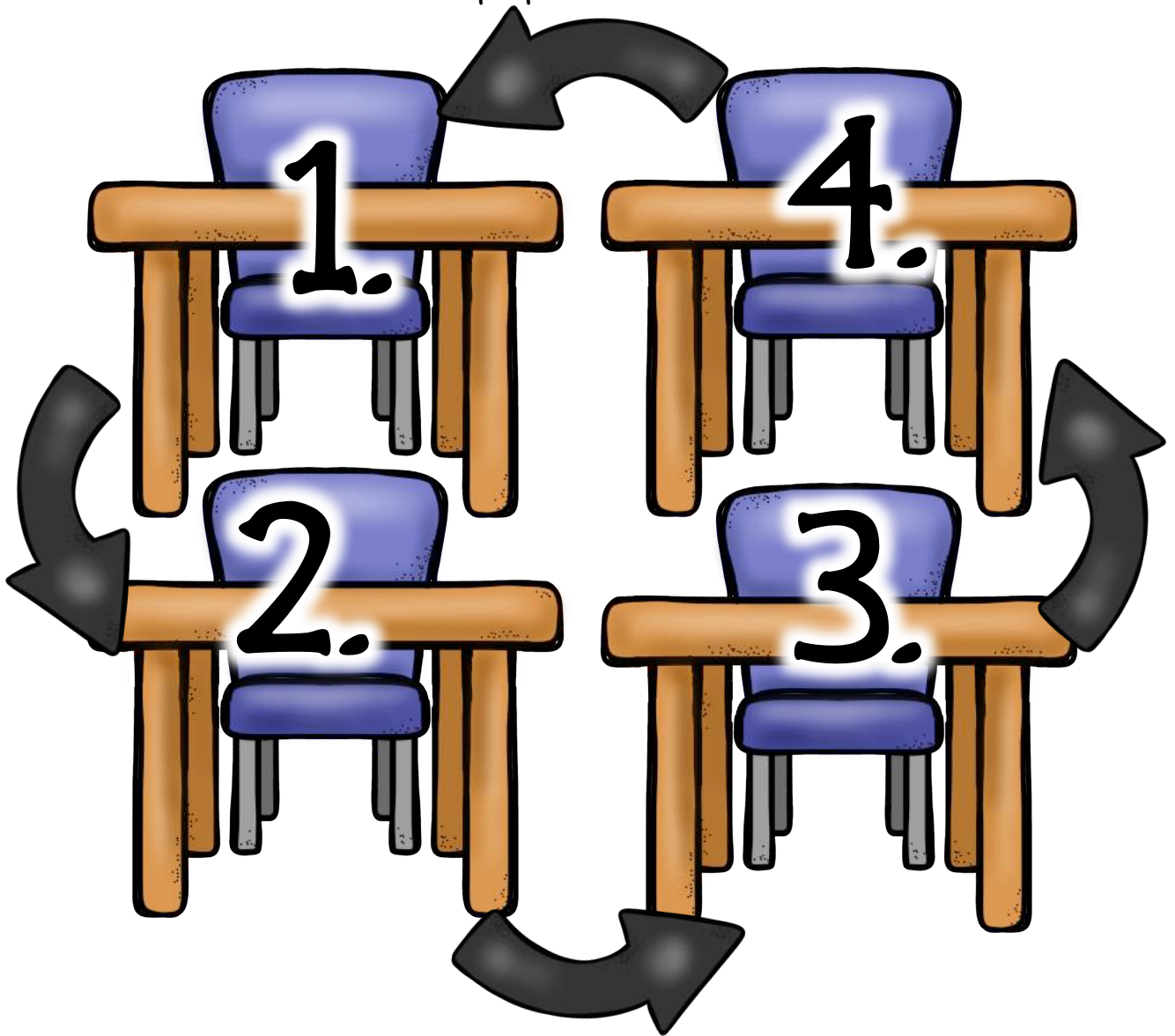
delicate



easily broken

COLLABORATIVE VOCAB SCOOT

*Students will rotate to four different desks. They will draw a picture and write a synonym or short definition for the word. Tell them to LEAVE the paper on the desk!



*At the end the student will go back to his or her seat and analyze the drawings and definitions. Allow some share time for students to make observations to the whole class.

Name: _____

COLLABORATIVE VO CAB SCOOT

Draw and write about the word in the box. Wait for your teacher to tell you it is time to move on to another desk!

1. foolishness

Definition: _____

2. failures

Definition: _____

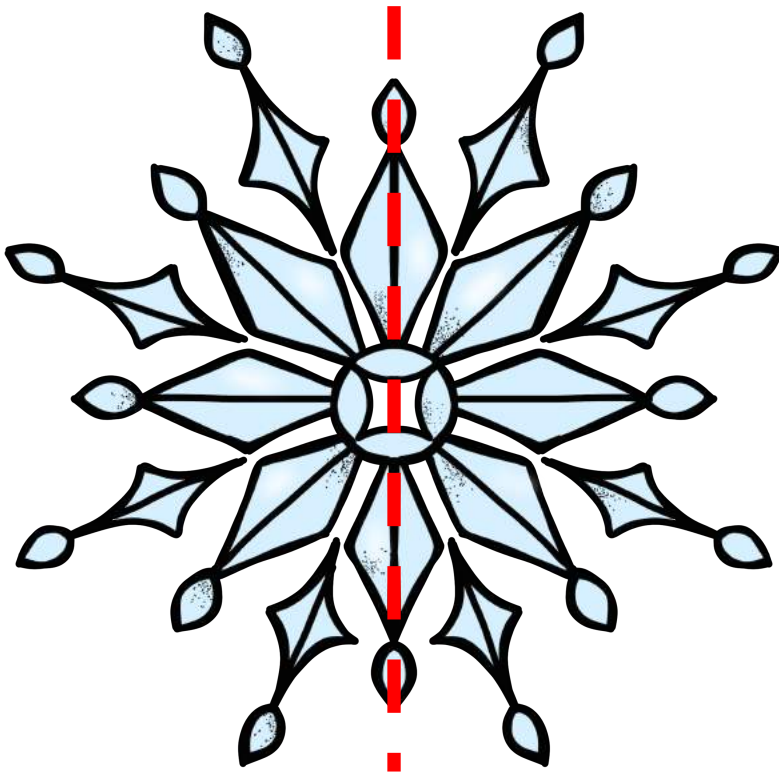
3. evaporate

Definition: _____

4. delicate

Definition: _____

MATH CONNECTION



Symmetry:

An object has symmetry when one side exactly mirrors the other side.

Look at the alphabet.
Which letters have symmetry? Discuss as a class.

B

T

R

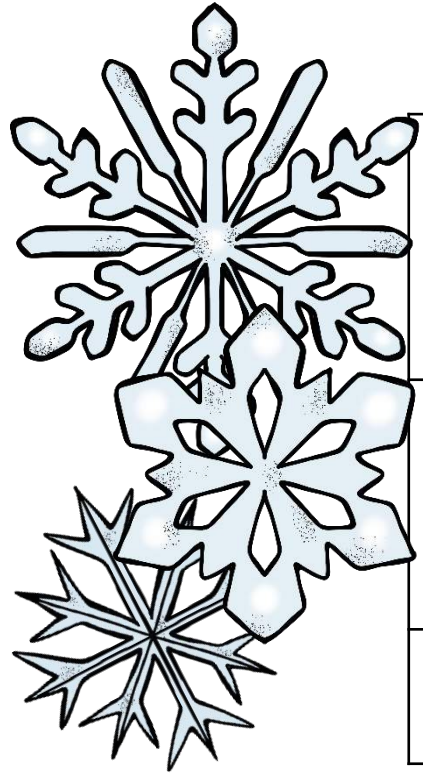
H

J

K

PAPER SNOWFLAKES

Snowflake Bentley



NGSS/CCSS Standard Alignment: K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. CCSS.MATH.CONTENT.K.G.A.1: Identify and describe shapes. CCSS.MATH.CONTENT.K.G.P.4: Analyze, compare, create, and compose shapes. CCSS.MATH.CONTENT.1.G.A.1, 2, 3: Reason with shapes and their attributes.

Challenge Description: IMPORTANT: Model this activity thoroughly with students prior to beginning. It may also be easier to complete this challenge with small groups of students or pair them with upper grade students. Students will create hexagonal (six-sided) snowflakes out of paper using a specific set of instructions for folding and cutting. While the basic introductory instructions are the same, students will have the opportunity to add creative cutout shapes and designs as they choose, then identify the shapes shown in their snowflake. They may also attempt to create snowflakes that resemble those shown in the book Snowflake Bentley.

Suggested Materials: white copy paper cut into 8.5" x 8.5" squares, scissors (You may also choose to provide smaller, square shaped pieces as well, such as 6" X 6," although smaller squares are more difficult for little hands to fold and cut.)

LESSON PLAN

1. Prime students' background knowledge about snowflakes by projecting a variety Google images on an interactive whiteboard. Also, refer back to Snowflake Bentley and the variety of snowflakes shown in the book. Discuss the similarities and differences between the snowflakes. Encourage students to notice that all real snowflakes are six-sided, or hexagonal.
2. Hold a class discussion, allowing students to share what they already know about snowflakes and how they are formed. Refer to the provided vocabulary cards as needed throughout the lesson and display them in your classroom. Record their ideas on the provided teacher chart and have them add ideas to their individual booklets. **Fill in blanks on page 1 of their student booklets as follows: crystals, molecules, 6, symmetrical**
3. Introduce permitted materials and share the challenge. Model and walk students through the initial instructions to create a hexagonal snowflake, either as a whole class or in small groups.
4. Allow students at least 30 minutes with partners or small groups to create and test a variety of designs, as well as record observations about their snowflakes in their STEM journals. You may also choose to have students decorate their finished snowflakes with markers or crayons.
5. Hold a whole class closing discussion and reflection, allowing students to share what they created and what they learned about snowflakes. Record their ideas on the provided teacher chart and have them finish their individual booklets.

PAPER SNOWFLAKES

Snowflake Bentley

Possible Products



PAPER SNOWFLAKES

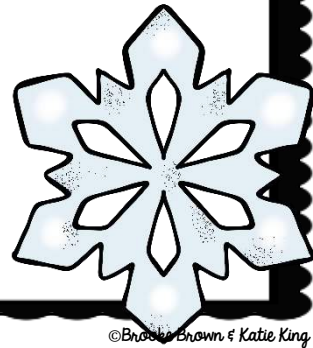
Snowflake Bentley

**What We Know About
Snowflakes**

**Questions We Have
About Snowflakes**

**How Snowflakes
are Formed**

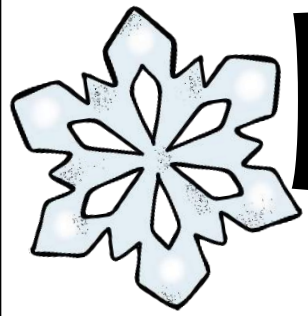
Shapes in our Snowflakes



PAPER SNOWFLAKES

Vocabulary Cards

©Brooke Brown & Katie King



hexagonal

having six sides



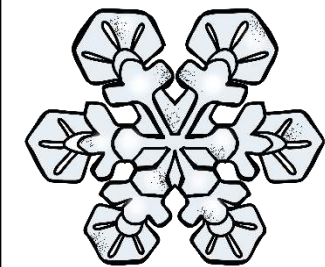
symmetrical

having an invisible line that reflects or mirrors identical sides when a shape is folded in half



crystal

a clear, transparent ice formation

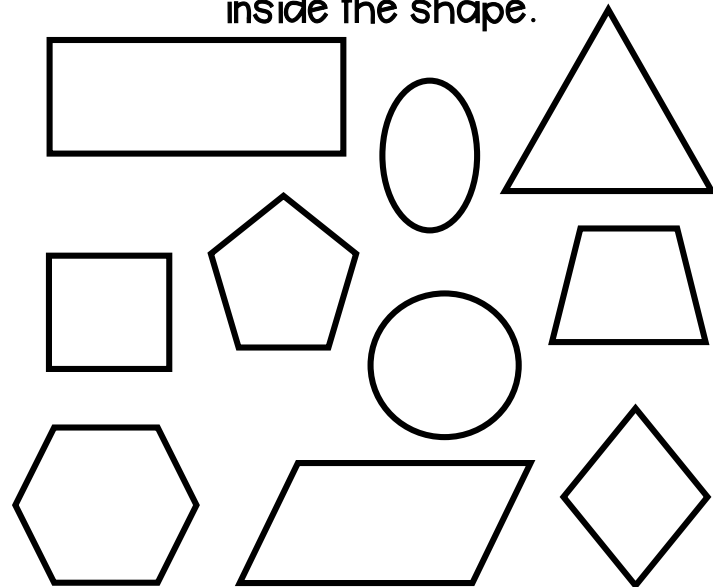


molecule

a very small particle



Lightly color all the shapes that are found in your snowflake. Count the number of each shape in your snowflake and write the number inside the shape.



Snowflake Bentley

Name: _____

STEM CHALLENGE

Can you create a hexagonal (six-sided) snowflake out of paper?

One thing that was EASY:

One thing that was HARD:

One new thing I LEARNED:

Snowflakes are made out of ice

_____.

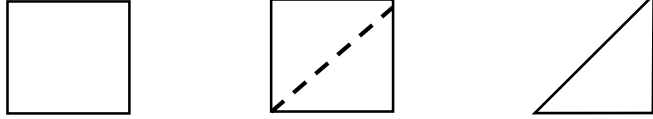
The ice crystals are formed when tiny drops of water called _____ freeze and join together.

Snowflakes are hexagonal, which means that they always have _____ sides.

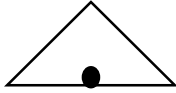
Snowflakes are _____, which means that they have mirrored designs on both sides.

INSTRUCTIONS

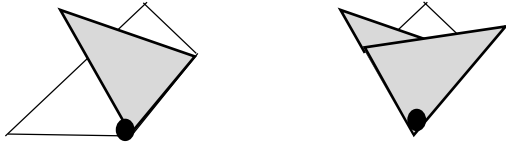
1. Start with a square shaped piece of paper.
2. Fold the paper in half on a diagonal.



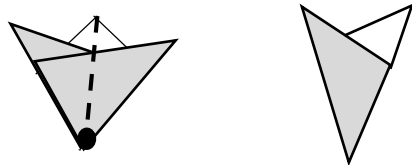
3. Draw a dot in the middle of the bottom folded side.



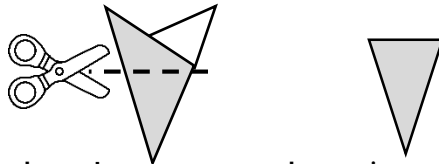
4. One at a time, fold the outer corners across the middle dot.



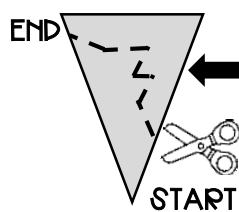
5. Fold the entire shape in half.



5. Cut off the "ears" along a straight edge on the top.



5. Draw and cut a curved or jagged line, starting near the bottom of the double-folded edge, and ending near the top of the single-folded edge.

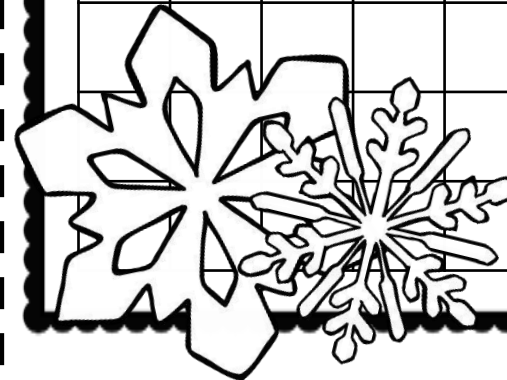
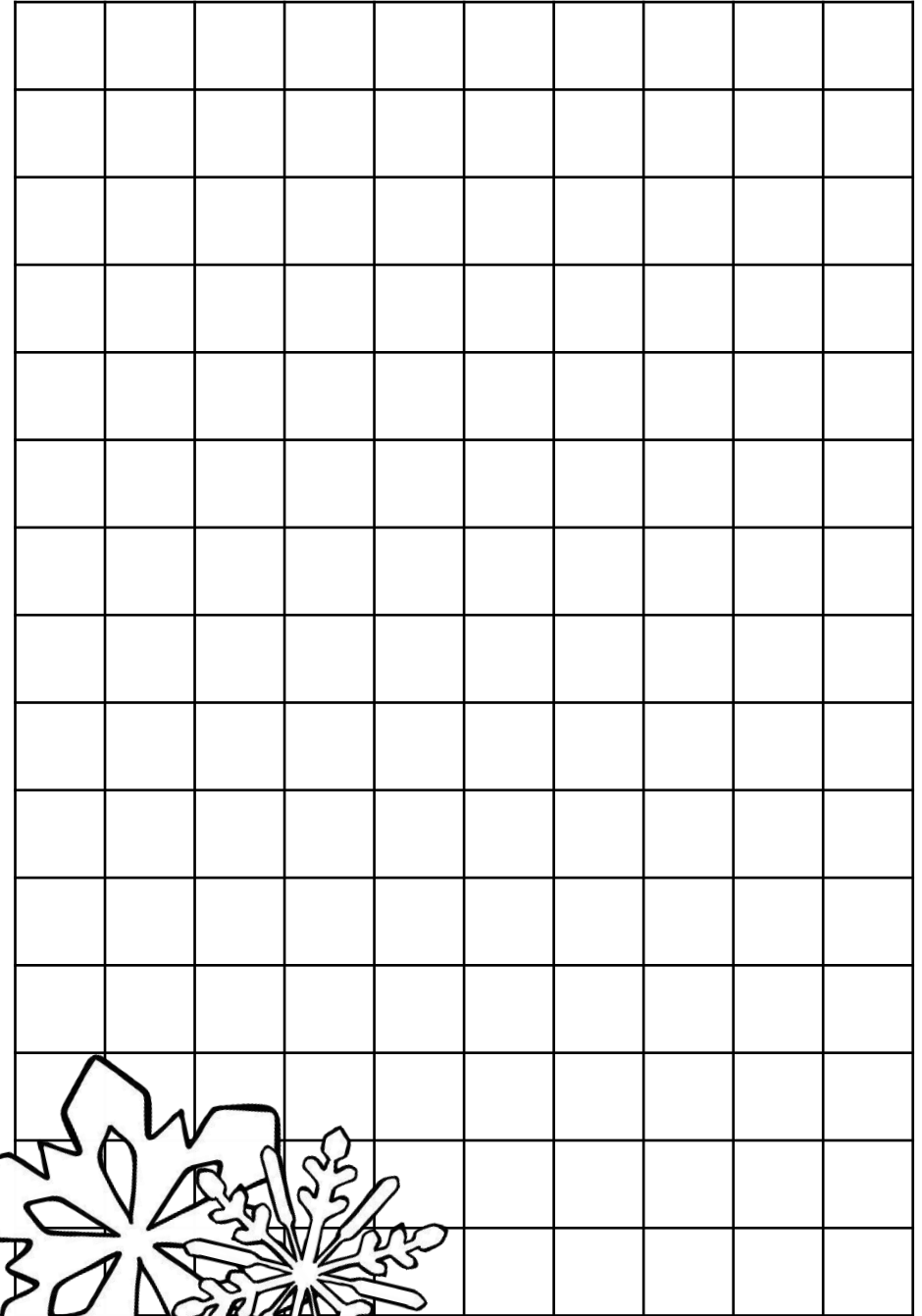


Then, cut out small shapes such as rhombuses and triangles on the double-folded edge.

Gently unfold!



My snowflake



Dig Deeper Into the Text!



Teacher Questions for **Martin's Big Words**

*Prepare the students for reading, by discussing the Author's Note in the front of the book. Discuss why the author focuses on Martin's words.

Can you think of a famous person or a person in your life who may have a big impact on the world like Martin did?

*How are Martin's words different than what he was hearing? (ex. separate, war, etc.)

*Why did MLK Jr. tell people not to fight with their fists? Did Martin not ever get angry and want to fight?

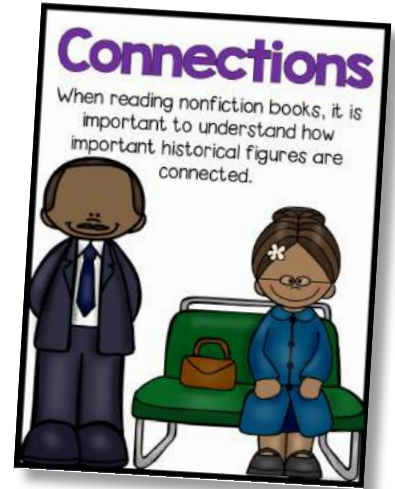
*What award did MLK Jr. win?

TEACHERS: PRINT
ON COLORED PAPER
AND LAMINATE. USE
THIS BOOKMARK
YEAR AFTER YEAR
TO HELP EXTEND
STUDENTS' THINKING!

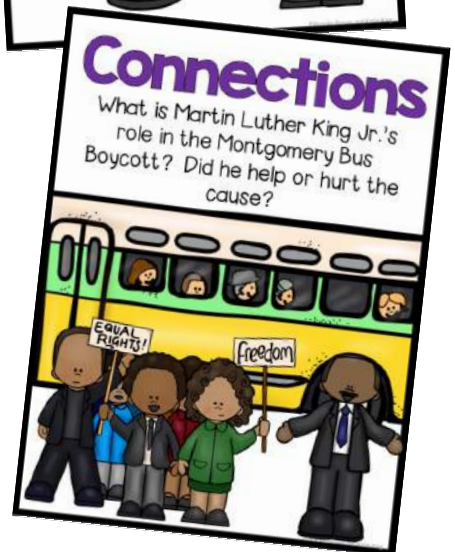
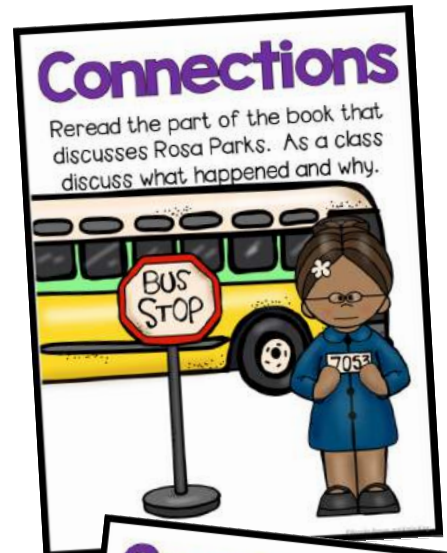


COMPREHENSION

1. Review how readers make connections when reading fiction. Show them the connections poster and talk about how when reading nonfiction those connections might look a little different.



2. Use the posters to walk through the Montgomery Bus Boycott. Discuss Rosa Parks and MLK Jr. and their roles in the historical events. Have students finish by completing drawing and writing about their understanding.



MAKING CONNECTIONS: Historical Figures

Name: _____

How are MLK Jr. and Rosa Parks connected?

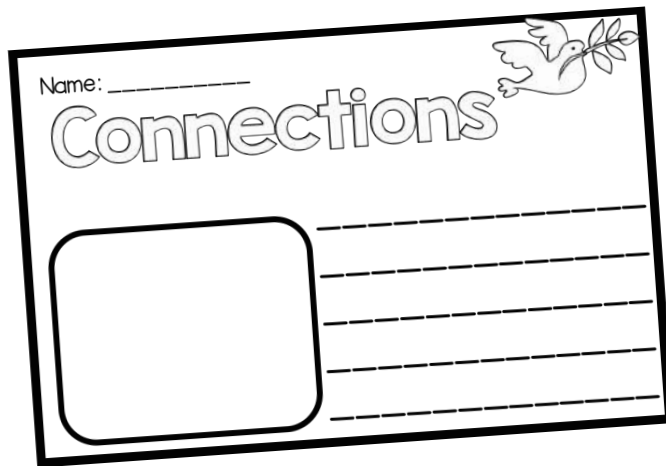


COMPREHENSION

3. Students complete the half sheet to demonstrate their understanding of one of the famous quotes in the book. .

Name: _____





Connections



4. Optional Extension Activity for High Flyers! Introduce antonyms and discuss more examples that the students may know.

Antonyms

Antonyms are words that are opposite of each other.

	
LOVE	HATE
	
PEACE	WAR

© Brooke Brown and Katie King

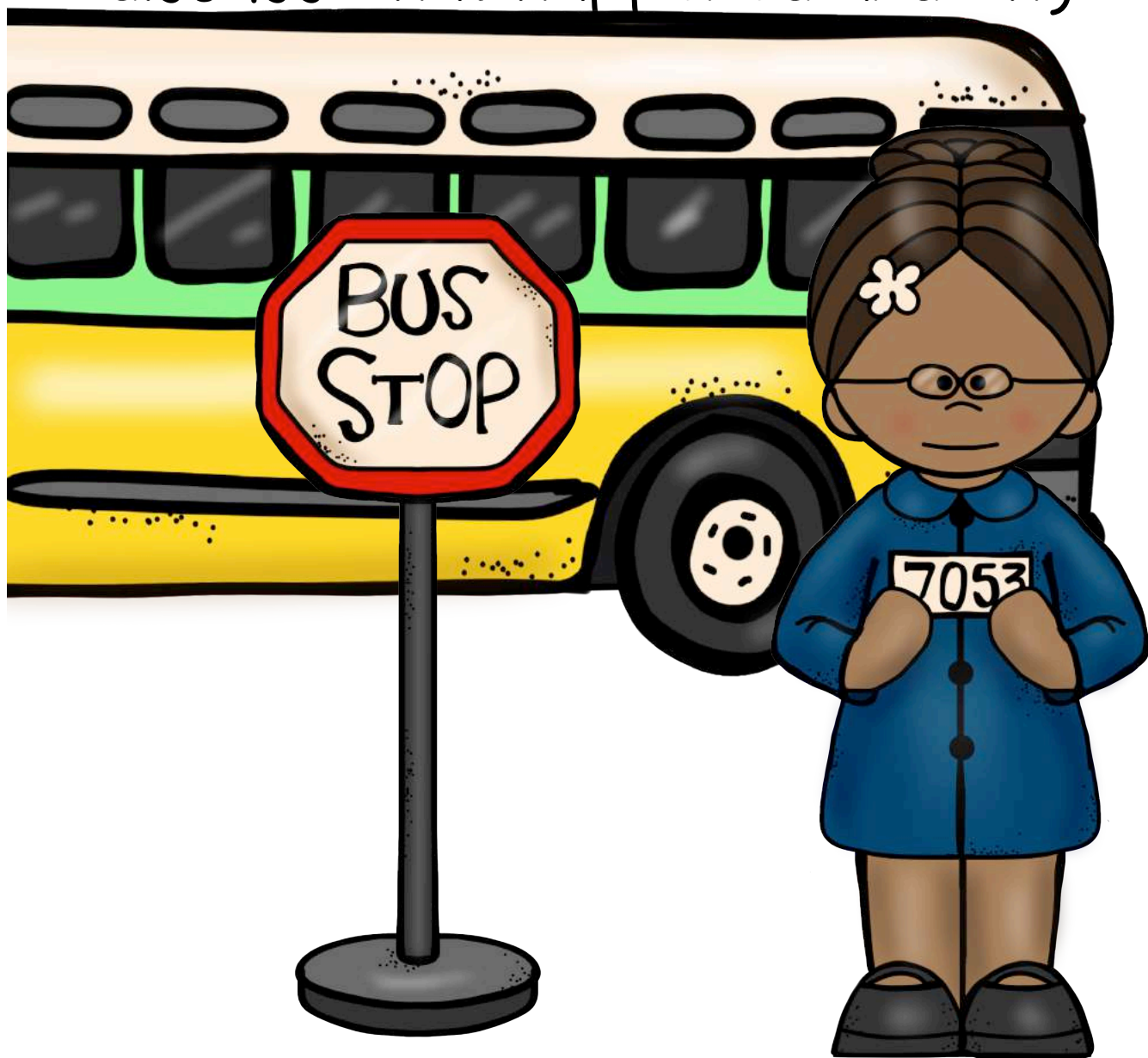
Connections

When reading nonfiction books, it is important to understand how important historical figures are connected.



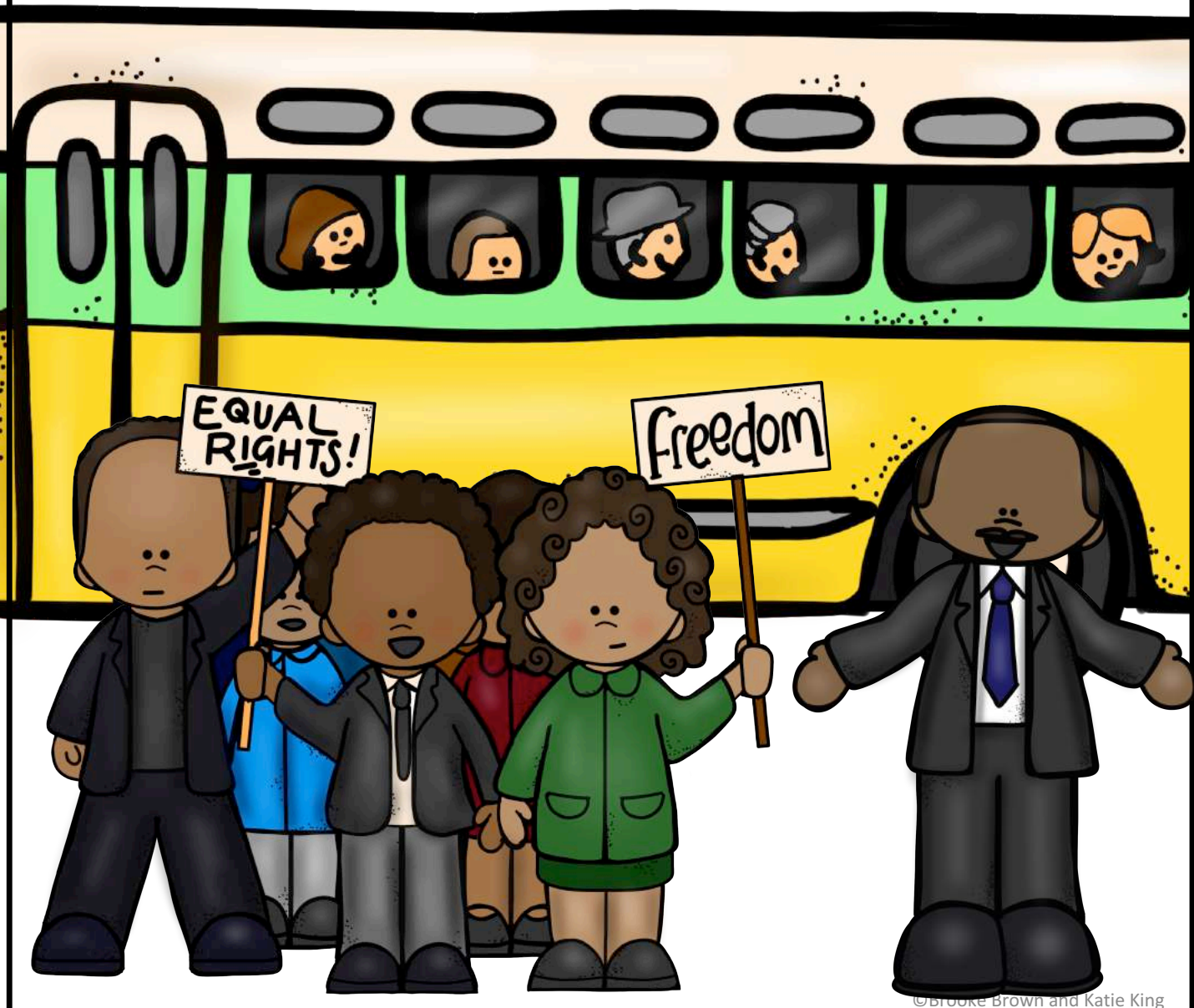
Connections

Reread the part of the book that discusses Rosa Parks. As a class discuss what happened and why.



Connections

What is Martin Luther King Jr.'s role in the Montgomery Bus Boycott? Did he help or hurt the cause?



**“When the history books
are written, someone will
say there lived black
people who had the
courage to stand up for
their rights.”**



MAKING CONNECTIONS: Historical Figures

Name: _____

How are MLK Jr. and Rosa Parks connected?



Name: _____



Connections

"Hate cannot drive out hate. Only love can do that." What do these words mean to you?

A large, empty rounded rectangular box with a thick black border, intended for a drawing or a written response.

Name: _____



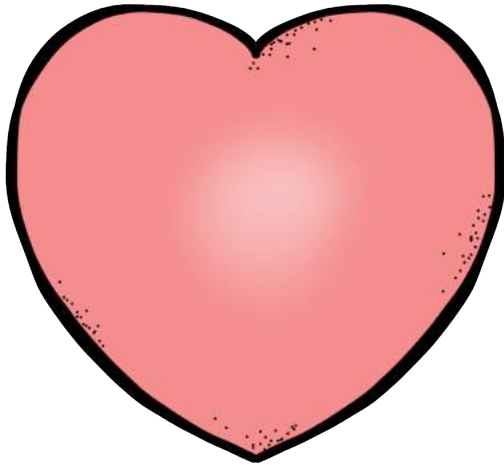
Connections

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A large, empty rounded rectangular box with a thick black border, intended for a drawing or a written response.

Antonyms

Antonyms are words that are opposite of each other.



LOVE



HATE



PEACE



WAR

blistering



intense
heat

courage



to do something
that frightens
you

protest



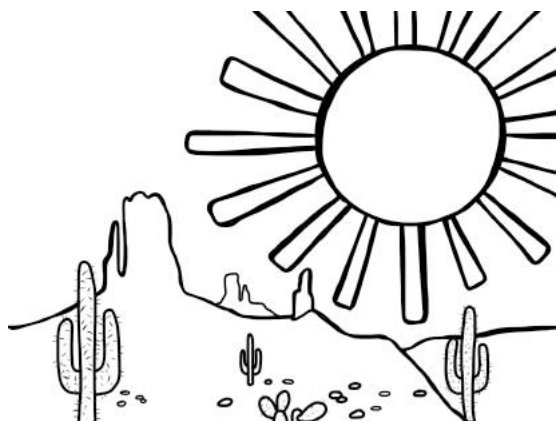
showing that
you disagree

freedom



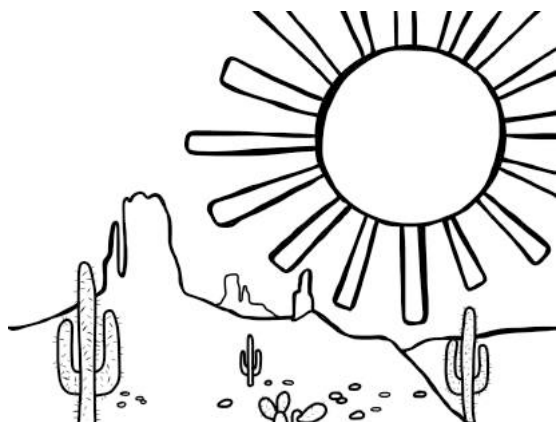
the power to
act as one
wants

blistering



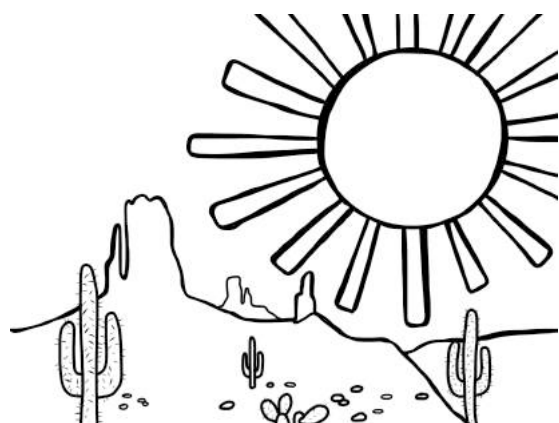
intense
heat

blistering



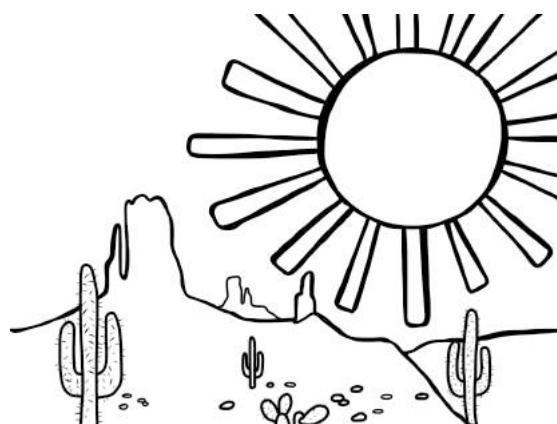
intense
heat

blistering



intense
heat

blistering



intense
heat

courage



to do something
that frightens
you

courage



to do something
that frightens
you

courage



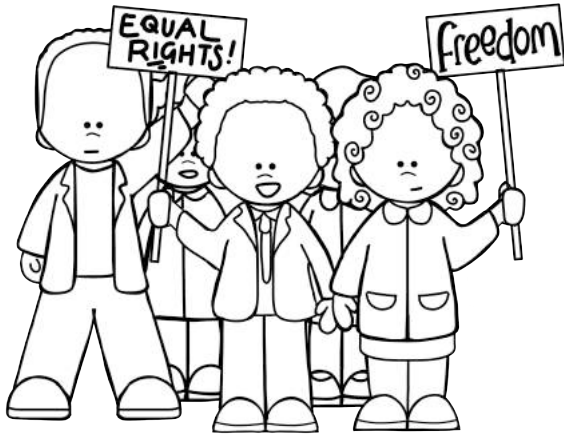
to do something
that frightens
you

courage



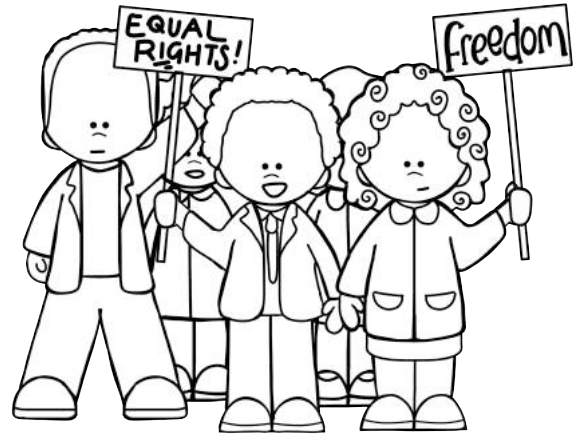
to do something
that frightens
you

protest



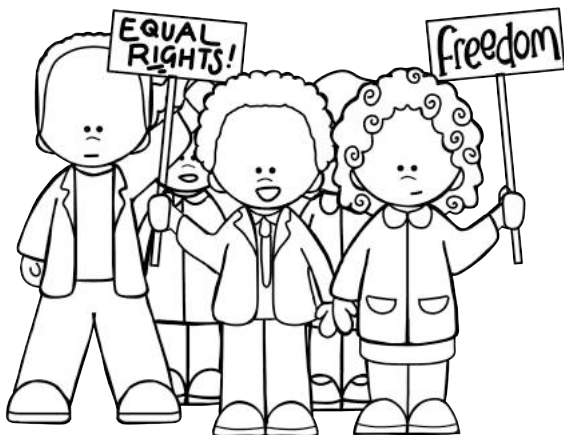
showing that
you disagree

protest



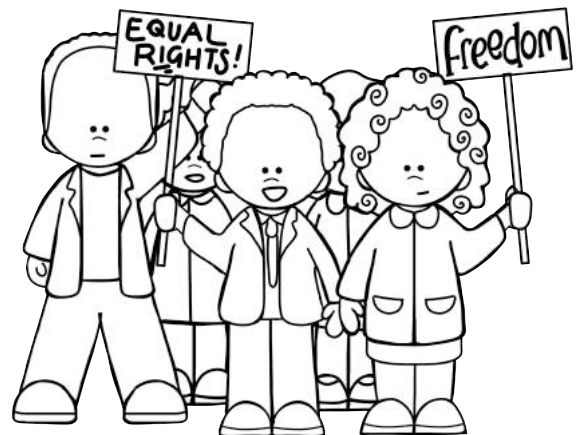
showing that
you disagree

protest



showing that
you disagree

protest



showing that
you disagree

freedom



the power to
act as one
wants

freedom



the power to
act as one
wants

freedom



the power to
act as one
wants

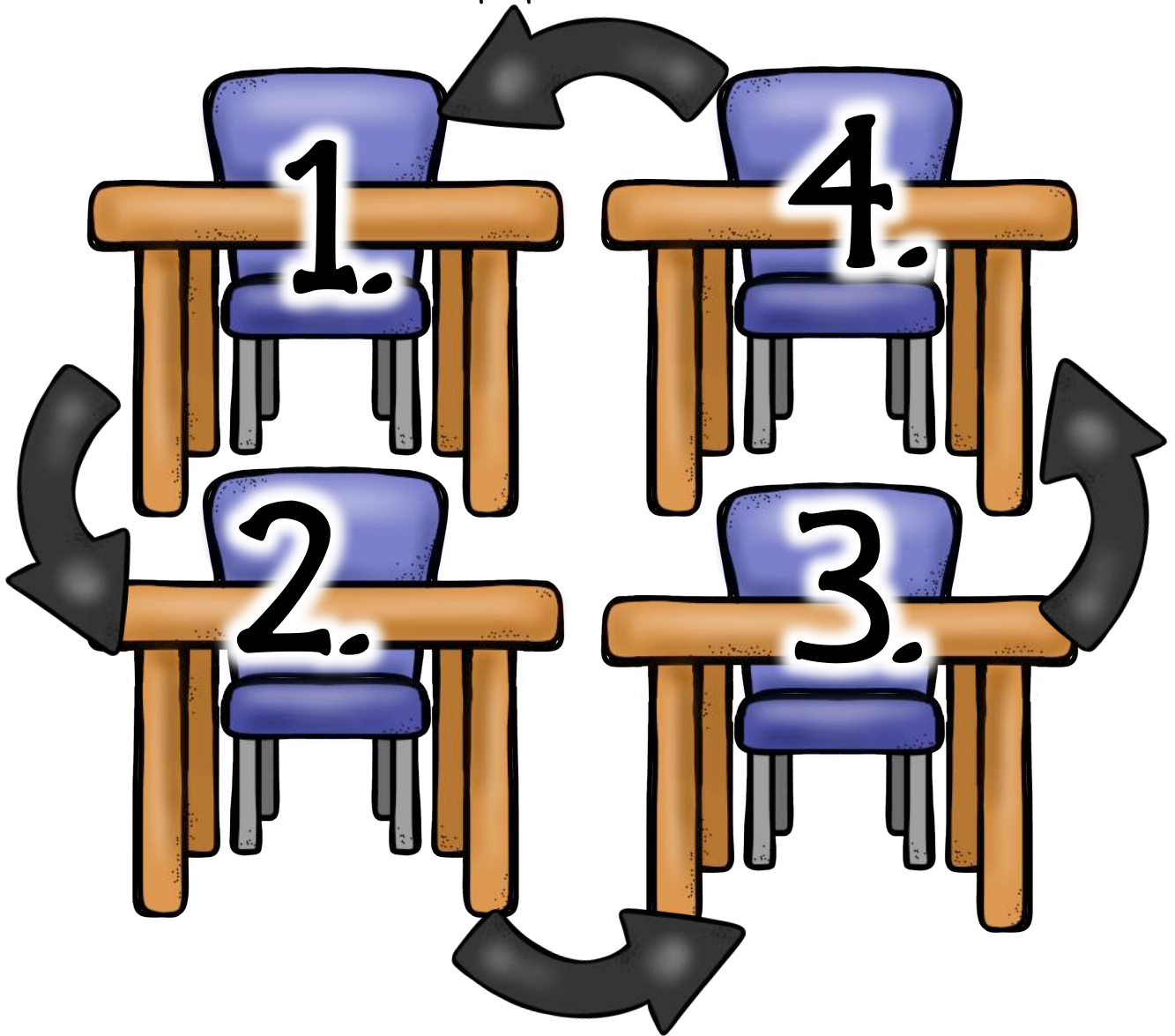
freedom



the power to
act as one
wants

COLLABORATIVE VOCAB SCOOT

*Students will rotate to four different desks. They will draw a picture and write a synonym or short definition for the word. Tell them to LEAVE the paper on the desk!



*At the end the student will go back to his or her seat and analyze the drawings and definitions. Allow some share time for students to make observations to the whole class.

Name: _____

COLLABORATIVE VO CAB SCOOT

Draw and write about the word in the box. Wait for your teacher to tell you it is time to move on to another desk!

1. blistering

Definition: _____

2. courage

Definition: _____

3. protest

Definition: _____

4. freedom

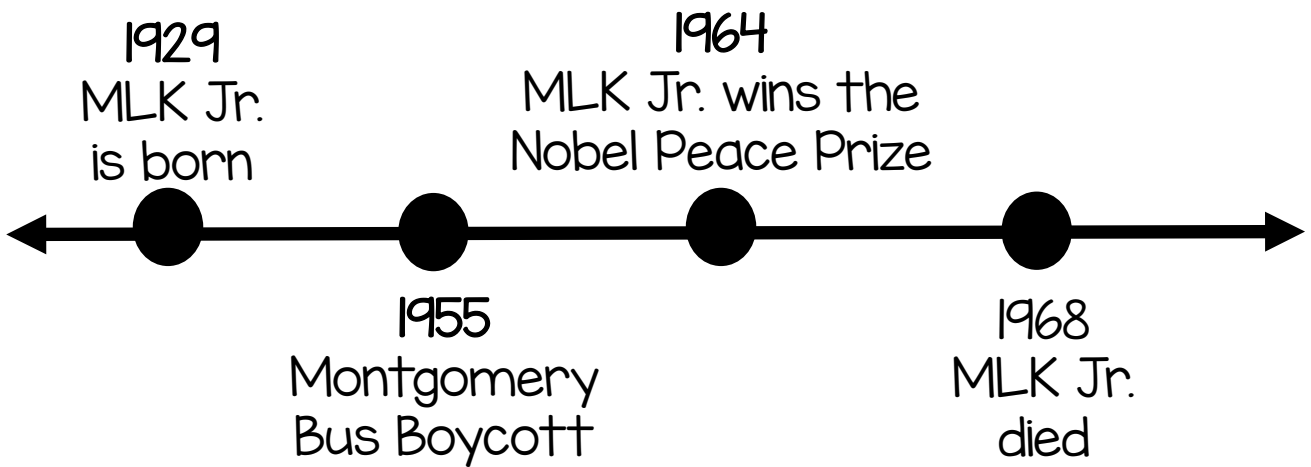
Definition: _____

MATH CONNECTION



Timelines:

Timelines are a way to represent years as a line. When reading nonfiction books that deal with history, it can be helpful to look at dates on a timeline.



Can you try to make a simple timeline with significant events in your life?



WORD TOWER

Martin's Big Words



NGSS/CCSS Standard Alignment: 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. CCSS.MATH.CONTENT: Represent and interpret data. CCSS.MATH.CONTENT.3: Solve problems involving measurement and estimation.

Challenge Description: Using Dixie cups, students will write big or powerful words about character on each cup and use them to build the tallest tower possible. They may come up with their own big words or use examples from the book Martin's Big Words. Students may use a variety of strategies to build towers, including flipping and stacking cups on opposite ends and creating various three-dimensional structures such as pyramids and cones. They will test the stability and balance of different tower designs, then measure the height with yard sticks.

Suggested Materials: Dixie cups (24-30 per group), markers, yard sticks
OPTIONAL: Small three-dimensional models of shapes

LESSON PLAN

1. Prime students' background knowledge about towers by projecting a variety Google images on an interactive whiteboard. Discuss the similarities and differences between tower designs, as well different three-dimensional shapes that are represented.
2. Allow students to share what they already know about tower design. If possible, have students examine small three-dimensional shape models and discuss which ones resemble shapes found in towers. Refer to the provided vocabulary cards as needed throughout the lesson and display them in your classroom. Have them follow the instructions to complete page 1 and the top of page 2 of their student booklets.
3. Brainstorm a list of big or powerful words about character, including examples found in the book Martin's Big Words. Record students' ideas on the provided teacher chart and have them add ideas to their student booklets.
4. Introduce permitted materials and share the challenge. Allow students to share ideas for how the cups work and might fit together in different ways to make a tower that is tall, balanced, and sturdy. Allow students at least 30 minutes with partners or small groups to create and test a variety of tower designs, measure the heights, and record in their STEM journals.
5. Hold a whole class closing discussion and reflection, allowing students to share what they created and what they learned about towers. Record their ideas on the provided teacher chart and have them finish their individual booklets.

WORD TOWER

Martin's Big Words

Possible Product



WORD TOWER

Martin's Big Words

powerful words

cup tower strategies



WORD TOWER

Vocabulary Cards

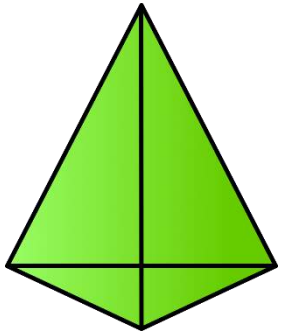
©Brooke Brown & Katie King



three-dimensional

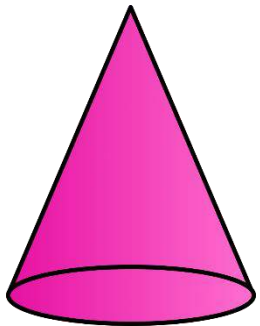
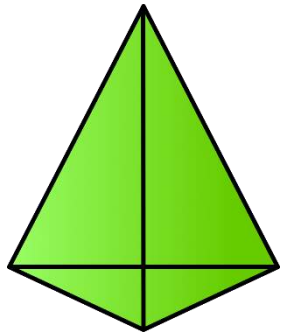


a solid shape that has depth, width, and height



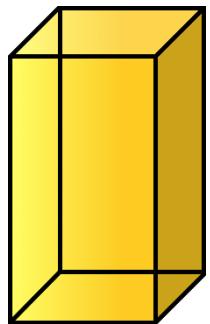
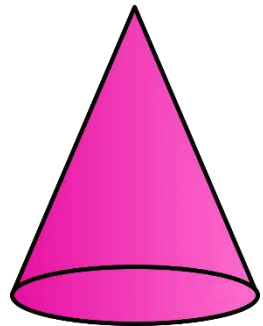
pyramid

a solid with a polygonal base and triangular faces that meet at a point



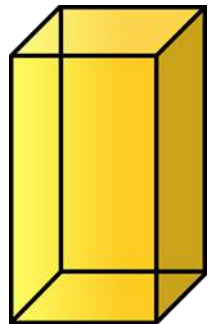
cone

a solid that tapers from a circular base to a point



structure

something that is built or constructed



Height Tests

Test	Number of centimeters high
1	
2	
3	
4	

One thing that was EASY:

One thing that was HARD:

One new thing I LEARNED:

WORD TOWER

Martin's Big Words

Name: _____

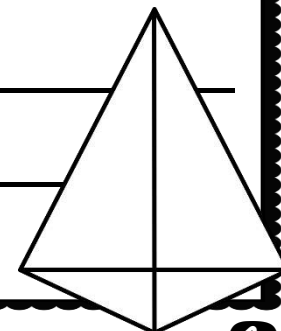
STEM CHALLENGE

Can you construct the highest possible word tower out of cups that stands on its own?

What I Know About Towers

1 _____

2 _____



Dig Deeper Into the Text!



Teacher Questions for **Animals in Winter**

*What is winter like where you live? Is snow likely? Discuss different regions and what winter is like in those places.

*What do most of the animals that migrate have in common?

*If animals live off of stored fat while they are hibernating, how will they look different after the winter?

*How long do you sleep at once? Compare that to how long a woodchuck sleeps when hibernating.

*How does the pika survive the winter? Turn and discuss it with a partner.

*What seems to be the animals' biggest priority in surviving the winter?

TEACHERS: PRINT ON COLORED PAPER AND LAMINATE. USE THIS BOOKMARK YEAR AFTER YEAR TO HELP EXTEND STUDENTS' THINKING!

Intended Use

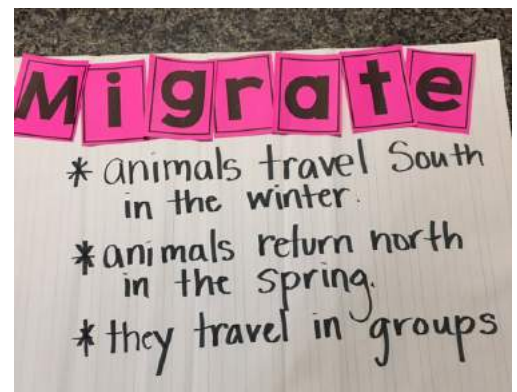
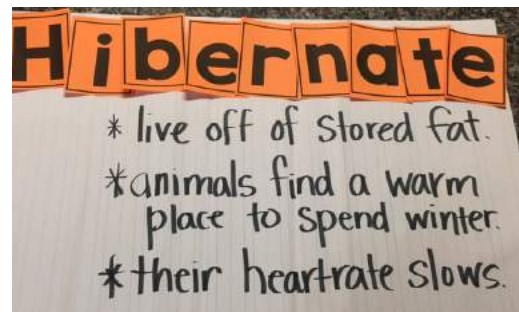
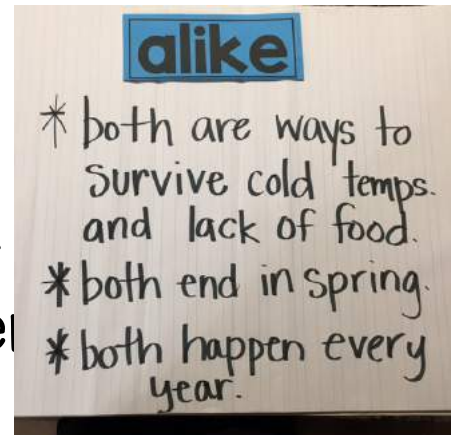


COMPREHENSION

1. Show students Compare and Contrast poster and discuss how the animals are alike and different.



2. Complete the whole class anchor chart for Migrating/Hibernating. Then students can complete their own compare/contrast paper about the pika and the woodchuck



COMPREHENSION


3. Students should complete the half sheet to show their understanding of compare and contrast.

Name: _____


Compare and Contrast

Compare: _____

Contrast: _____



Basketball



Football

2. High Flyer Extension: Go over the Proper Nouns poster. Have students offer suggestions and record their responses on the board.

Proper Nouns

Nouns that have particular names.
These names are capitalized.



Restaurants



People



Months



Pets



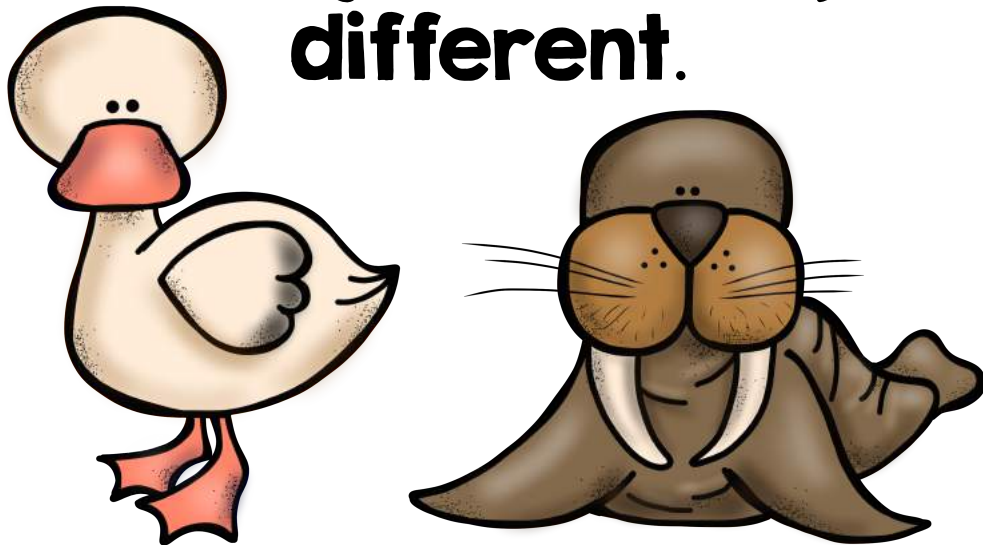
Stores

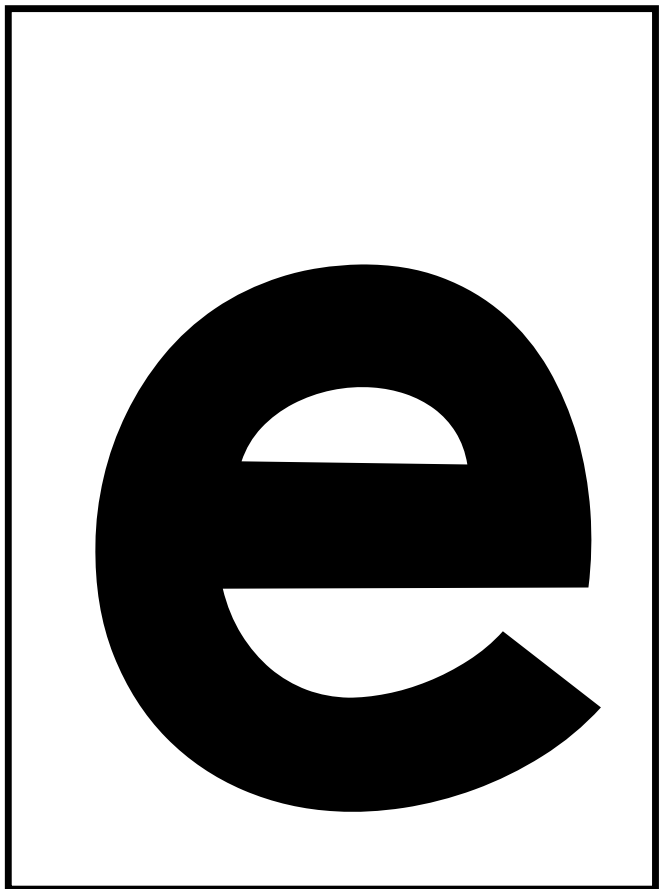
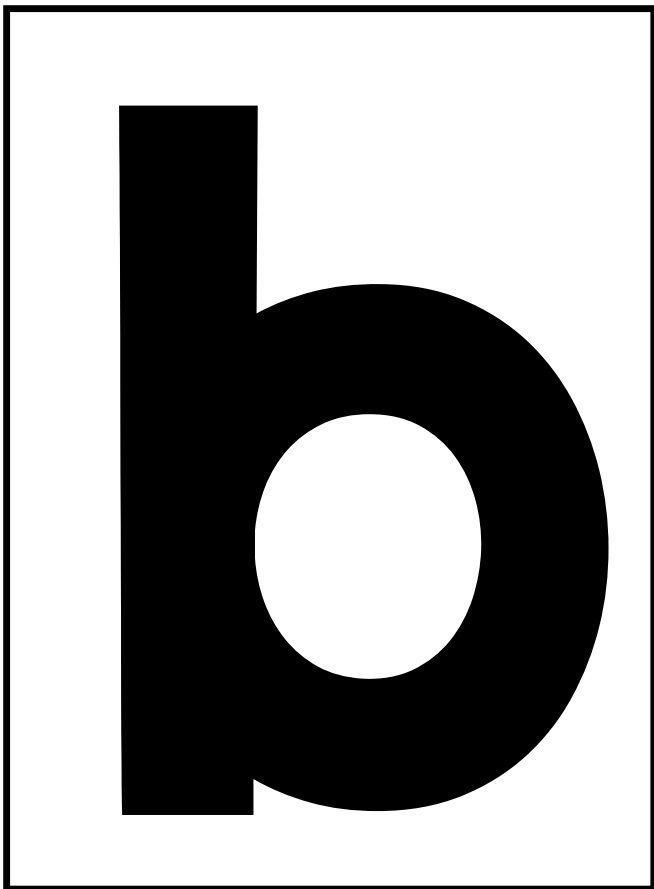
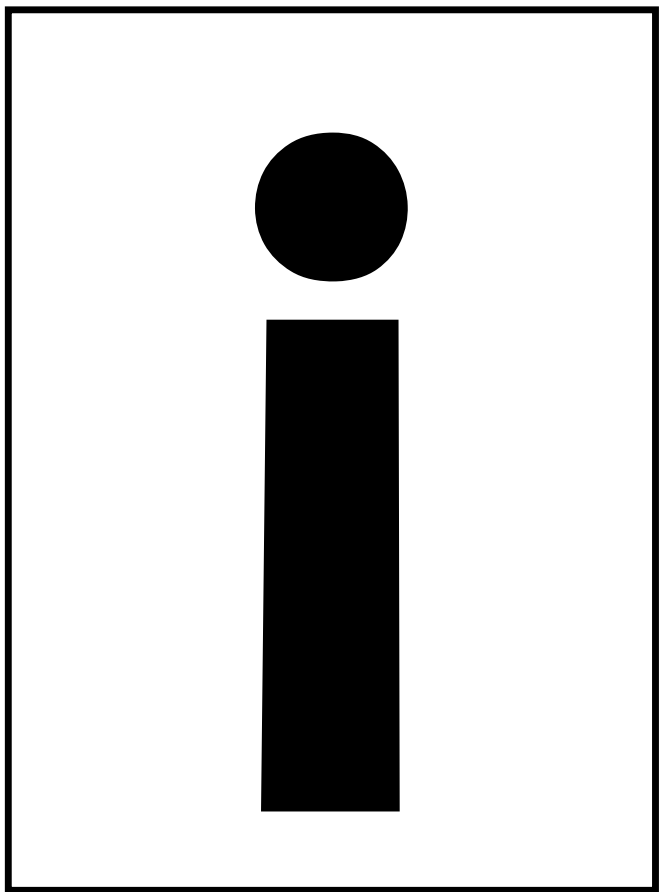
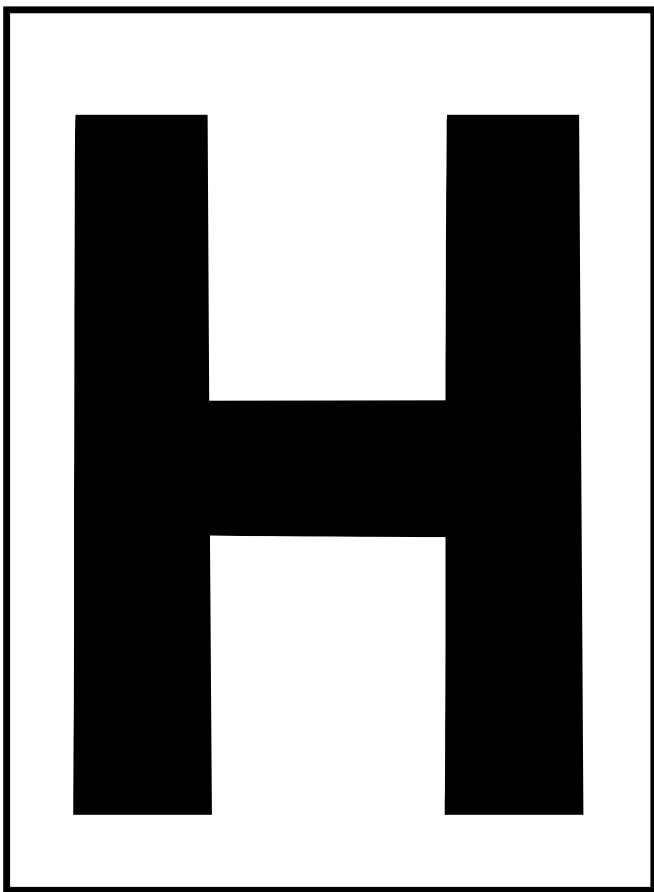
Compare and Contrast

When you **COMPARE** things, you are looking for how they are **alike**.



When you **CONTRAST** things, you are looking for how they are **different**.



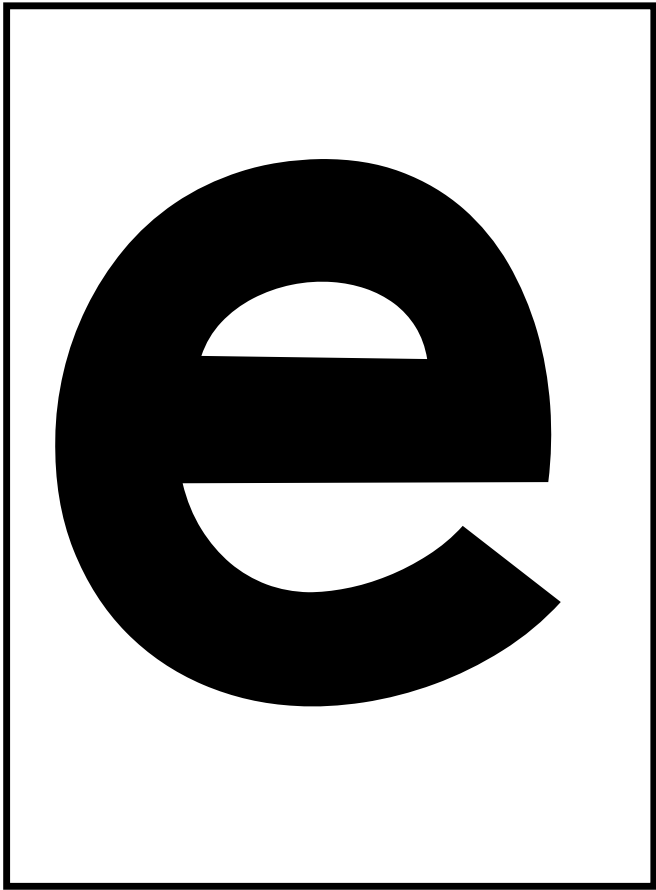


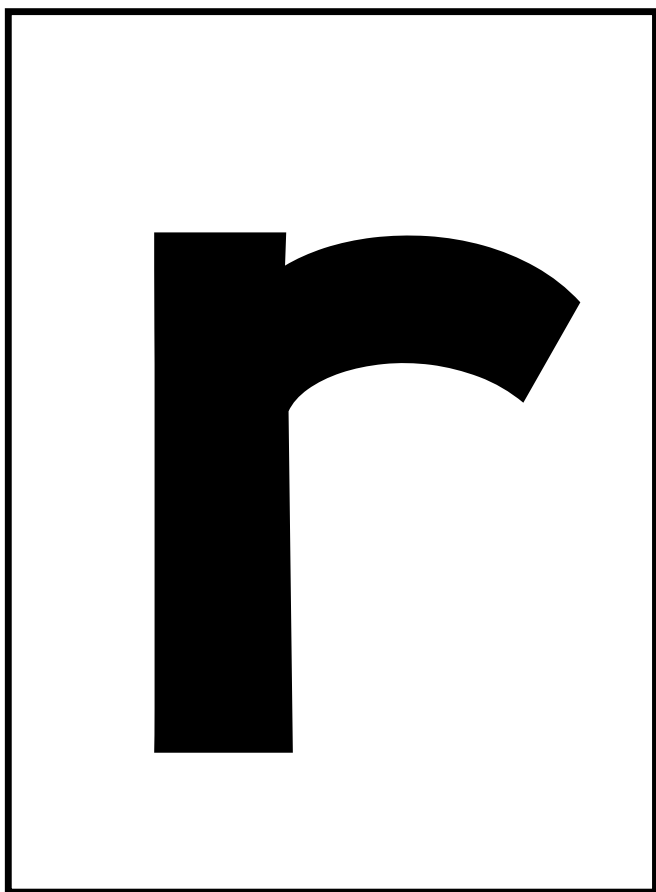
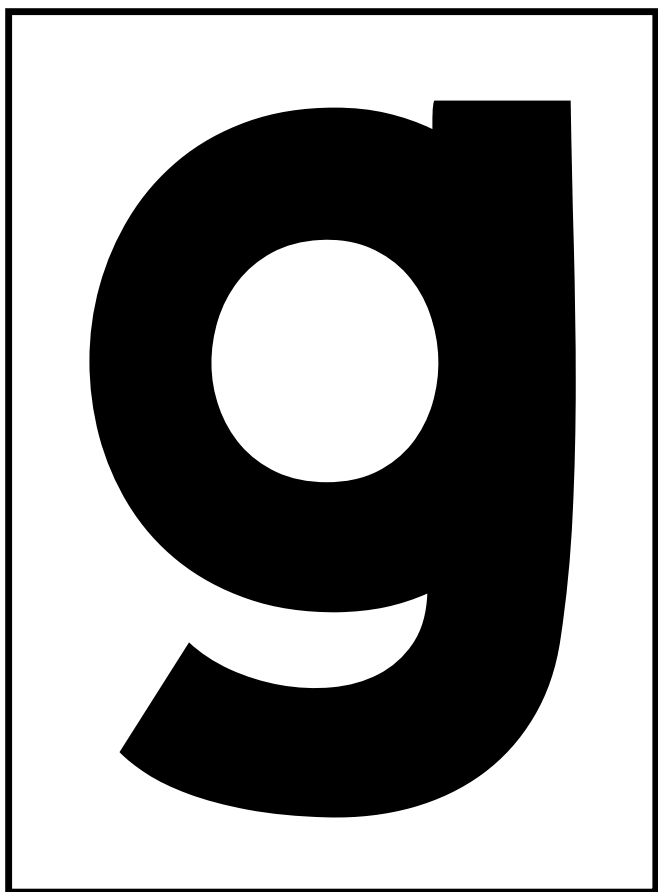
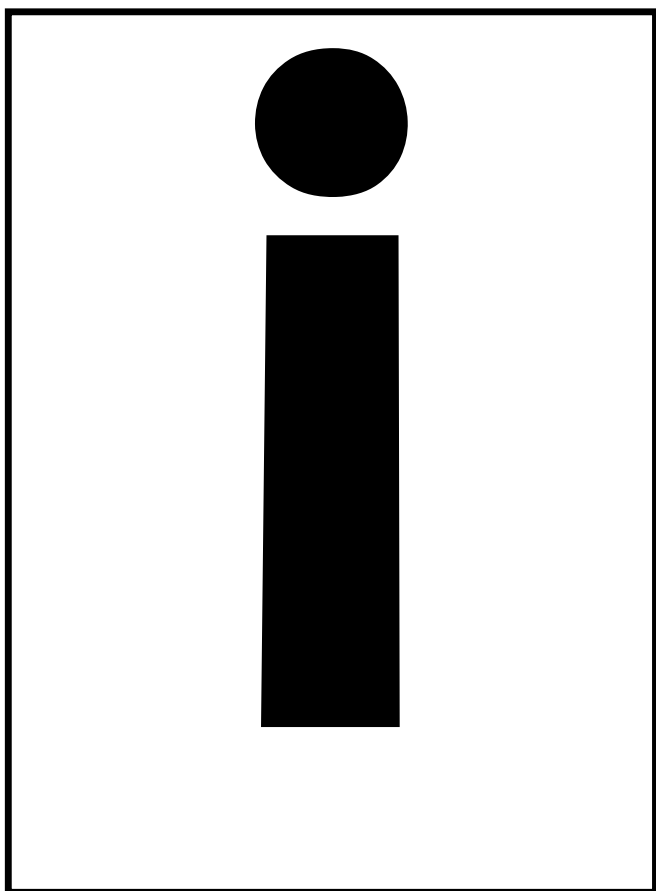
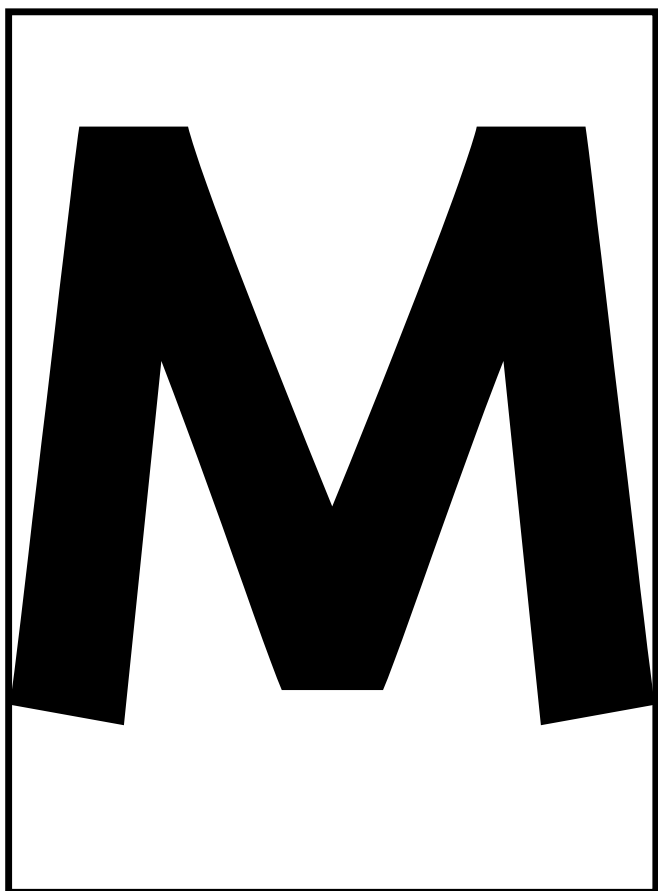
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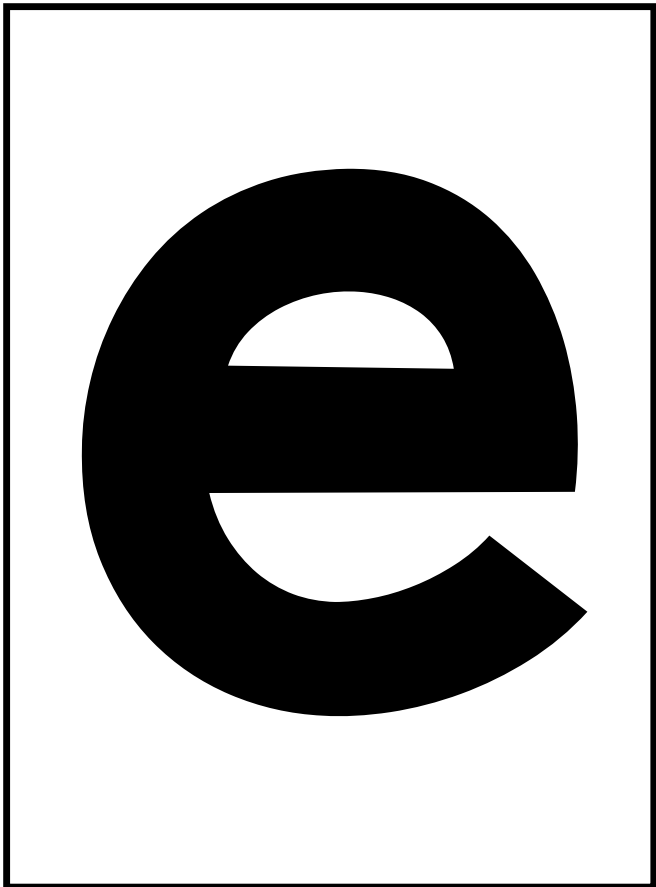
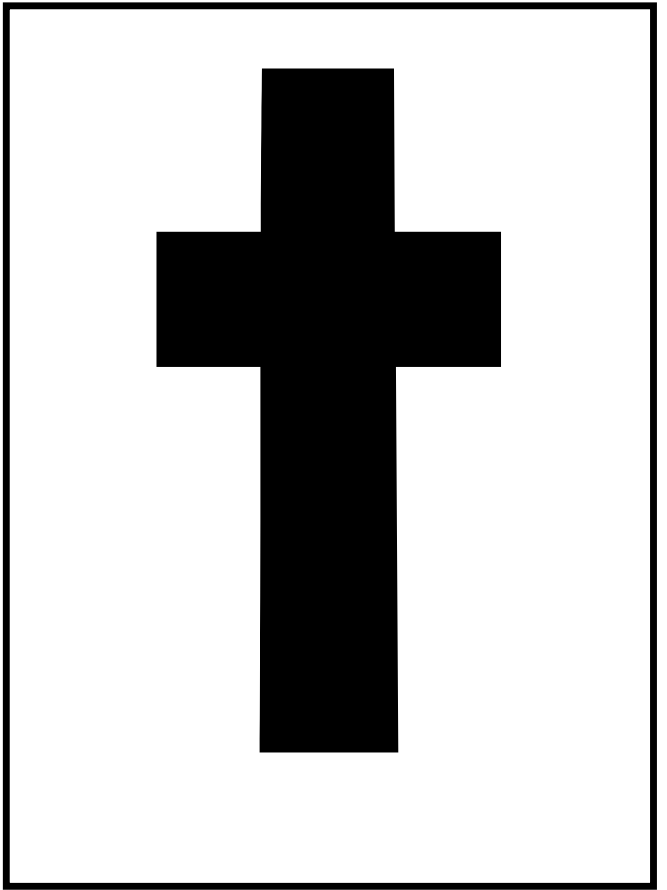
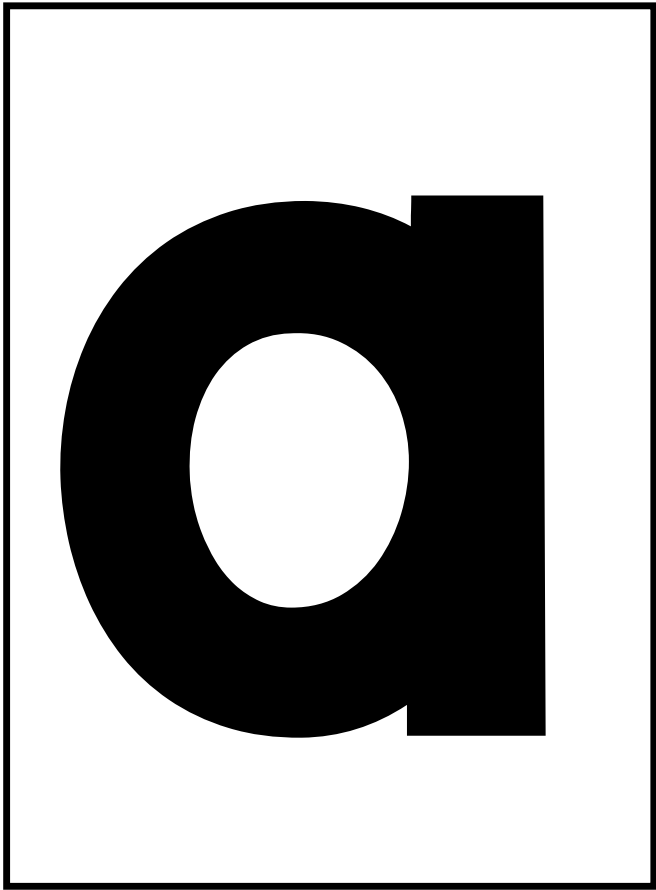
n

a

t







chuck
poom

same

pika

Venn Diagram Flap-book

Fold on the dark black line, cut on the two dotted lines. Compare and contrast how the two animals survive the winter.

Name: _____

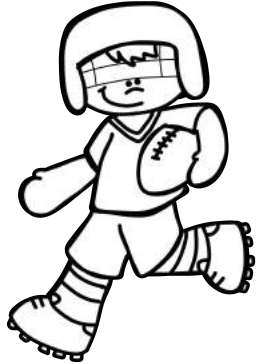
Date: _____

Name: _____

Compare and Contrast



BASKETBALL



FOOTBALL

Compare: _____

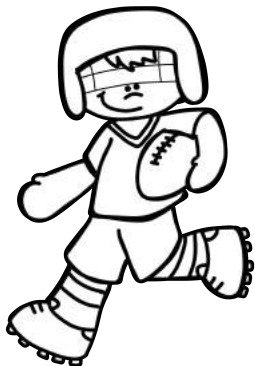
Contrast: _____

Name: _____

Compare and Contrast



BASKETBALL



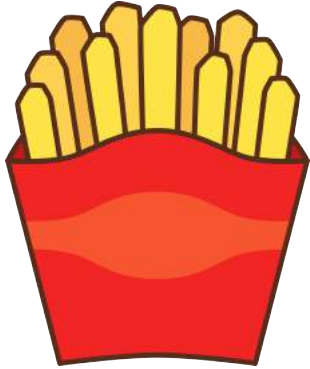
FOOTBALL

Compare: _____

Contrast: _____

Proper Nouns

Nouns that have particular names.
These names are capitalized.



Restaurants



Months

Pets



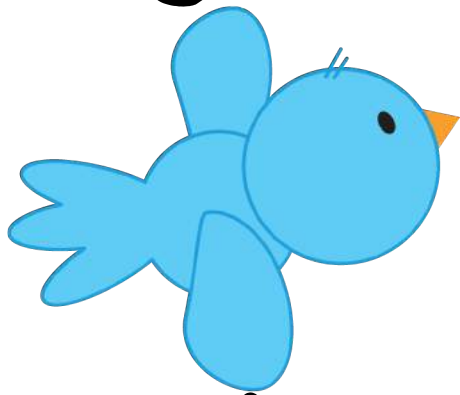
People



Stores



migrate



to move from one
area to another
based on the
season

hibernate



Spend the
winter in an
inactive state

twigs



small sticks

discover

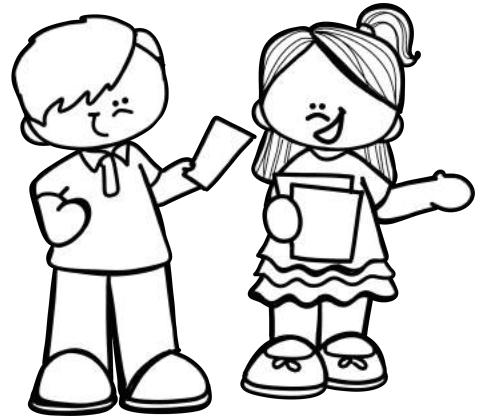


to find something
during a search

ACT IT OUT!

*After going over the definition of the words, split the class into groups of 2-4 students. Students should use their bodies and faces to show what the words mean. Give the students about five minutes to work through their words. Kids should be up and moving!

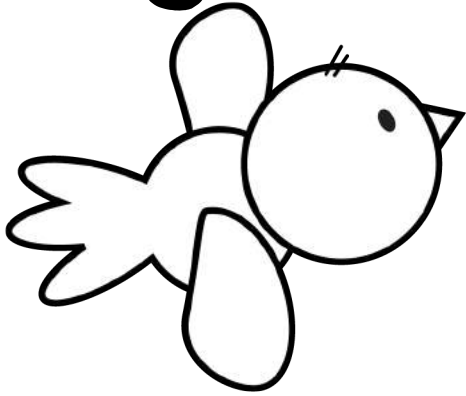
*Each group should pick out one word to act out to the class. The groups will hold up their version of the vocab words (black and white version) to show which word they think is being represented!



TEACHERS: PRINT ON COLORED PAPER AND HAVE STUDENTS HOLD UP. USE THIS AS A QUICK WAY TO GAUGE UNDERSTANDING! SCAN THE ROOM TO LOOK FOR THE COLOR YOU ARE LOOKING FOR!

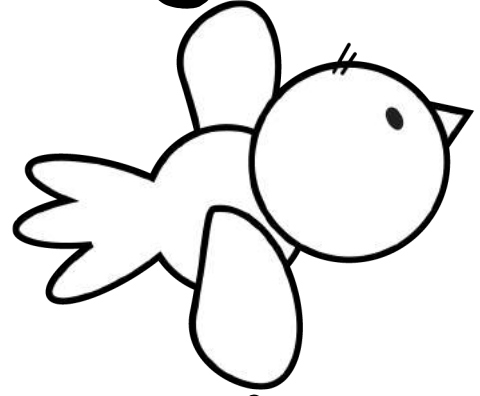


migrate



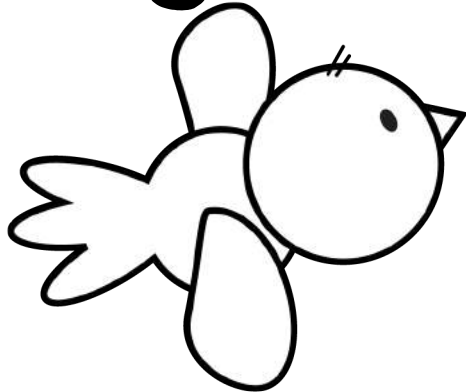
to move from one
area to another
based on the
season

migrate



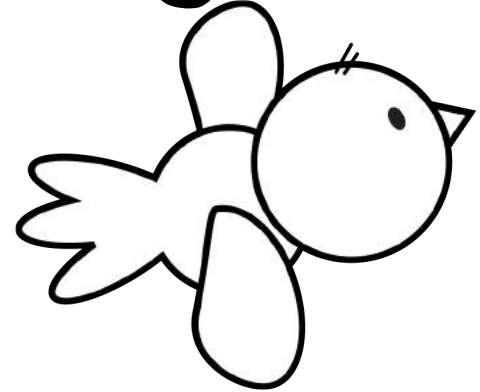
to move from one
area to another
based on the
season

migrate



to move from one
area to another
based on the
season

migrate



to move from one
area to another
based on the
season

hibernate



Spend the
winter in an
inactive state

hibernate



Spend the
winter in an
inactive state

hibernate



Spend the
winter in an
inactive state

hibernate



Spend the
winter in an
inactive state

twigs



small sticks

twigs



small sticks

twigs



small sticks

twigs



small sticks

discover



to find something
during a search

discover



to find something
during a search

discover



to find something
during a search

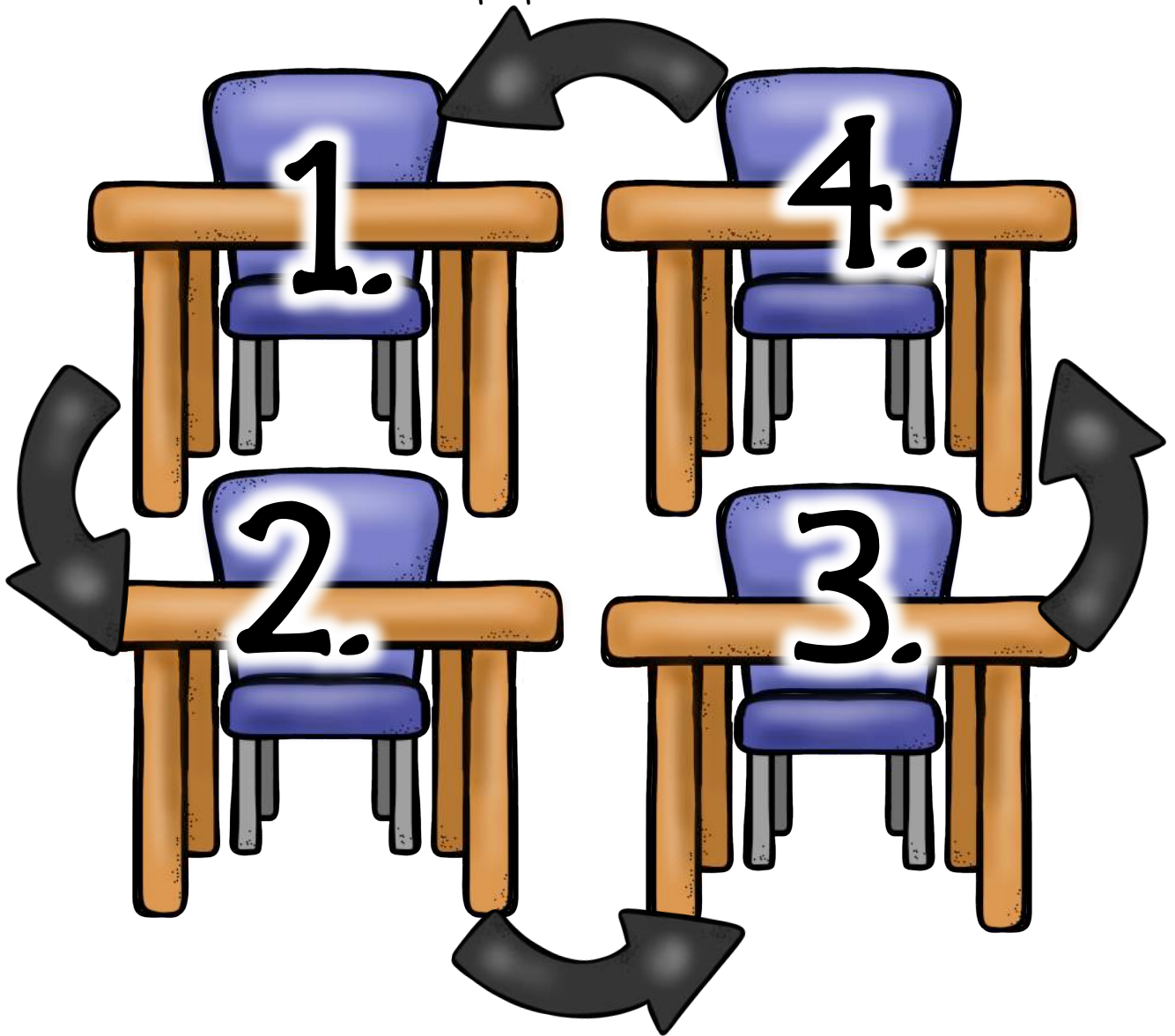
discover



to find something
during a search

COLLABORATIVE VOCAB SCOOT

*Students will rotate to four different desks. They will draw a picture and write a synonym or short definition for the word. Tell them to LEAVE the paper on the desk!



*At the end the student will go back to his or her seat and analyze the drawings and definitions. Allow some share time for students to make observations to the whole class.

Name: _____

COLLABORATIVE VO CAB SCOOT

Draw and write about the word in the box. Wait for your teacher to tell you it is time to move on to another desk!

1. migrate

Definition: _____

2. hibernate

Definition: _____

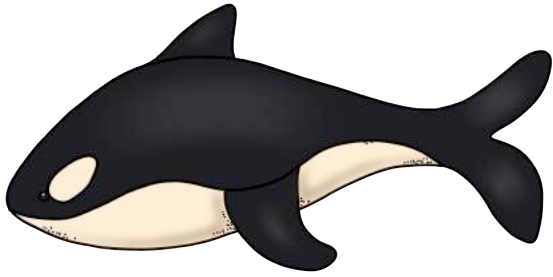
3. twigs

Definition: _____

4. discover

Definition: _____

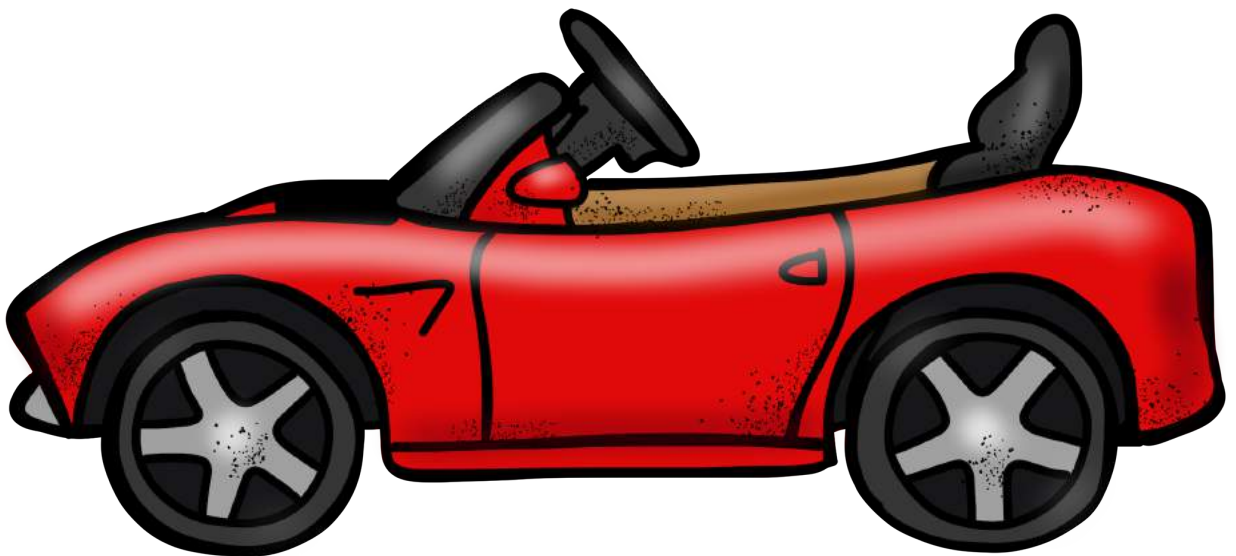
MATH CONNECTION

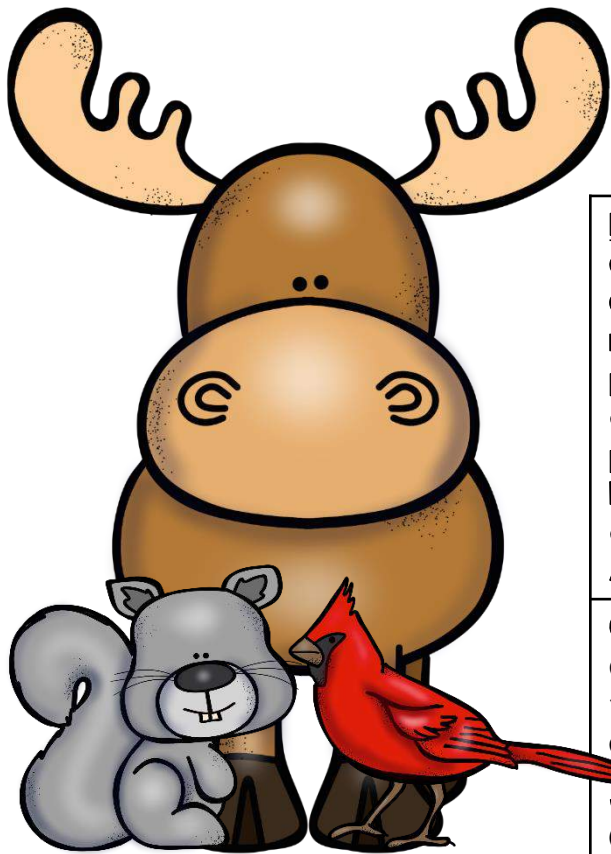


Animals travel very long distances when they are migrating. Some of them go thousands of miles each winter.

Mile:

A mile is a unit of measurement. It is 5,280 feet long! When you are traveling in a car the distance that you need to go will be measured in miles.





ANIMAL FEEDER

Animals in Winter

NGSS Standard Alignment: K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool, K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. CCSS.MATH.CONTENT.K.G.P.4: Analyze, compare, create, and compose shapes.

Challenge Description: After reading about how animals survive in Animals in Winter, students will create a garland feeder for birds, squirrels, and other small wild animals. They will string various foods such as unsweetened Cheerios, fruit pieces, and bread onto a pipe cleaner using a repeating pattern, then hang the garland outdoors for small animals to enjoy in winter.

Suggested Materials: pipe cleaners (2 per group), small food items such as: unsweetened Cheerios, apple or orange chunks, grapes, prunes, Cheez-it crackers, and small pieces of bread

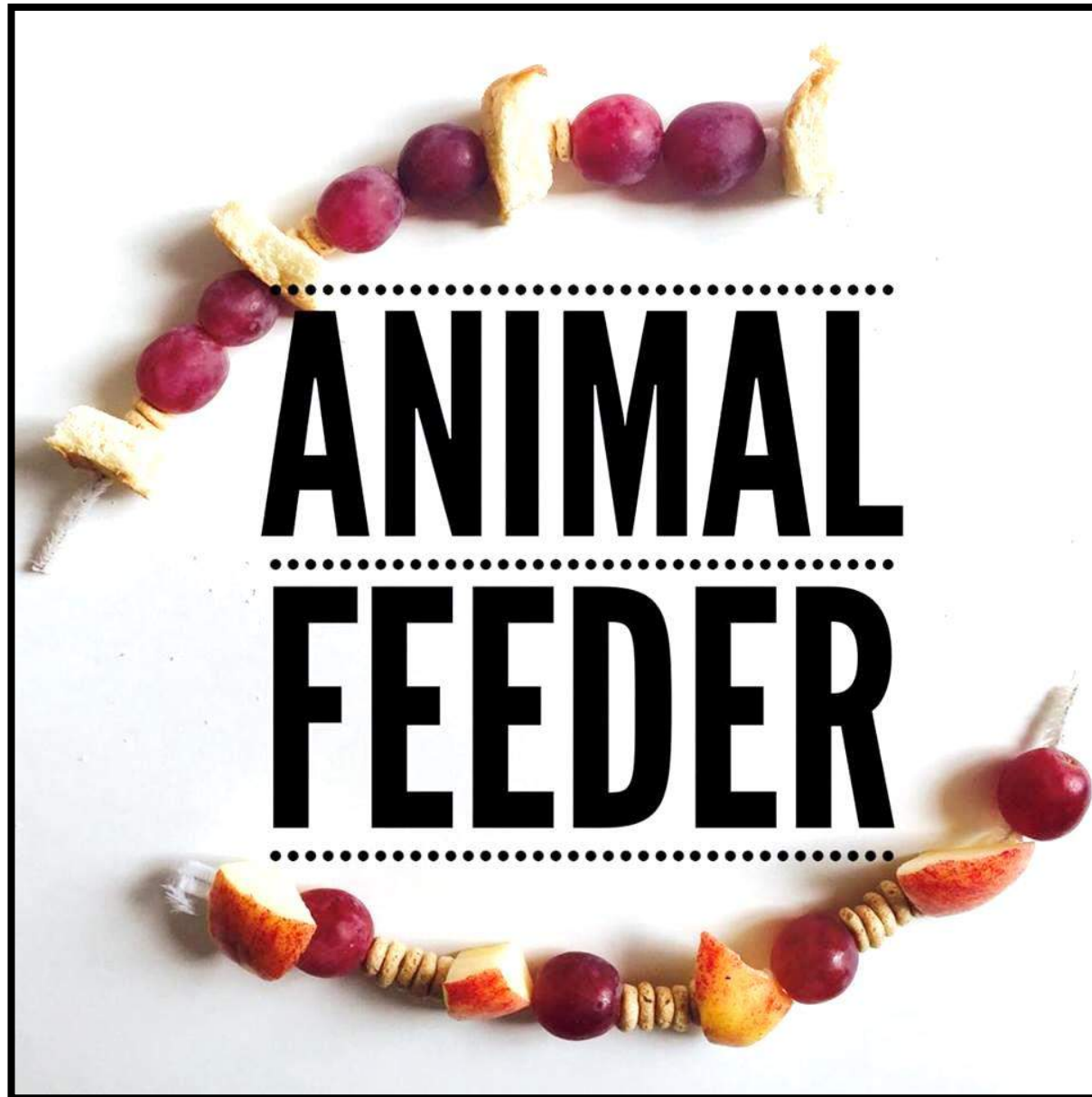
LESSON PLAN

1. Discuss how animals survive in winter and which kinds of animals might benefit by having animal feeders. Discuss the four ways that animals survive in winter and have students record in their booklets on page 1: **migrate, hibernate, gather, hunt.**
2. Using the Animals in Winter book as a guide, have students brainstorm different animals that gather, hibernate, and migrate and record their ideas on the teacher chart. Refer to the provided vocabulary cards as needed throughout the lesson and display them in your classroom.
3. Read about and discuss the various types of animal feeders on pages 20-31 in Animals in Winter. Have students record various ideas in their student booklets as you follow along on the teacher chart.
4. Introduce permitted materials and share the challenge. Allow students to share ideas for how the different foods might fit together to create a garland feeder. Model how to carefully and gently string various foods on a pipe cleaner using a repeating pattern.
5. Allow students at least 30 minutes with partners or small groups to create and test a variety of garland feeder patterns and designs, as well as record in their STEM journals.
6. Hold a whole class closing discussion and reflection, allowing students to share what they created and what they learned about animal feeders and animals in winter. Record their ideas on the provided teacher chart and have them finish their individual booklets.

ANIMAL FEEDER

Animals in Winter

Possible Products



ANIMAL FEEDER

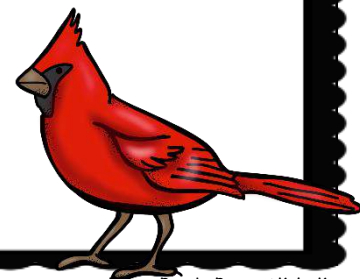
Animals in Winter

Animals that Gather

Animals that Migrate

**Animals that
Hibernates**

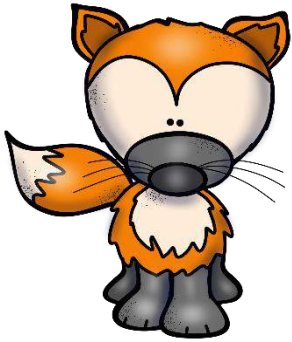
**Types of Animal
Feeders**



ANIMAL FEEDER

Vocabulary Cards

©Brooke Brown & Katie King



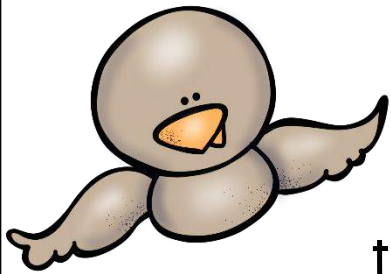
survive

to stay alive



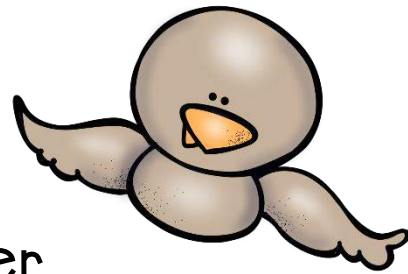
gather

to bring together into a group or collection



migrate

to move from one region or climate to another



hibernate

to spend the winter in a dormant condition



My pattern

Draw and color your repeating pattern.
You do not have to fill up all the squares.

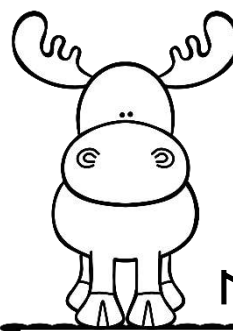
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What kinds of animals will likely eat your garland feeder?

How is your feeder helpful to animals?

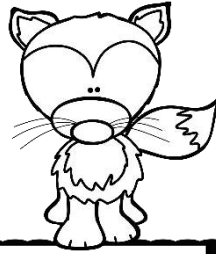
Where will you put your feeder?



Animal Feeder

Animals in Winter

Name: _____



STEM CHALLENGE

Can you create a garland animal feeder with a repeating pattern?

ways that Animals survive in winter

1 _____

2 _____

3 _____

4 _____

Dig Deeper Into the Text!



Teacher Questions for **Snowballs**

*Discuss how animals change their behavior when weather patterns suddenly change like before a tornado or hurricane.

*Why would birds collect seeds? What are they preparing for?

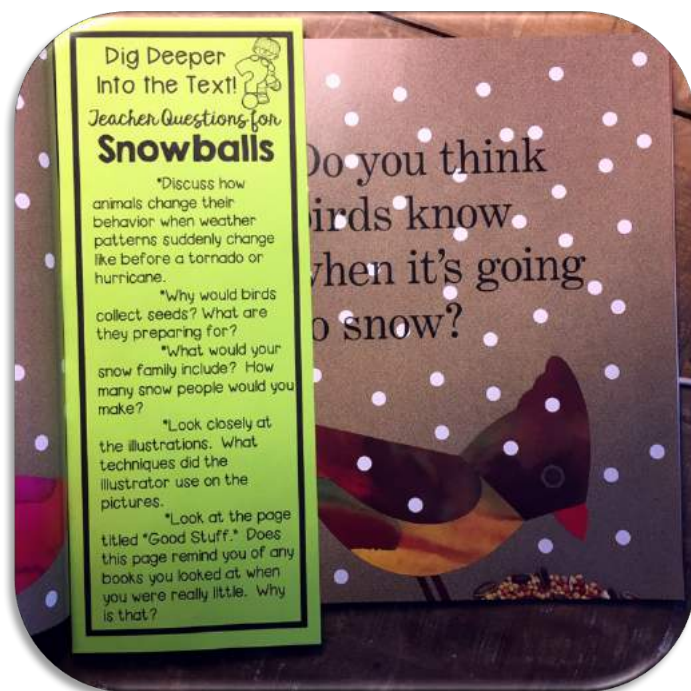
*What would your snow family include? How many snow people would you make?

*Look closely at the illustrations. What techniques did the illustrator use on the pictures?

*Look at the page titled "Good Stuff." Does this page remind you of any books you looked at when you were really little? Why is that?

TEACHERS: PRINT
ON COLORED PAPER
AND LAMINATE. USE
THIS BOOKMARK
YEAR AFTER YEAR
TO HELP EXTEND
STUDENTS' THINKING!

Intended
Use

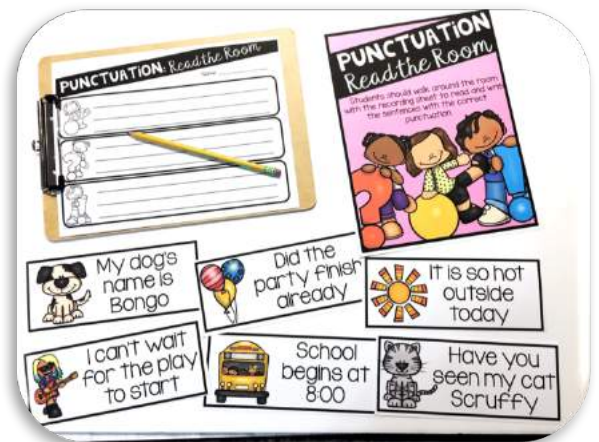


COMPREHENSION

1. Show students Punctuation Anchor chart and discuss.




2. Have students complete the Punctuation: Read the Room. They should record the sentences in the correct box with punctuation.



3. Students use the half sheet of paper to write one complete sentence with punctuation.

Name: _____

Punctuation



Write a sentence with correct punctuation.

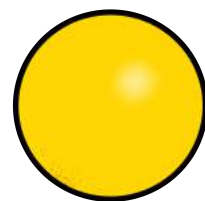
4. Optional Extension Activity for High Flyers! Go over the Comma Poster and point out examples in the book.



Punctuation

The marks at the end of sentences that help you figure out how to read the words.

period



question
mark



exclamation
point

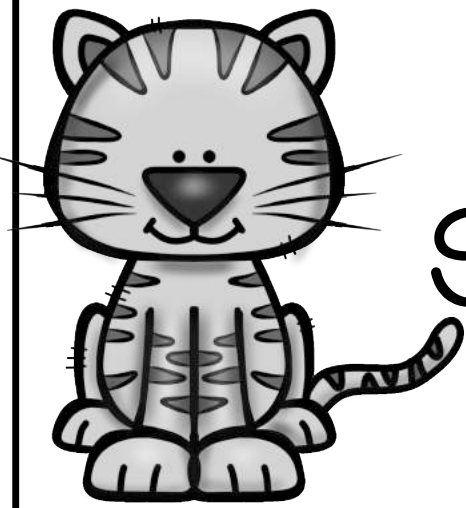


PUNCTUATION

Read the Room

Students should walk around the room with the recording sheet to read and write the sentences with the correct punctuation.





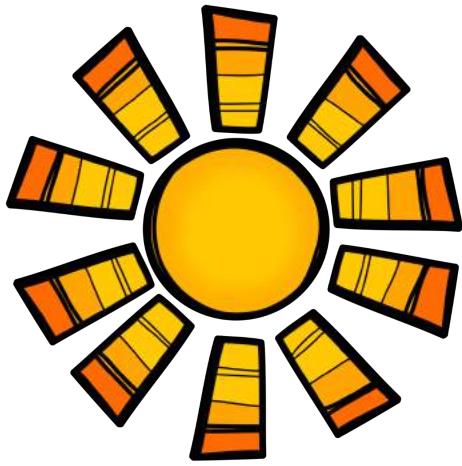
Have you
seen my cat
Scruffy



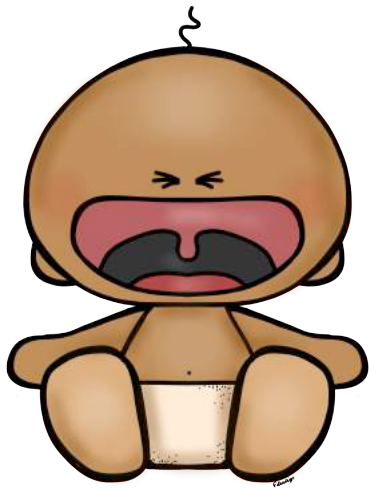
Did the
party finish
already



Where are
your new
shoes



It is so hot
outside
today



The baby
screamed all
night



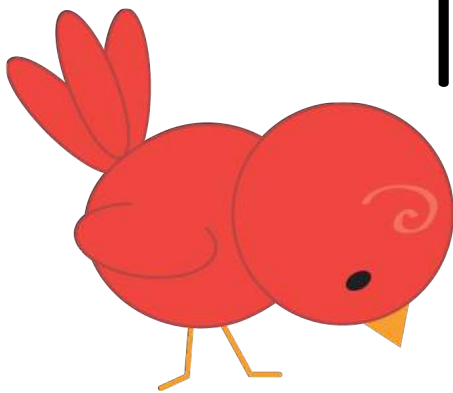
I can't wait
for the play
to start



School
begins at
8:00



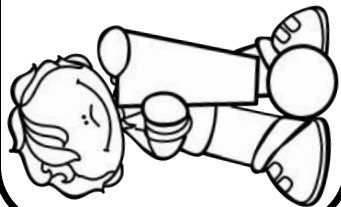
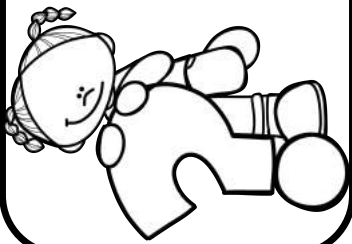
My dog's
name is
Bongo



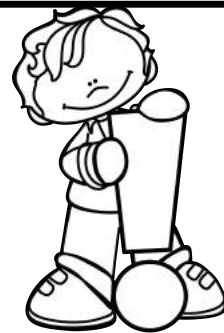
The red bird
is in the
tree

PUNCTUATION: Read the Room

Name: _____



Name: _____



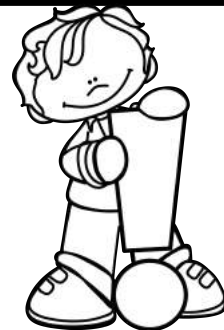
Punctuation

A large, empty rounded rectangular box with a thick black border, intended for the student to write their sentence.

Write a sentence with
correct punctuation.

Three horizontal dashed lines provided for the student to write their sentence.

Name: _____



Punctuation

A large, empty rounded rectangular box with a thick black border, intended for the student to write their sentence.

Write a sentence with
correct punctuation.

Three horizontal dashed lines provided for the student to write their sentence.

Comma



A punctuation mark that is in the middle of a sentence that tells the reader to pause.



We'd been waiting for a really big snow, saving good stuff in a sack.

A comma can also be used in a list.

I need eggs, flour, sugar, and chocolate chips for my cookie recipe.

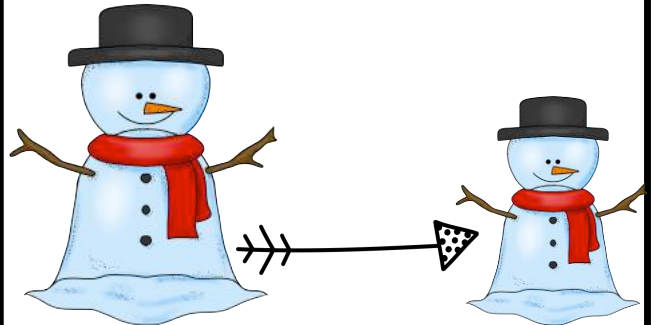


sack



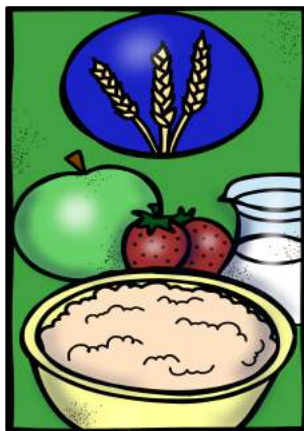
a bag

shrinking



getting
smaller

mush



a soft, wet
mess

blob

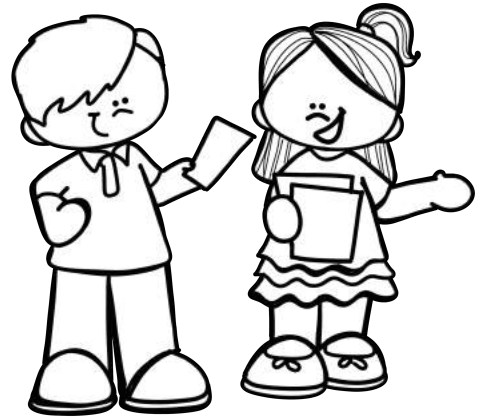


a drop of thick
liquid

ACT IT OUT!

*After going over the definition of the words, split the class into groups of 2-4 students. Students should use their bodies and faces to show what the words mean. Give the students about five minutes to work through their words. Kids should be up and moving!

*Each group should pick out one word to act out to the class. The groups will hold up their version of the vocab words (black and white version) to show which word they think is being represented!



TEACHERS: PRINT ON COLORED PAPER AND HAVE STUDENTS HOLD UP. USE THIS AS A QUICK WAY TO GAUGE UNDERSTANDING! SCAN THE ROOM TO LOOK FOR THE COLOR YOU ARE LOOKING FOR!

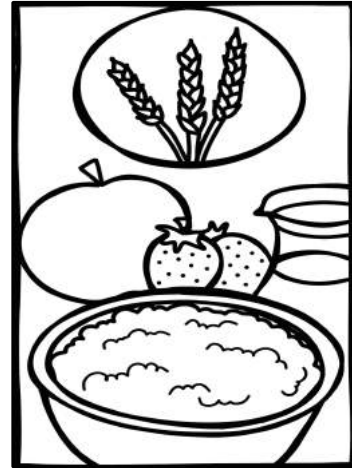


mush



a soft, wet
mess

mush



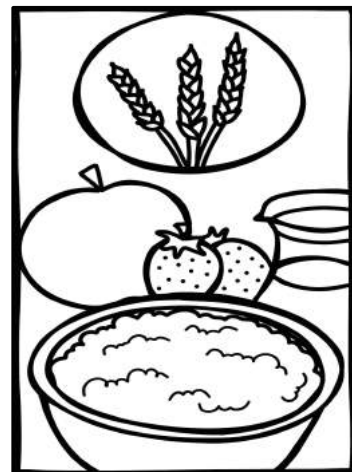
a soft, wet
mess

mush



a soft, wet
mess

mush



a soft, wet
mess

sack



a bag

sack



a bag

sack



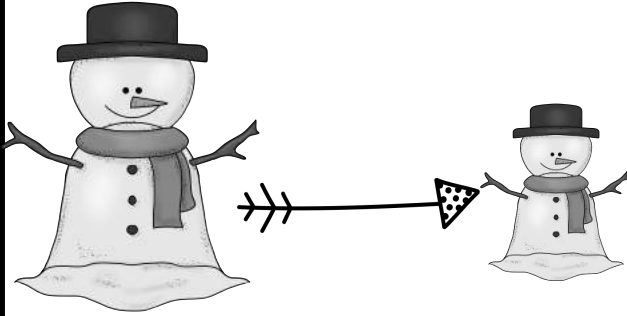
a bag

sack



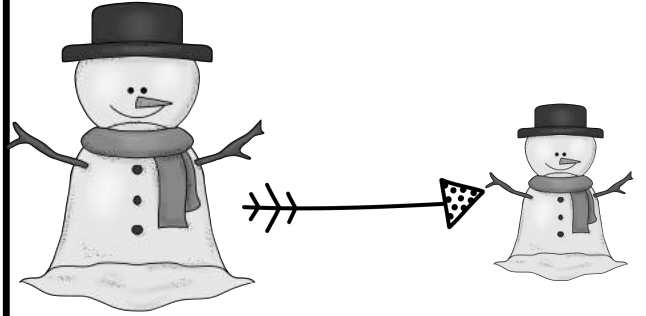
a bag

shrinking



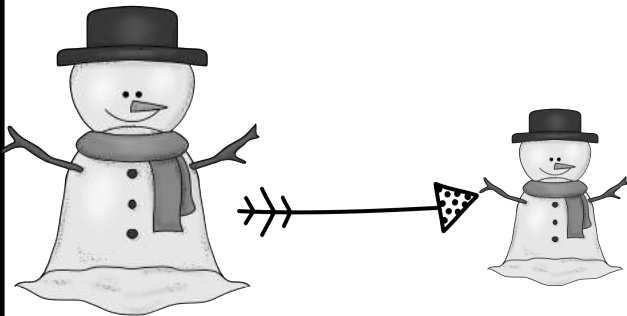
getting
smaller

shrinking



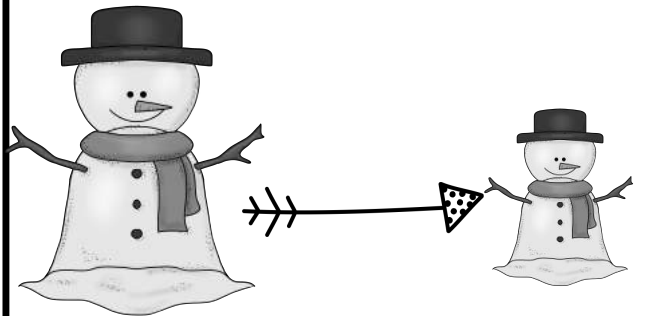
getting
smaller

shrinking



getting
smaller

shrinking



getting
smaller

blob



a drop of thick
liquid

blob



a drop of thick
liquid

blob



a drop of thick
liquid

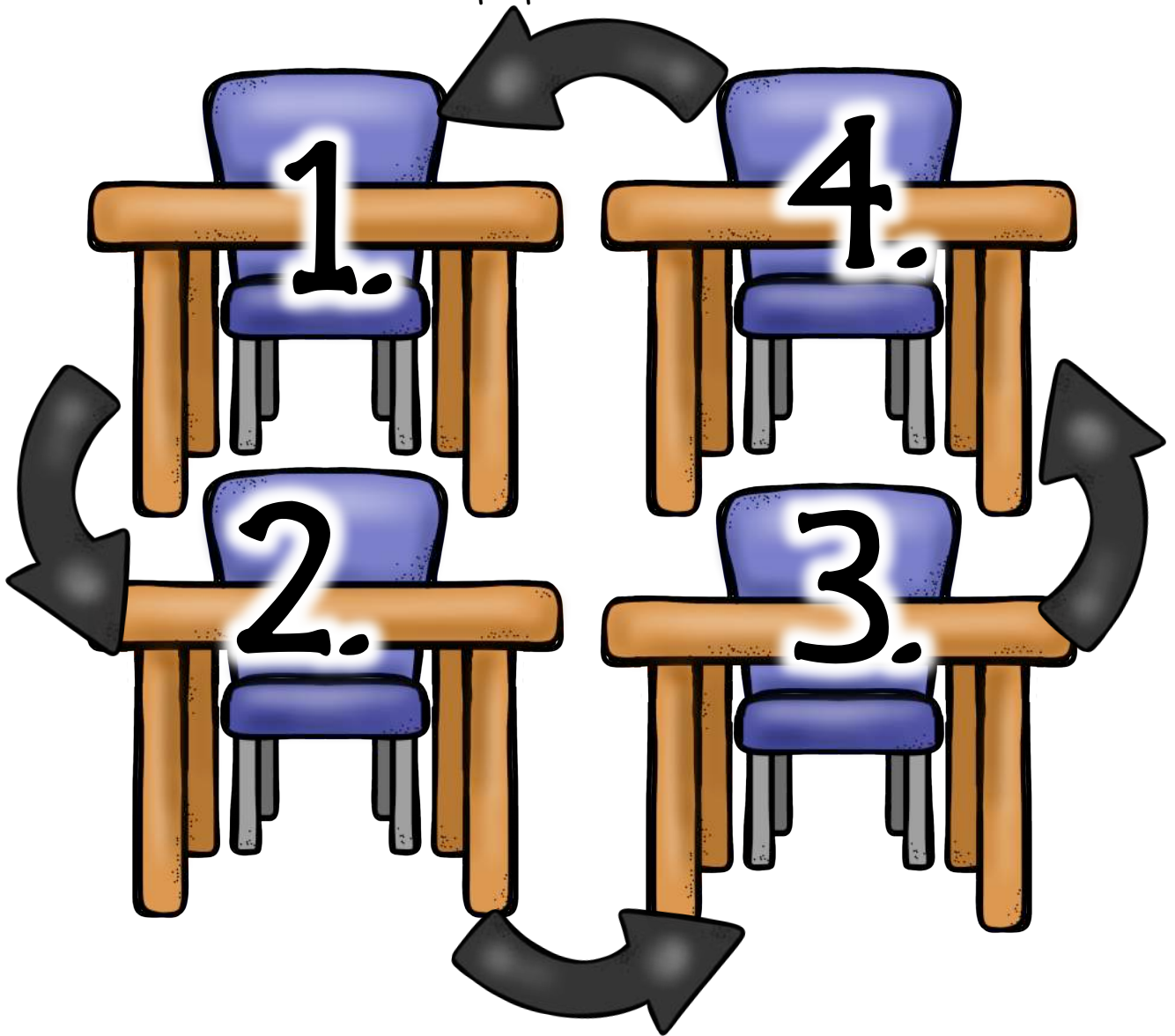
blob



a drop of thick
liquid

COLLABORATIVE VOCAB SCOOT

*Students will rotate to four different desks. They will draw a picture and write a synonym or short definition for the word. Tell them to LEAVE the paper on the desk!



*At the end the student will go back to his or her seat and analyze the drawings and definitions. Allow some share time for students to make observations to the whole class.

Name: _____

COLLABORATIVE VO CAB SCOOT

Draw and write about the word in the box. Wait for your teacher to tell you it is time to move on to another desk!

1. sack

Definition: _____

2. shrinking

Definition: _____

3. mush

Definition: _____

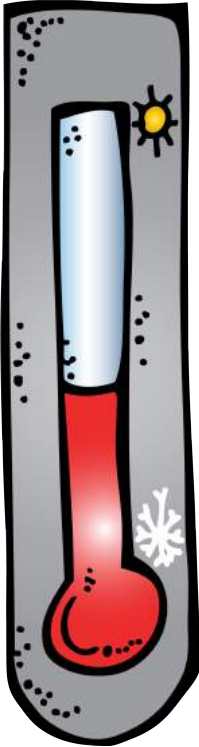
4. blob

Definition: _____

MATH CONNECTION



Temperature:



Temperature is a way to measure how hot or cold something is. Snow and ice melt when the temperature is 32 degrees Fahrenheit or 0 degrees Celsius.

In the book the snow people all turned to mush when the temperature began to rise.



SNOWBALL FRIEND

Snowballs



NGSS Standard Alignment: 2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties, K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool, K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **Measurement & Data:** Classify objects and count the number of objects in each category.

Challenge Description: Using a mixture of a variety of small objects, students will sort/classify their items by observable properties using a Venn diagram. As an added artistic component, they will also use their items to construct and decorate a "snowball friend" with white clay or playdough, then record the observable properties of their creation.

Suggested Materials: white Playdough or clay (one container per group), 1 Dixie cup per group filled with a mixture of the following suggested items: uncooked pasta, mixed nuts, buttons, metal nuts and bolts, dry corn, sunflower seeds, dry beans, foam shapes, and sequins or rhinestones.

LESSON PLAN

1. Prime students' background knowledge about properties by displaying a few classroom items and having students describe their properties using their five senses. Choose 2-3 illustrations from Snowballs and have student describe the properties of each one.
2. Hold a class discussion, allowing students to brainstorm examples of different properties (i.e. texture, hardness, size, shape, color, flexibility). Record their ideas on the provided teacher chart and have them add ideas to their individual booklets.
3. Pass out the Dixie cups with mixed objects. Have them classify their objects in a variety of ways using the Venn diagram in their student journal. Then, have them choose one method of sorting to record in their journal, write the categories, and draw pictures of their items in each section.
4. Allow students to construct a "snowball friend" out of their materials. The white clay or playdough can be molded into a small snowman and small objects will "stick" to the clay or playdough. When they are finished constructing, have them list the properties of their snowball friend in their student journal. They will also trade with a partner to write the properties of his or her snowball friend.
6. Hold a whole class closing discussion and reflection, allowing students to share what they created and what they learned about properties. Record their ideas on the provided teacher chart.

SNOWBALL FRIEND

Snowballs

Possible Product



SNOWBALL FRIEND

SNOWBALL FRIEND

Snowballs

**What are examples
of properties?**

**How can we classify
(sort) our objects?**

**properties of our
snowball friends**

What we LEARNED



SNOWBALL FRIEND

Vocabulary Cards

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observe



to notice how something looks, feels, smells, and sounds



property



a quality of an object that you can observe,
such as size, shape, color, or texture



sort



to divide into groups based on similar properties



classify



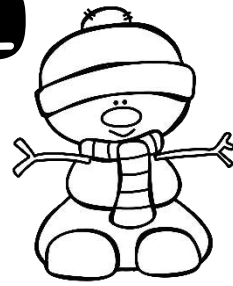
to divide into groups based on similar properties

properties of my snowball friend

Looks	Sounds
Feels	Smells



SNOWBALL FRIEND



Snowballs

Name: _____

STEM CHALLENGE

Can you identify properties of small objects, sort the objects, then use the objects to construct a "snowball friend"?

properties of another snowball friend

Looks	Sounds
Feels	Smells

What are some examples of properties?



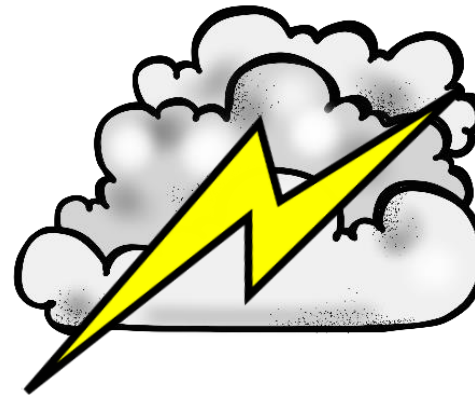
Snowflake Bentley Maker Task Cards

Use the following task cards in a Makerspace or with STEM Pins for students to make more creations.

Make a symmetrical design.

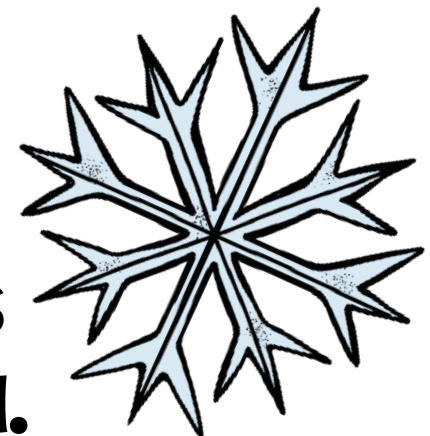


Make a chart to track the weather for one week.



Use a magnifying glass to observe a small object. Write about what you observe.

Make a poster about how snowflakes are formed.



Martin's Big Words Maker Task Cards

Use the following task cards in a Makerspace or with STEM Pins for students to make more creations.

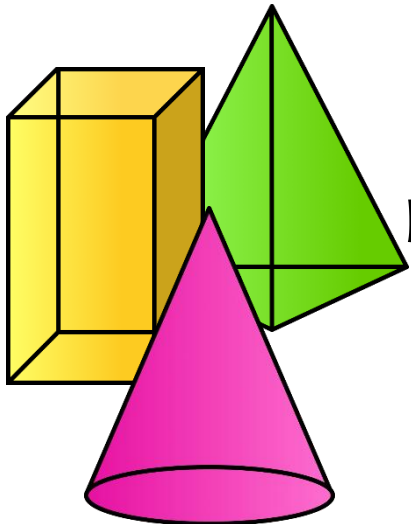
Make a poster about your dream to make the world better.



Make a book about Martin Luther King Jr.'s life.



Use building materials to make as many different 3D shapes as you can.



Make a paper chain of "Big words."



Animals in Winter

Maker Task Cards

Use the following task cards in a Makerspace or with STEM Pins for students to make more creations.

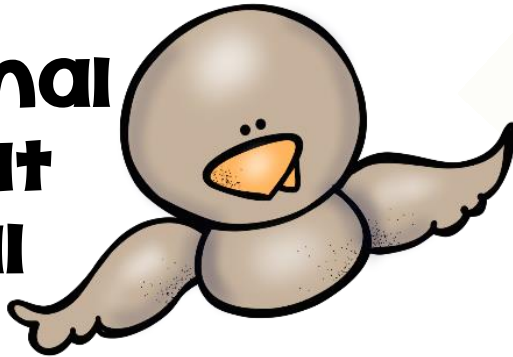
Make a hibernation station to keep animals warm.



Make a birdhouse.



Make an informational book about an animal that migrates.



Make a device to gather nuts and berries.

Snowballs

Maker Task Cards

Use the following task cards in a Makerspace or with STEM Pins for students to make more creations.

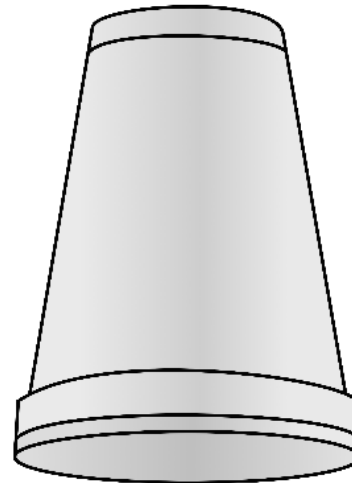
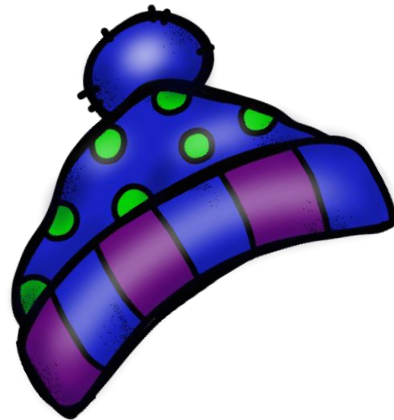


Gather 10 small items in the classroom and sort them into groups based on their properties.



Make a book that tells how to build a snowman.

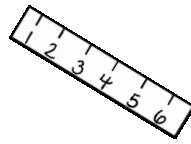
Make a new item of clothing for a snowman.



Make a shelter that will keep a snowman from melting.



STEM Challenge Assessment Rubric



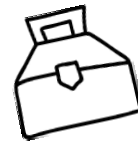
Challenge: _____
 Date: _____
 Student Name: _____

3	2	1
Student followed all instructions for challenge.	Student followed some instructions for challenge.	Student did not follow instructions for challenge.
Student used best effort and perseverance on challenge.	Student used good effort and perseverance on challenge.	Student did not show effort or perseverance on challenge.
Student completed assigned blueprint and reflection sheet.	Student partially completed assigned blueprint and reflection sheet.	Student did not complete assigned blueprint and recording sheet.
Student showed accuracy in testing, calculating, and measuring.	Student showed some accuracy in testing, calculating, and measuring.	Student did not show accuracy in testing, calculating, or measuring.
Student fully cooperated with group members and contributed fairly.	Student partially cooperated with group members and contributed fairly.	Student struggled to cooperate with group members and/or failed to contribute.
Student fully participated in class discussions.	Student somewhat participated in class discussions.	Student did not participate in class discussions.

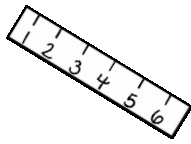
TOTAL POINTS: _____ /18

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Comments: _____



STEM Challenge Assessment Rubric



Challenge: _____
 Date: _____
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3	2	1
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TOTAL POINTS: _____ /18

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Comments: _____



We Need Supplies for Storybook STEM!

Dear Families,

We are learning all about Science, Math, Engineering, and Technology through Storybook STEM lessons, and we need your help! If you are able to donate any of the following supplies for our STEM Challenges, please detach and return the form below and send back to school with your child. We greatly appreciate your support and generosity!

We are in need of the following items by _____.

Thank you so much for supporting our Storybook STEM Lessons!
Please contact me at _____ with any questions.

Sincerely,

If you are able to donate, please detach and return the form below:

Parent Name(s): _____
Child's Name: _____
I am able to donate: _____

Credits

Thank you for your purchase!

*Created by
Brooke Brown & Katie King*

