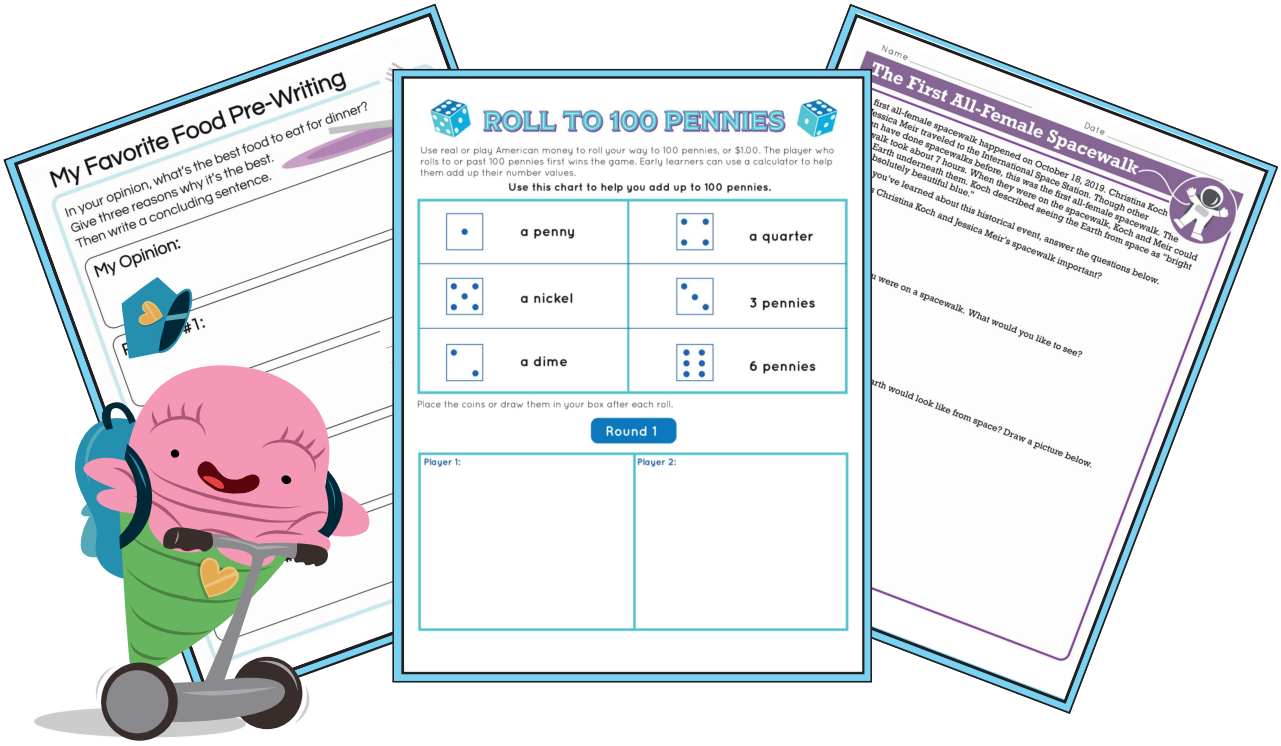
Week 2

2nd Grade

Independent Study Packet

Education.com



5 MORE Days of Independent Activities in Reading, Writing, Math, Science, and Social Studies

Helpful Hints for Students and Families

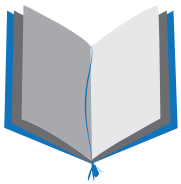
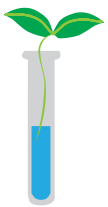
Materials You Will Need:

- Pencils
- Extra paper or a notebook/journal. You may put everything into one notebook if you like.
- Colored pencils, markers, or crayons for some of the activities
- Internet access for online research
- You will need extra "found" supplies for the Design Challenges
- Dice

Directions & Tips

- There is a schedule for each day. You may complete the activities in any order.
- Read the directions carefully before completing each activity.
- Check off each of the activities when you finish them on the activity menu.
- Make sure an adult signs the activity menu before you bring it back to school.

Activity Menu

	Day 1	Day 2	Day 3	Day 4	Day 5
Reading 	Read for 20 minutes and answer three of the questions from the reading log on another piece of paper or in a journal. **Challenge:** Try not to repeat a question!				
	The First All-Female Spacewalk	Jesse Owens	Historical Heroes: Jesse Owens	The Ant and the Grass-hopper	Grandpa's Boat
Writing 	All About Me	Favorite Food Opinion Writing	Personal Narrative	Interactive Story Writing	Personal Narrative Problem & Solution
Grammar Practice ? ; !	Verbs with -ing	Homphones: See the Sea	Homphones: Same Sounds	Punctuation: The Fox and the Crow	Punctuation: The Sun and the Wind
Math 	Roll to 100 Pennies	Tidy Sum 100	Hundreds Board Challenge #1	Hundreds Board Challenge #2	Hiking Buddies Pictograph
Social Studies 	All about reading maps				
Science 	Two super-cool design challenges!				

Parent/Guardian Signature: _____

Reading Log

1. Read a fiction or nonfiction book on your own or with a grown-up.

2. Put your name and the title of the book at the top of a new page.

3. Choose one of the prompts from the chart and write the letter at the top of the page in the title of the book.

4. Write 3–5 sentences about your book. Remember, not all of the questions make sense for every book!

a. What details in the text describe one of the characters? Draw a sketch of the character.	b. Which words in the book were tricky? What strategy did you use to help you understand them?	c. What lesson is the author trying to teach the reader? How do you know?
d. What is your favorite part of the text? Why?	e. What is the most important part of the story? Why?	f. What did the author want you to learn? How do you know?
g. How does the main character feel in this book? How do they change?	h. What is the most interesting part of the text? Why?	i. What are three facts you learned from reading this book?
j. How do the pictures in the text help you understand what you are reading? Give an example.	k. Where does the story take place (the setting)? How does the author describe it?	l. What information was surprising in the text? Why?
m. What is the character's main problem, and how did they solve it? How would you have solved it?	n. How is this book like another you have read? How is it different?	o. What was a major event in the story? Why was it important to the story?

Day 1

Reading	Learn about this momentous trip.
Writing	Complete the page that's all about you.
Grammar Practice	Fill in the sentence with the right -ing words.
Math	First, roll the die and use the key to help figure out how many pennies to add. Then, be the first to make it up to or past 100 pennies!

Name _____ Date _____

The First All-Female Spacewalk

The first all-female spacewalk happened on October 18, 2019. Christina Koch and Jessica Meir traveled to the International Space Station. Though other women have done spacewalks before, this was the first all-female spacewalk. The spacewalk took about 7 hours. When they were on the spacewalk, Koch and Meir could see the Earth underneath them. Koch described seeing the Earth from space as "bright and an absolutely beautiful blue."

Now that you've learned about this historical event, answer the questions below.

1. Why was Christina Koch and Jessica Meir's spacewalk important?

2. Imagine that you were on a spacewalk. What would you like to see?

3. What do you think the Earth would look like from space? Draw a picture below.

About Me

My Name is _____

I was born in _____

My Favorite Colors are _____

My Favorite Hobbies are _____

_____

My Favorite Foods to Eat are _____

_____

My favorite place to visit is _____

_____

My Favorite Movie is _____

My favorite book is _____

I laugh and smile when _____

_____

_____

I will make the world a better place by _____

_____

_____

My dream is to _____

_____

Learning about Verbs with "ing"

You've probably seen a lot of verbs with "ing" at the end. Verbs are action words and a verb ending with "ing" is one that is used to talk about an ongoing action. Here is an example:

My friend Kitty is reading a story about a princess and a frog.

Add "ing" to the verbs so that they describe the continuing actions in the following sentences. Sometimes you may have to leave off the "e" on the end of the verb before you add the "ing."

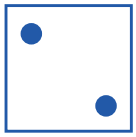
1. I am _____ for the bus with my friend. — wait
2. My cousin is _____ for the airport in an hour. — leave
3. My mom is _____ my favorite song. — sing
4. He is _____ a surprise birthday party for his father. — throw
5. Our class is _____ a book drive. — organize
6. My brother is _____ to find his sweater. — try
7. The girl is _____ a picture. — draw
8. Do you need help _____ your room? — clean
9. The children are _____ a fun game. — play
10. They are _____ a tree house. — build
11. My teacher is _____ our tests right now. — grade

Name _____ Date _____

ROLL TO 100 PENNIES

Use real or play American money to roll your way to 100 pennies, or $1.00. The player who rolls to or past 100 pennies first wins the game. Early learners can use a calculator to help them add up their number values.

Use this chart to help you add up to 100 pennies.

 a penny	 a quarter
 a nickel	 3 pennies
 a dime	 6 pennies

Place the coins or draw them in your box after each roll.

Round 1

Player 1:	Player 2:

Name _____ Date _____

ROLL TO 100 PENNIES

Round 2

Player 1:	Player 2:

Round 3

Player 1:	Player 2:

Who won the most rounds?

How much money did each player get in all the rounds?

Day 2

Reading	Who was Jesse Owens? Learn about this famous runner.
Writing	Write a paragraph about your favorite food.
Grammar Practice	Homophones sound the same but mean different things. Practice telling the difference!
Math	Using a deck of cards, make addition problems that add up to 100.

Famous Olympic Athletes

Jesse Owens

Jesse Owens in the 1936 Olympics in Berlin, Germany

Born in 1913 in Alabama, Jesse Owens' family moved to Ohio when he was young. He began running in junior high school. In high school, Jesse tied the world record for the 100 yard dash and the long jump.

Jesse attended Ohio State University. He was a track and field star there. In one meet in 1935 he broke three world records and tied another.

During the 1936 Olympics in Germany, Jesse won four gold medals. He broke the Olympic record for the 100 meters and broke the world record for the 200 meters. The 4x100 meters relay team, which included Jesse, also broke the world record.

Jesse's wins in 1936 also proved to the world that African American athletes could compete and win against the best in the world. German leader Adolf Hitler and his Nazi Party had wanted the Olympics to show that white German athletes were better than everyone else. Jesse and his teammates proved this wrong.

Olympic Achievements

Country: United States
Sport: Track and field
Year: 1936 Summer Olympics
Berlin, Germany
Total of 4 gold medals:
100 meters
200 meters
Long jump
4x100 meters relay

Secret Code Word

Use the secret code to find a word about Jesse Owens. Write the letter in the blank that matches the number from the code.

____	____	____	____	____	____
18	5	3	15	18	4

Secret code

1 = A	7 = G	13 = M	19 = S	25 = Y
2 = B	8 = H	14 = N	20 = T	26 = Z
3 = C	9 = I	15 = O	21 = U	
4 = D	10 = J	16 = P	22 = V	
5 = E	11 = K	17 = Q	23 = W	
6 = F	12 = L	18 = R	24 = X	

Q&A

Where was Jesse born?

_____

What year did Jesse participate in the Olympics?

_____

What Olympic record did Jesse break?

_____

How many gold medals did Jesse win at the Olympics?

_____

Name: _____ Date: _____

My Favorite Food Pre-Writing

In your opinion, what's the best food to eat for dinner?
Give three reasons why it's the best.
Then write a concluding sentence.

My Opinion:

Reason #1:

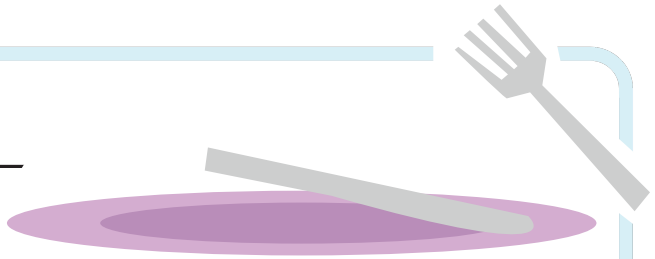
Reason#2:

Reason#3:

Conclusion:

Name: _____ Date: _____

My Favorite Food



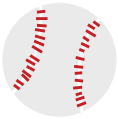
See the Sea

Circle the correct **homophone** to complete the sentence.

Homophones are words that sound the same but have different spellings and meanings.

1. The (sea / see) is very salty. 

2. I have a giant (not / knot) in my shoelace. 

3. Kelly (threw / through) the ball to John. 

4. The flower has a wonderful (sent / scent).

Use the lines below to write two sentences using two of the words you did not circle.

TIDY SUM

CARD PUZZLE II

Use the cards Ace through Nine of a suit. Place the cards so that the correct sum is formed. Find all the possible answers.

+

100

iplaymathgames.com

Day 3

Reading	Read a short passage about Jesse Owens' life and answer the questions.
Writing	Use the personal narrative graphic organizer to help organize your writing about something that happened to you.
Grammar Practice	Choose the correct word for each sentence.
Math	Read and solve each clue, then shade in the answers on the hundreds board

Name _____ Date _____

Historical Heroes: Jesse Owens

Directions: Read the passage below, then answer the questions that follow.

James Cleveland Owens was born in Oakville, Alabama, in 1913. He was nine years old when his family moved to Cleveland, Ohio. That is where he got the nickname Jesse. His new teacher asked his name. He shared that his name was "J.C." He had a Southern accent, and the teacher did not hear him correctly. She heard him say "Jesse." The nickname stuck.

As a boy, Owens was on the track and field team. He also took what odd jobs he could find. He had an after-school job. Owens's coach let him practice before school. That way, he could keep his job at a shoe repair shop.

After high school, he went to Ohio State University. He was on the track team, where he set three world records and tied a fourth. Even though he was a star on the track team, he still faced racism that was everywhere. He was forced to live off campus with other African American athletes. When the team traveled, he was made to stay in hotels designated as "black only."

Despite those circumstances, he focused on his training and competition. He went on to win four gold medals in the 1936 Olympic Games in Germany.

Questions

1. Jesse Owens was on the _____ team in school.

2. Why did Jesse Owens practice track and field before school?

_____

3. What college did Jesse Owens attend?

_____

4. How many records did Jesse Owens set when he was in college?

_____

5. How did Jesse Owens show that he was a hard worker?

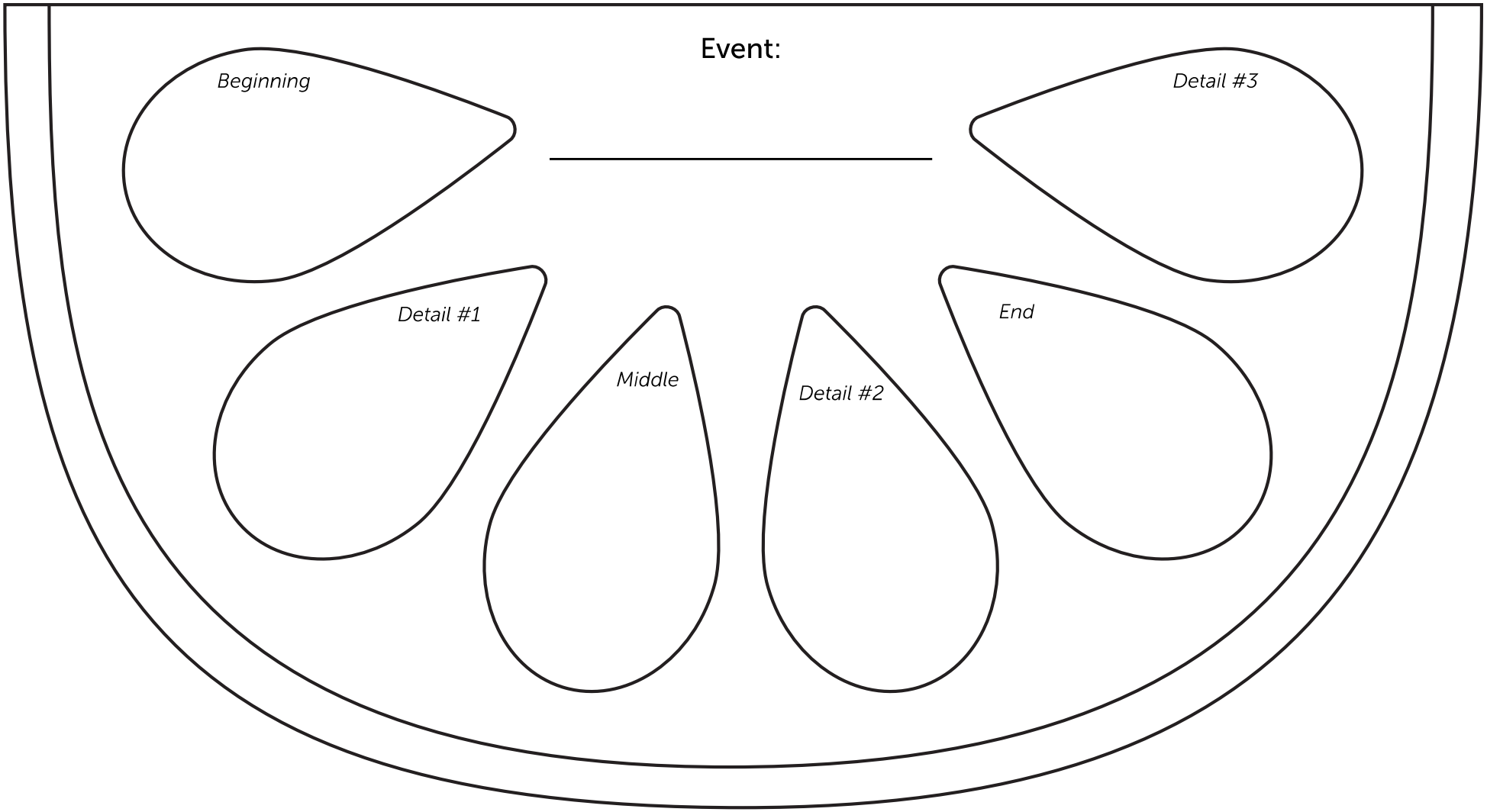
_____

_____

Personal Narrative Graphic Organizer

Name: _____ Date: _____

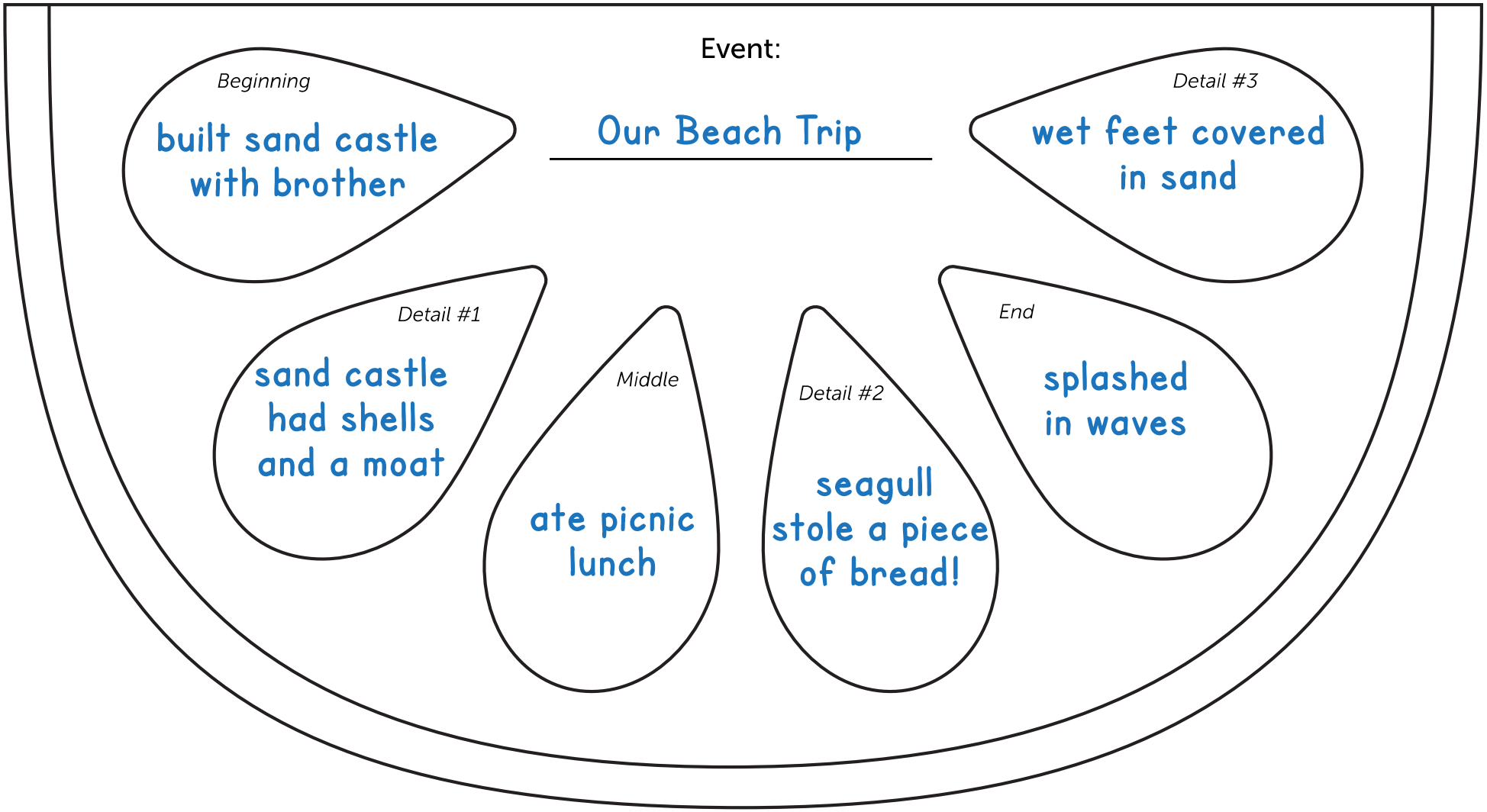
Think about your event as a watermelon and details as seeds.
Fill in the beginning, middle, and end with quick notes and add a detail about each.



Personal Narrative Graphic Organizer *Example*

Name: _____ Date: _____

Think about your event as a watermelon and details as seeds.
Fill in the beginning, middle, and end with quick notes and add a detail about each.



Same Sounds

Circle the correct **homophone** to complete the sentence.

Homophones are words that sound the same but have different spellings and meanings.

1. I just (eight / ate) a lot of (meat / meet) for dinner. 

2. I can't (wait / weight) to receive your letter in the (male / mail)! 

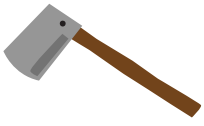
3. My mom bought (two / to) pounds of delicious (beats / beets). 

4. Jack is spending the (weak / week) with his (aunt / ant). 

5. We (won / one) (hour / our) first basketball game! 

6. Would you like to (where / wear) a (pear / pair) of my mittens? 

7. Mr. Smith's (son / sun) is an (I / eye) doctor. 

8. (Their / There) is an (acts / ax) over by the tree. 

Name _____ Date _____

Hundreds Board Challenge 1

Directions: Read each clue. Solve for the clue and shade in the answer(s) on the hundreds board.

1. Shade the numbers between 4 and 7.
2. Shade the number that is 7 times 2.
3. Shade the number that is between 10 and 20 whose digits add up to 8.
4. Shade the number that is 22 less than 45.
5. Shade the number that is 2 x 10 + 8.
6. Shade the number that is 30 more than 2.
7. Shade the number that is one less than 40.
8. Shade the number that is half of 86.
9. Shade the number that is 2 less than the value of 2 quarters.
10. Shade the number that is 6 x 9.
11. Shade the number that is 5 x 10 + 7.
12. Shade the numbers between 64 and 67.
13. Shade the value of 3 quarters.
14. Shade the number that is 2 x 30 + 16.
15. Shade the value of 1 dollar – 16 cents.
16. Shade the value of 8 tens and 7 ones.
17. Shade the numbers between 90 and 101 excluding 94, 95, 96 and 97.

Name _____ Date _____

Hundreds Board Challenge 

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Day 4

Reading	Learn all about the fable, *The Ant and the Grasshopper.*
Writing	Finish the story about Donovan.
Grammar Practice	Add in the correct punctuation to this fable.
Math	Read and solve each clue, then shade in the answers on the hundreds board.

BE A DETECTIVE

The Ant and the Grasshopper

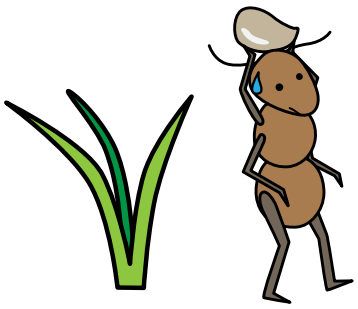
Mission:

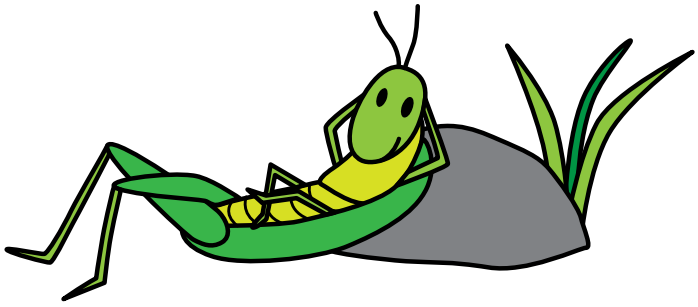
Read the story below. Can you predict what will happen next?

Once there was an ant and a grasshopper who lived in a field.

Every day, Ant got up early and walked far to gather seeds. She balanced one seed on her head at a time, walked it back to her home, and then went again to the field to gather more. She was very small, so the walk was very long. She worked the whole day, without ever stopping to rest.

As Ant worked, Grasshopper spent his days playing music, lazing in the sun. "Why do you work so hard, Ant?" he laughed. "Summer is here! Why waste the sunshine gathering seeds.





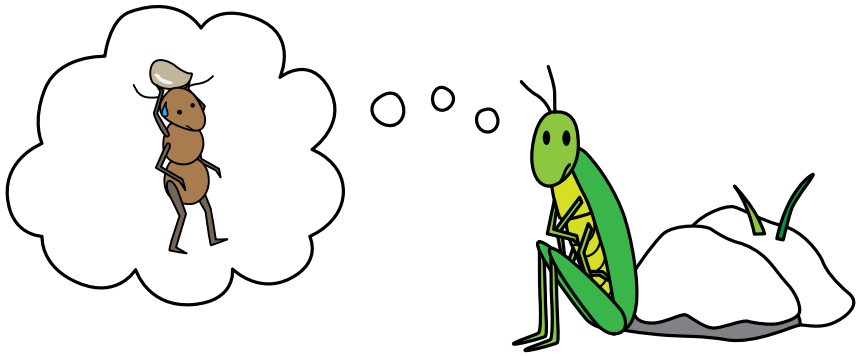
What do you think Ant will do?
What do you think Grasshopper will do? Why?

Keep reading...

Ant ignored Grasshopper's teasing and continued gathering, which only made Grasshopper laugh even more. "You are a silly little ant," he said.

Autumn came, and then winter. The days were short. Snow fell on the farmer's field, burying the plants and seeds that had been so easy to get.

Grasshopper had no food to eat. "What will I do? I am hungry," Grasshopper said to himself. Then, he remembered how many seeds Ant had stashed away during the summer.

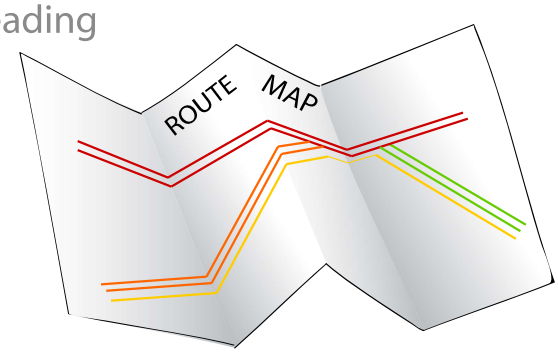


Grasshopper hurried to Ant's home. He knocked on her door. "Ant," he said, "Give me some seeds?"

Ant looked at Grasshopper. "I worked hard all summer long, while you laughed at me," Ant said. "You should have worked in the summer instead of singing and dancing. Then you would have a full belly now."

What was the moral of the story?

Reading



A Wrong Turn

Complete the story by writing in the empty boxes below.

One sunny Saturday, Donovan decided to visit his cousin in a nearby town. "You're old enough now to take the train on your own," Donovan's mother told him. "Just be careful, and be sure to get off at Mountainview Station."

Donovan looked out the train window just as it pulled away from the station. He realized too late that he'd missed his stop! He glanced around and noticed a friendly-looking train conductor walking up the aisle.

As Donovan stepped off the train at Mountainview Station, he breathed a sigh of relief. "Next time," he told himself, "I'll bring my own map!"

Train

An Aesop's Fable

Fill in the missing periods and quotation marks.

The Fox and the Crow

A fox was walking through the forest when he saw a crow sitting on a tree branch with a fine piece of cheese in her beak The fox wanted the cheese and decided he would be clever enough to outwit the bird

What a noble and gracious bird I see in the tree! proclaimed the fox, What exquisite beauty! What fair plumage! If her voice is as lovely as her beauty, she would no doubt be the jewel of all birds

The crow was so flattered by all this talk that she opened her beak and gave a cry to show the fox her voice

Caw! Caw! she cried, as the cheese dropped to the ground for the fox to grab

The End

Name _____ Date _____

Hundreds Board Challenge 2

Directions: Read each clue. Solve for the clue and shade in the answer(s) on the hundreds board.

1. Shade the value of a dime and 2 pennies.
2. Shade the number that is 7 times 2.
3. Shade the numbers between 16 and 20.
4. Shade the number that is double 11.
5. Shade the number that is one penny less than a quarter.
6. Shade the number that is 10 + 10 + 8.
7. Shade the number that is two more than 30.
8. Shade the number that is 15 x 2 + 4.
9. Shade the number that is 2 less than the value of 4 dimes.
10. Shade the numbers between 41 and 45.
11. Shade the number that is 2 less than 50.
12. Shade the number that represents the value of 5 dimes and 2 pennies.
13. Shade the number that is 9 x 6.
14. Shade the number that is 100 less than 158.
15. Shade the value of 12 nickels and 2 pennies.
16. Shade the number that is 12 less than 76.
17. Shade the number that is 7 x 10 – 2.
18. Shade the number that is 21 less than 93.
19. Shade the number that is one penny less than 3 quarters.
20. Shade the numbers between 76 and 80.

Name _____ Date _____

Hundreds Board Challenge 2

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Day 5

Reading	Answer the questions after you read *Grandpa's Boat*.
Writing	Sketch out your ideas and then write your personal narrative on a different piece of paper.
Grammar Practice	Add in the correct punctuation to this fable.
Math	Use the information to answer questions and determine who hiked the most.

Read & Review

Read the story and fill in the best answer for each question below.

GRANDPA'S BOAT

Jamie spent a beautiful Saturday with her grandpa on his fishing boat. He picked her up at her house very early in the morning. They stopped for breakfast on the way to his favorite fishing spot, Lake Francisco.

Once they arrived at the lake, Grandpa put a worm on Jamie's hook, then showed her where to cast her line. While they waited for the fish to bite, Grandpa told Jamie stories about his childhood in Italy.

Suddenly, Jamie's fishing pole bobbed down sharply. She quickly began reeling in her catch as Grandpa reached for the net. A few moments later, Jamie lifted the trout out of the water into the net. Grandpa was so proud of Jamie that he took a picture of her holding her prize!

On what day did Jamie and Grandpa go fishing?

- ◯ Sunday
- ◯ Monday
- ◯ Saturday

Where did Grandpa spend his childhood?

- ◯ France
- ◯ Italy
- ◯ Lake Francisco

What is the name of Grandpa's favorite fishing spot?

- ◯ Lake Francis
- ◯ Lake Francisco
- ◯ Lake Franco

What kind of fish did Jamie catch?

- ◯ A trout
- ◯ A bass
- ◯ A salmon

Name: _____ Date: _____

Personal Narrative Problem & Solution

Think about a time when you had a problem. What caused the problem? How was it solved? Who solved it? How did it make you feel?

Problem

Why was it a problem?

Who solved it?

Solution

How did you feel?

An Aesop's Fable

Fill in the periods at the end of each sentence.

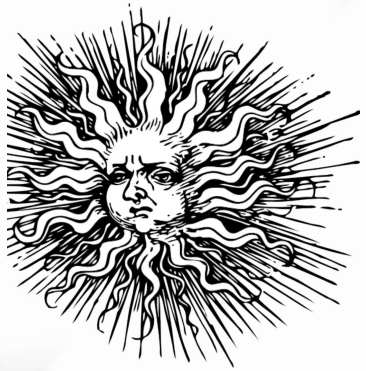
The Sun and the Wind

The wind and the sun argued one day over which one was the stronger Spotting a man traveling on the road, they made a challenge to see which one could take the coat from the man's back the quickest

The wind began He blew strong gusts of air, so strong that the man could barely walk against them But the man clutched his coat tight against him The wind blew harder and longer, and the harder the wind blew, the tighter the man held his coat against him The wind blew until he was exhausted, but he could not remove the coat from the man's back

It was now the sun's turn He gently sent his beams upon the traveler The sun did very little, but quietly shone upon his head and back until the man became so warm that he took off his coat and headed for the nearest shade

The End



Hiking Buddies Graph

Eric, Carol, Manny and Sue all like to go hiking.
This pictograph shows how many hikes they went on this month.

Eric	
Carol	
Manny	
Sue	

 = one hike

1) Who went on the most hikes?

2) Compare Eric and Carol. How many more hikes did Eric go on?

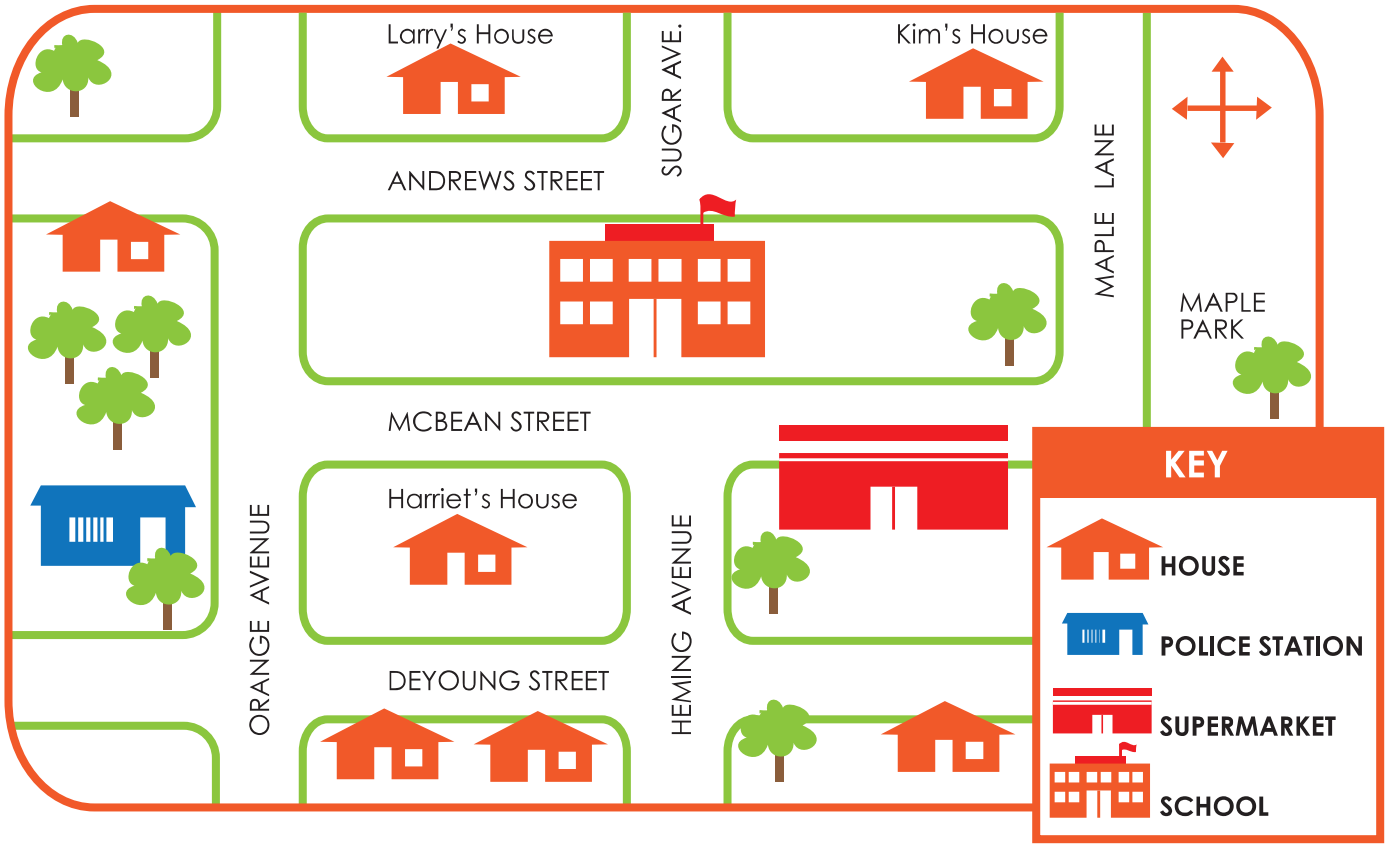
3) How many hikes did Sue take?

4) How many fewer hikes did Manny go on than Sue?

5) Who hiked the least?

6) How many hikes did they take in total?

TOWN MAP

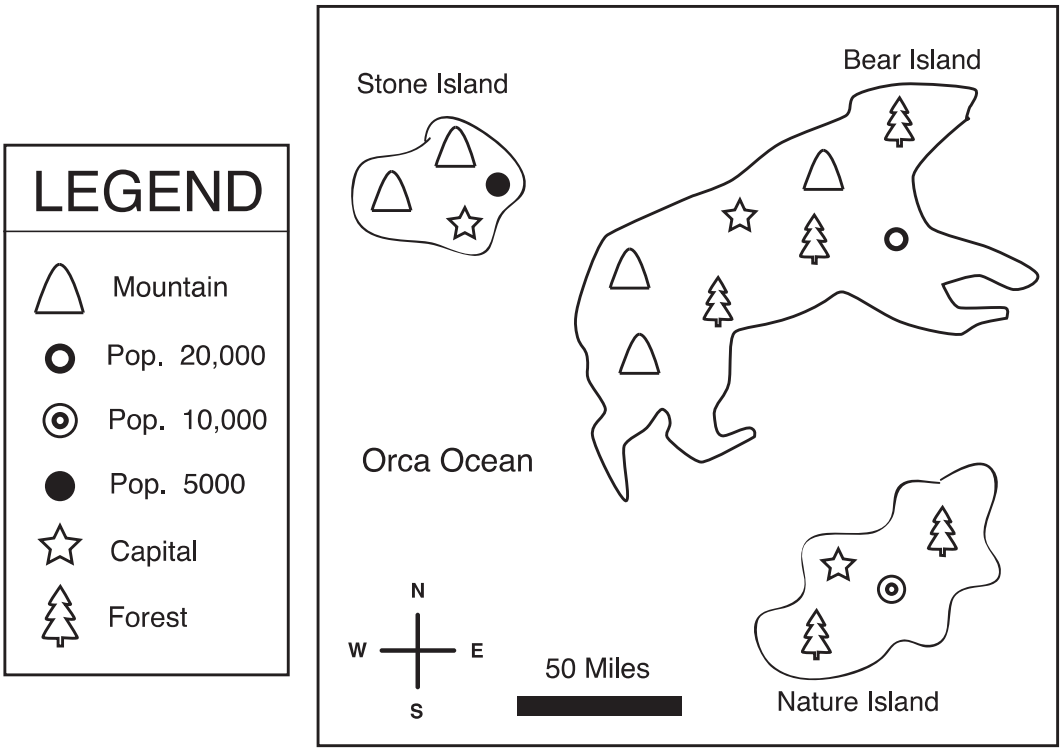


LABEL the compass rose with N, S, E, W.

Write NORTH, SOUTH, EAST OR WEST to complete each sentence.

1. Harriet heads _____ to go to school.
2. Larry goes _____ to go to Harriet's house.
3. Kim heads _____ to go to the supermarket.
4. A police officer would go _____ to the supermarket.
5. Kids at school head _____ to play at the park.
6. Harriet's dad is a police officer. He heads _____ to work.
7. Larry heads _____ to go to school.
8. Kim heads _____ to visit Larry.

Find Your Way Around a Map!



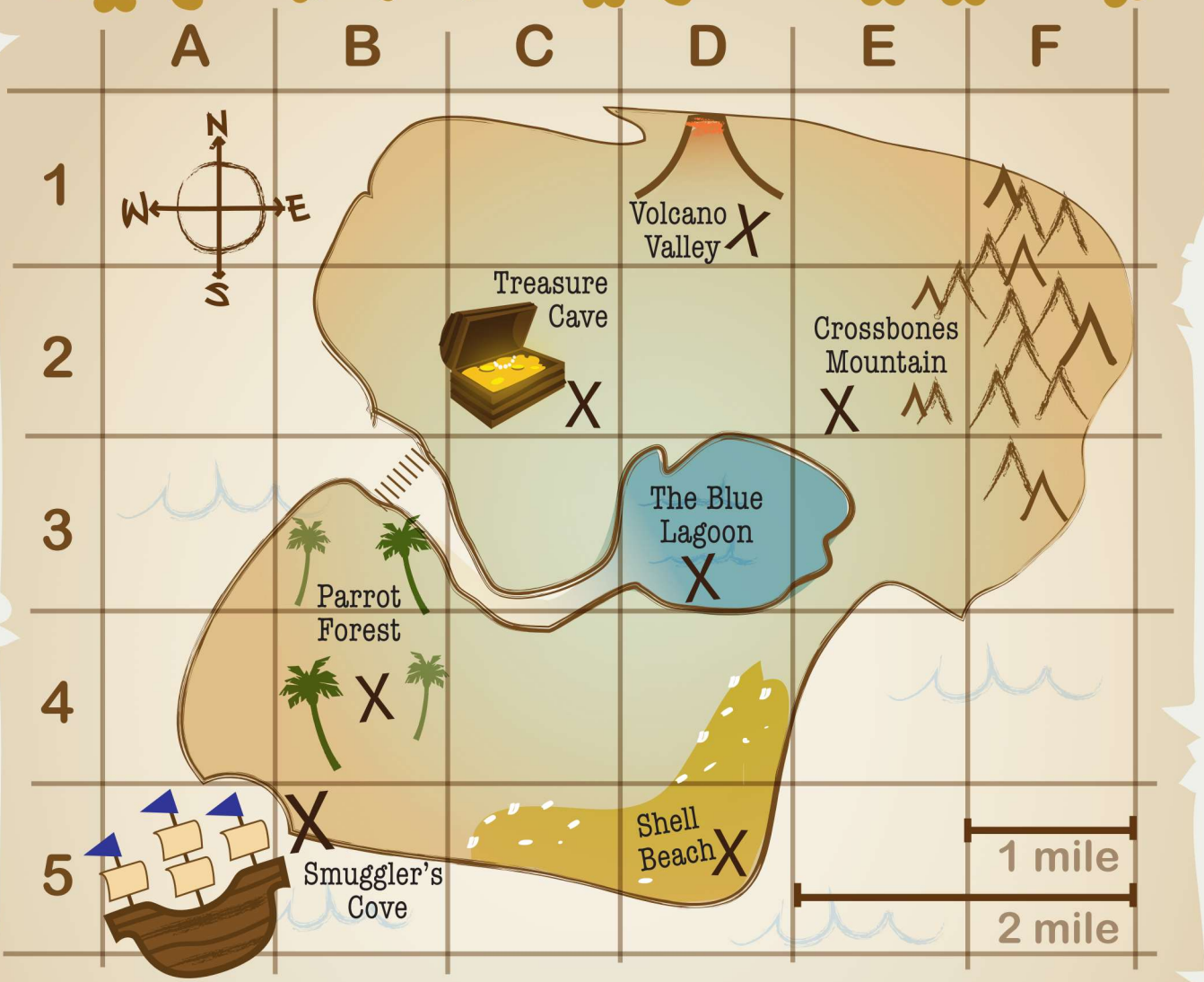
Color it in!

Color the mountains purple.
Color the water blue.
Color the capitals yellow.
Color the forests green.

Use the map and legend to answer the questions below.

1. What is the population of Bear Island?
2. What is the population of Stone Island?
3. Use the compass on the map to find out which direction you would travel to go to Bear Island from Nature Island.
4. Use the distance meter on the map to find out how many miles you have to travel to go from the capital of Bear Island to the capital of Nature Island.
5. How many more mountains are there on Bear Island than Stone Island?
6. Are there more forests on Bear Island or Nature Island?

TREASURE MAP



YOU HAVE LANDED ON TREASURE ISLAND. Each landmark on the map lies within a square that's named after the column and row that make its sides. For Example, you have landed on Smugglers Cove. It is located under column B row 5, which meants it is in square B5. Fill out the location of the other landmarks below.

Parrot Forest _____ _____

The Blue Lagoon _____ _____

Volcano Valley _____

Crossbones Mountain _____ _____ _____ _____

Shell Beach _____ _____ _____

Treasure Cave _____

Design Challenge: Making Floating Sea Creatures

Cuz-Cuz spends most of his time flying, but he has never been swimming! Because Birdee does not know much about the ocean, he is fascinated by how different ocean creatures swim and float in the water. Help Birdee learn more about how the designs of sea creatures cause them to float or sink differently in the water.

In this interactive design challenge your child will learn the basics of buoyancy while making small sea creatures. Your child will use a variety of recycled materials and their knowledge of how different objects float to create different sea creatures that, when placed in a bucket of water, float on top, sink to the bottom, or stay in different locations throughout the bucket.

What You Need

- Large, clear tub (preferably on the taller side so there is more room vertically)
- Various recycled materials (preferably some that will float on water)
    - Toothpicks
    - Corks
    - Skewers
    - Pipe cleaners
    - Ping pong balls
    - Tinfoil
    - Paper clips
    - Lego blocks
    - Magnets or other small, heavy objects
- Long spoon or tongs for extracting creations from the tub
- Tape (for marking different heights along the tub of water)
- Tape or glue (for sticking pieces of your child's creature together; glue will probably work better when exposed to water)
- Scissors
- Pen and paper for notetaking
- Camera (optional)

What You Do

1. First, prepare for the activity. Fill a tall bucket or tub with water. Mark different heights on the bucket using tape. (These can be general such as halves and quarters, or more specific heights such as one inch, five inches, and so on.) Place the bucket in a location that can get wet such as an outside area, in a bathtub, or in a large sink. Then, have your child help you collect the materials they would like to use to make their creatures. (This materials list above is merely a suggestion to help you and your child get started with ideas on what to use.)

2. Now, discuss the concept of buoyancy with your child. Do they know what the word means? Does it remind them of any other words (buoy)? Explain that if something is "buoyant" on water it means that it floats. Explain to your child the concept of density. Do they know what density means? Explain that if an object placed in a bucket of water is more dense than the water it will sink, but if it is less dense than water it will float. Now explain that if an object has the same density as water it will neither sink to the bottom of the bucket nor float on top. Explain that if an object stays in the middle of the bucket of water then it is considered neutrally buoyant. Make sure your child understands these concepts by asking a few questions.

a. What happens when your child is in a swimming pool? Do they sink or float?

b. Has your child ever dropped a toy in a bathtub? Which toys sink and which float?

c. Can they think of any objects that, when placed in a bath or other body of water, stay in the middle? What is different about these objects?

3. Next, explain the challenge. Explain that they must use the different materials to create "sea creatures" that float, sink, or are neutrally buoyant in a bucket of water. Show them the different heights that you have marked on the bucket. Before starting the challenge, allow your child to place different objects in the water to test if they sink or float. Make sure to have your child write down their observations from this initial experiment.

4. Before your child begins building, instruct them to brainstorm a few ideas. Remind your child to look at their notes from the initial tests that they completed to come up with several ideas. Encourage your child to write or draw any designs that come to mind and make sure that they have ideas for each different height.

5. After your child has finished brainstorming, ask them to choose the design they think will work best for each challenge. Emphasize the purpose of their design: to float, sink, or remain neutrally buoyant at different heights in a bucket of water.

    a. This is an important step of the design thinking process because it teaches your child to prioritize the functionality of their design over personal preferences, and it prevents them from getting too emotionally attached to one design.

6. Now it's time to build! Give your child room to explore with the materials and make changes to their design as they test what works and what doesn't work. Try to let your child build on their own, but make sure to step in an offer assistance if they seem to be struggling. Ask your child to write down notes about what they are doing and why as they change their design during the building process.

7. Once your child has completed building their creature, it's time for final testing of what they've made. Ask your child to place their creatures in the bucket and observe where they sit in the water. If desired, take pictures for data collection.

    a. If your child's creatures stay in the desired part of the bucket, congratulate them on successfully completing the challenge!

    b. If your child's creatures do not have the anticipated outcome, discuss with your child what they might change about their design. Remind your child that setbacks like these are one of the most important parts of the design thinking process and they should use their mistakes to create even better creatures. Encourage your child to go back to the brainstorming stage or try a different one of their ideas from the first round of brainstorming.

Design Challenge: Making a Catapult

In this activity, your child will be challenged to use three simple materials to create a launcher for an action figure or small toy. This prompt is intentionally open-ended so that your child can be creative about how they use the materials.

The purpose of this activity, like many design challenges, is for your child to gradually develop skills of empathy, persistence, and resilience. We have given instructions that you can use to guide your child through each step of the design thinking process. Make sure to complete each step in the instructions so that your child can fully experience the design thinking process, which includes phases of brainstorming, prototyping, testing, reflecting, and modifying. However, feel free to go beyond what we have written, and have fun with this activity!

What You Need:

- One paper cup
- A rubber band
- One plastic spoon
- An action figure or similarly-sized toy
- Pen and paper for note-taking

What You Do:

1. First, explain the prompt of this challenge to your child. Tell them that the purpose of this activity is for them to come up with a creative way to use a cup, a rubber band, and a spoon to create a catapult for their action figure or toy.
2. Mention that there isn't only one way to go about this challenge: It's open-ended, and your child should know that they can come up with several different ideas.
3. Once your child has a clear understanding of the prompt, it's time for them to **brainstorm** different ways they can use their materials. Feel free to show your child the materials you're providing, but don't let them start building quite yet.
4. Ask your child to write or draw all their ideas on a piece of paper so that they can refer back to them. Alternatively, you can ask your child to explain their ideas to you while you write and draw them on a piece of paper.
5. After your child has brainstormed for a few minutes or can no longer come up with any ideas, ask them to choose the idea they think will work best. This is an important step of the design thinking process because it teaches your child to prioritize the functionality of their design over their personal preferences. Also, this will help prevent your child from getting emotionally attached to a single design.
6. Now that your child has decided which design they think will work best, allow them to start **building**! In order to develop resilience, it's important that your child learns to work through challenges independently. However, depending on the capabilities (and age) of your child, you may need to assist them as they put their prototype (design) together.
    a. Generally, we recommend that you intervene only if you have a safety concern or if you feel that your child absolutely can't make any progress without your assistance.
7. After your child has finished building their prototype, it's time to **test** it out! Allow them to try launching their action figure and observe the process.
    a. If the catapult successfully launches the toy, congratulate your child on their success.
    b. If the prototype doesn't work, make sure your child doesn't feel discouraged. It's important to encourage your child to identify why their design didn't work, and help them go back to the beginning of the design thinking process to create a better one. Before your child starts over, you may want to ask them the following questions so that they can think about what they should change in their next design: "What worked with your design? What didn't work with your design? Which part of your design do you think you should change next time?"
8. Continue repeating this process until your child has created a catapult they are proud of!
9. In order to have your child reflect on the design thinking process, ask them some of the following questions:
    a. What was the best part about your final design?
    b. What could you have improved in your final design?
    c. What was the most challenging part of this activity?
    d. What did you learn?

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