Science/Social Studies Notebook

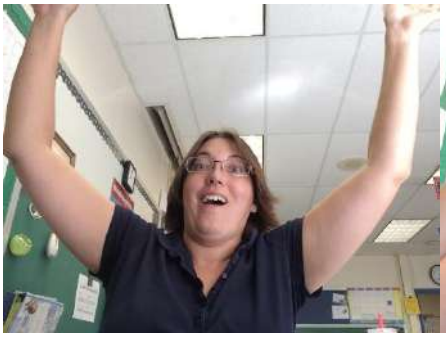
Q1 – 2015

Student Name _____

Student Number _____

Group ____

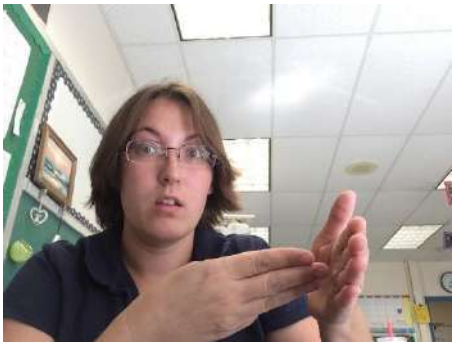
Scientific Method Dance



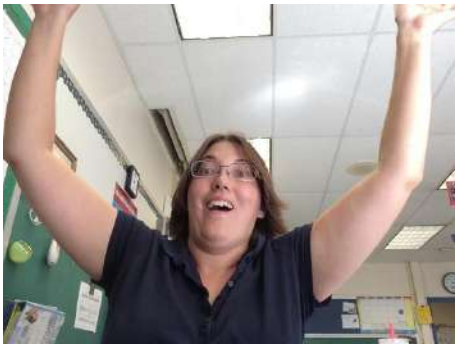
Scientific Method

5. *Observe & Ask Questions*

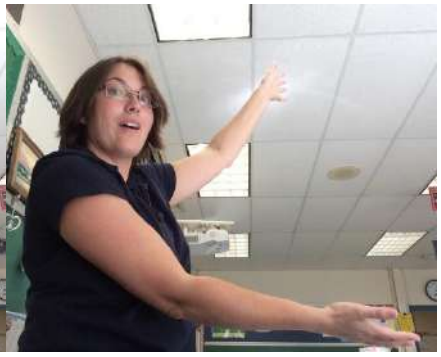
4. *Form a Hypothesis*



3. *Plan the Experiment*



2. *DO THE EXPERIMENT*



1. *Draw Conclusions & Show Your Work!*

Table of Contents

Science: Getting Ready _____

Getting Ready 1: Tools for Inquiry (Wolf pg.2-9)

FQ: **List** the tools *you* use in science and **explain** how you use them.

P:_____

_____

_____

_____

standard measure - a rule of _____ (metric system) set by an authority, such as a _____; we have these standard units so _____ can agree on how long, big, hot and so on things are.

volume – an amount of _____, measured in cubic units; **length x width x height = volume**

mass – the _____ of something

observe – to use your _____ (sight, smell, taste, touch, sound) to notice interesting things about an object or objects; ****NEVER taste/touch/smell objects in science, unless an adult says that it is okay!****

handle – to _____ something

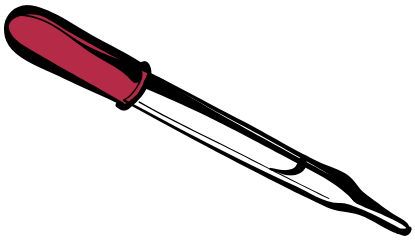
C: Scientists use tools for measuring _____, _____, temperature, _____ and the pull of _____. They also use tools for making _____ and for _____ objects safely and carefully.

Inquiry Tools That You May Know

1.

2.

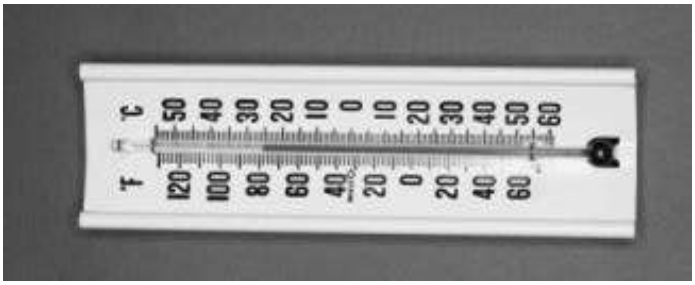
or



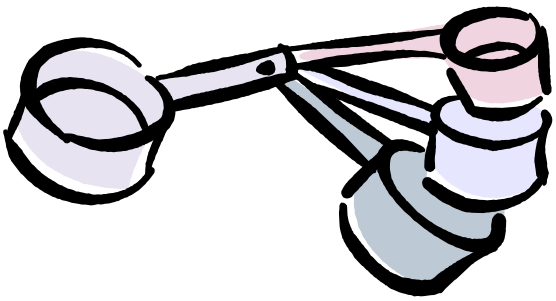
3.

4.

5.



6.



7.

8.

or

9.

10.

11.

12.

Name _____ # _____ Date _____

Science ~ Chapter 1-1 **What Are Tools for Inquiry?**

1. Complete the graphic organizer below. Please name the tools that would you would use in each category.

MAIN IDEA: Scientists use many different tools to measure, observe, and handle.

Tools for measuring

Tools for observing

Tools for handling

Distance:

1. _____
2. measuring wheel
3. measuring tape
4. _____

Volume:

1. graduated cylinder
2. _____
3. _____
4. _____

Temperature:

1. _____

Mass (weight):

1. _____

1. Microscope
2. _____
3. _____

1. _____
2. _____

Word Bank

ruler	hand lens	forceps
dropper	meterstick	bug box
pan balance	thermometer	measuring cup
beaker		

2. Write two sentences that tell what this lesson is mostly about.

_____

_____

_____

3. How would scientific experiments change if scientists had no tools to use?

_____

_____

_____

4. How can you decide which tool to use in a certain experiment?

_____

_____

_____

5. Which tool would help you measure how different colors absorb the energy in sunlight?

    a. beaker

    b. meterstick

    c. pan balance

    d. thermometer

Science: Getting Ready _____

Getting Ready 2: Inquiry Skills (Wolf pg.10-17)

FQ: 1) Is there a special way that scientists learn? Please explain.
2) **Draw** what you think a scientist looks like **below**.

P:_____

_____

_____

_____

Draw what you think a scientist looks like. Use your abcd's!
A = accuracy, B = big, C = color, D= detailed (labels)

inference – an **untested** _____ based on your

_____

predict – to use your knowledge to _____ what will happen next; scientists use their _____ to help them predict

hypothesis – a _____ **&** a _____ why you think it will happen

classify – to _____ into categories

experiment – a _____ of a hypothesis; **all variables are** _____

variable – the things that can _____ in an experiment; **to make it a fair test, _____ variables must be the _____ except for the one you are testing**

Example of controlled variables: If you are testing the absorption of different brands of paper towels, then you must have –

- the *same* tools used for each paper towel
- the *same* amount of water applied to each paper towel
- the *same* size paper towels
- the *same* method of applying the water to each paper towel
- the *same* ply of paper towels
- *different* brands of paper towels

C: _____ can develop the same kinds of _____ that _____ use to learn more about the world.

Science: Getting Ready _____

Getting Ready 3: Scientific Method (Wolf pg.18-23)

FQ: Why do scientists follow a particular process to complete an experiment?

P:_____

_____

_____

_____

scientific method – a _____ that scientists find out _____ things work and _____ each other

Let's Dance: Follow the motions that your teacher shows you. **Practice these every day!**

1. Observe and ask questions (binocular hands on eyes)
2. Form a hypothesis (use 2 fingers to tap brain)
3. Plan an experiment (use 3 fingers to "write" on other hand)
4. Do the experiment [The FUN part!]
   (jump around 4 times with arms moving everywhere)
5. Draw conclusions… & show your work!
   (use 5 fingers to scratch chin, then 5 fingers to "Vanna White")

Let's Dance observation: How will these motions help me remember the steps of the scientific method?

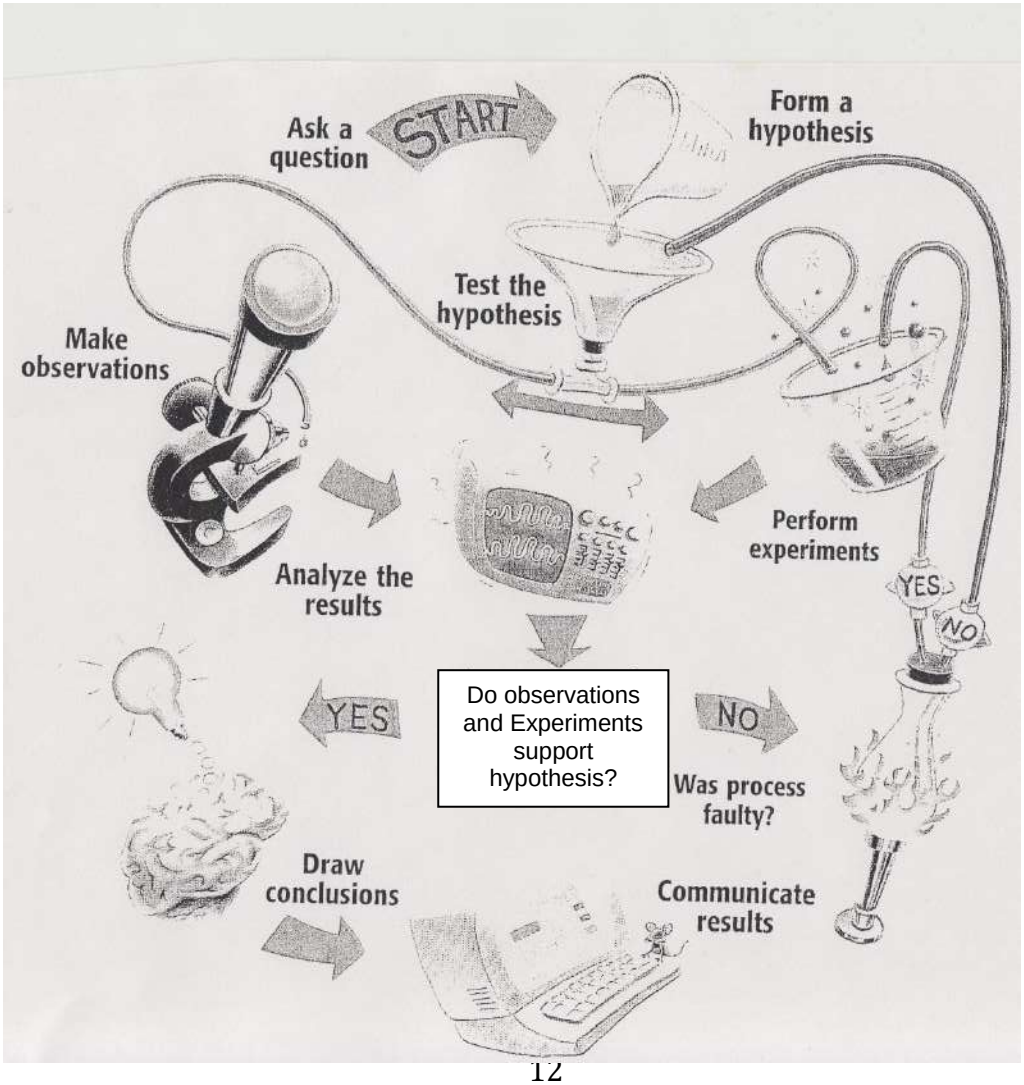
_____

_____

_____

_____

C: The scientific method helps us gain _____ knowledge. It helps scientists _____ of _____ possible answers to their _____. They conduct experiments to test their answers. This method also requires them to _____ their findings.



Science: Getting Ready _____

FOSS WATER: Inv.1-2 Surface Tension

FQ: How do scientists plan experiments?

P: _____

_____

_____

_____

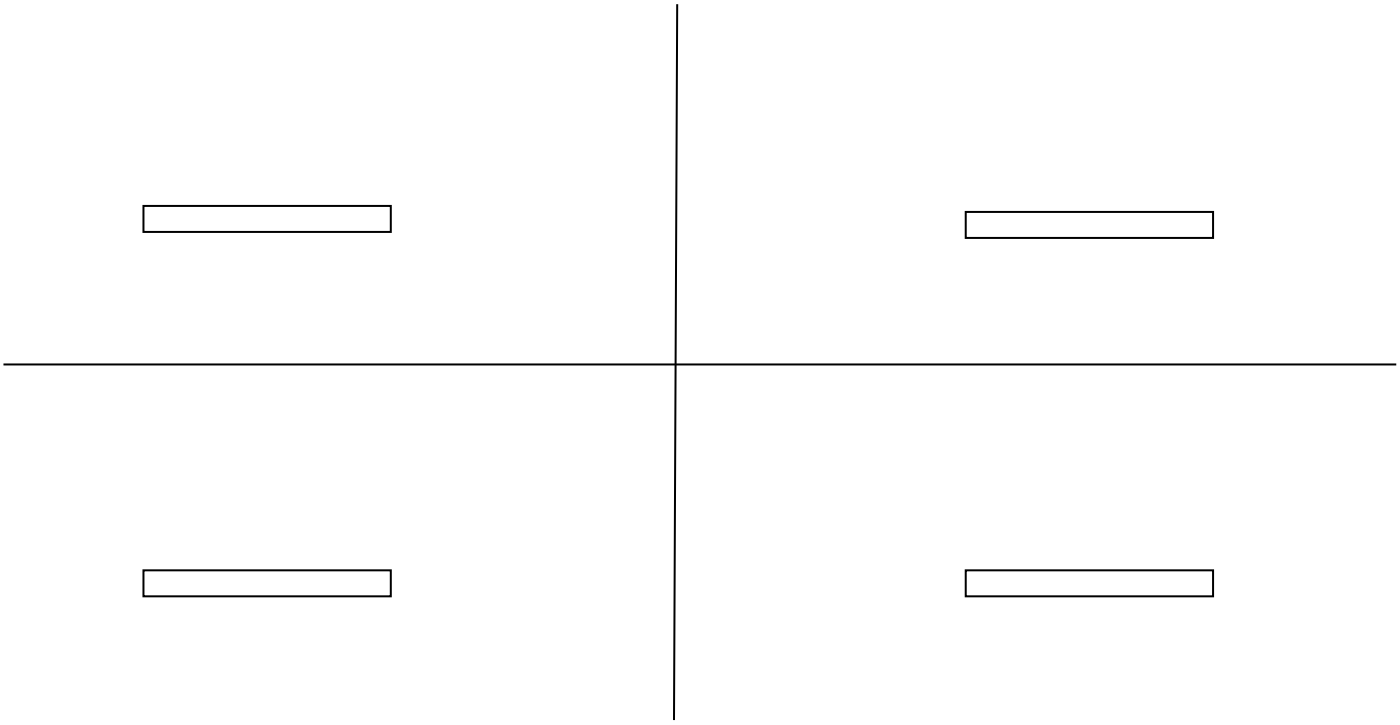
Let's "Ask a question…"

FQ: How many full drops of water will fit on the head side of a penny?

P: _____

_____

_____



surface tension- (property of water) a "_____"-
like surface on the water that holds _____ together.

dome- _____
_____

C: The shape of the water _____ is

_____ by the _____ that

are _____.

_____ water _____ affect the surface tension.

_____ water decreases the surface tension.

Observation: Is it important to plan your experiment? Why or why not?

Science: Getting Ready _____

PLT: Earth Manners

FQ: Are there any rules or guidelines that scientists need to follow when experimenting or observing?

P:_____
_____
_____
_____

Rules my classmates thought of:

_____
_____
_____
_____
_____
_____

Story: Read *Trapper* on the next two pages.
Observation: How did the story make you feel? Do you think Trapper gave Muttsok good advice?

_____
_____
_____
_____

C: Exploring our environment can be really fun, but we need to also respect it by:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

***Enrichment Activity*: (PLT 379)**

Trapper

In the crystal reaches of the stormy Atlantic Ocean, off the north coast of Canada, there was a small, frozen island called Samrakan.

The clouds floated freely there, dancing softly in the snow-filled sky as the ocean washed over the icy rocks.

Because of the crisp, brisk weather, furry little creatures called minstrel seals came from all over to play in the cold waters of the island. They were called minstrel seals because they always sang pretty songs to the sea.

The seals spent all of their days eating the delicious fish that lived deep in the bays, and sitting on the rocks and softly humming in the bright sunlight.

Every day, when the sun reached its highest, one of the seals would climb high onto the rocks and begin to sing a gentle melody to the sea. One by one, the other seals would join in harmony, until the most beautiful song was carried by the breeze for miles around.

They would sing like that for hours and hours, until a small minstrel seal called Trapper would join them and quietly begin to hum along. He would get so carried away by the pretty music that he would suddenly bellow out a sour note. It was so sour and so loud that the birds would lose their feathers in fright.

The other seals would cringe at the sound and, one by one, they would slide noisily back into the sea, leaving Trapper all alone on the island of Samrakan, humming all by himself, way out of tune.

It would have been the very same to this day except that the seals, one by one, started disappearing. Day by day, one or two seals would disappear and the group would be that much smaller.

The other seals didn't really mind because each one enjoyed his own pretty voice anyway, and with fewer seals they could hear themselves better. Besides, it seemed to Trapper that the fewer seals there were, the longer he got to sing along.

Finally, Trapper realized that there were only three seals, including himself, left on the whole island.

"Hmmm," he thought as he munched on his lunch in the bay. "This is getting stranger and stranger. I wonder where everyone has gone. My singing isn't very good but it can't be so bad that everyone would leave."

He decided that right after the singing the next day he would watch carefully to see where everyone went.

The day dawned cold and bright. As he did every day, Trapper played in the surf, and when the sun was at its highest, he went to join the other seals.

He hummed along with the other two for the longest time until, as always, he sang out with a very sour note. The other two seals, with a "tsk" or two, began sliding back into the sea.

Trapper waited for just a moment, then slipped over to the edge of the rocks and looked below. There was the ugliest creature he had ever seen, and in his arms he had the last two seals on the island of Samrakan.

Trapper quickly hid as the creature ran off with his fellow seals. "That was close!" he thought. "But now I'll be able to sing pretty songs for as long as I like, with no one to say I'm singing wrong." He played in the bay and munched his lunch; everything almost stayed the same.

When the sun got to its highest point, Trapper again climbed the rocks to sing a song to the sea. He sang and sang, but it just wasn't the same. For what good is a pretty song if there's no one around to hear it? Trapper finally realized that he was all alone.

"What will I do?" he cried. "I'm afraid of the ugly creature, but without the other seals I have nothing."

He began swimming around the island, looking in all the bays for his friends, but to no avail. He climbed high onto the rocks and looked and looked. He searched throughout the day and long into the night, but never found a trace of the other seals.

Finally, he became so tired from his search that he climbed out of the water, found a soft patch of frosty grass, and fell fast asleep.

(continued on next page)

Trapper (continued)

While he slept, he dreamed of all the days he had shared with the other seals and the pretty music they had shared.

Trapper was so tired that he slept the whole night through.

He probably would have slept through the day had he not been shaken awake to find himself hanging upside down.

"What's going on?" he said with a yawn. Then he realized with a start that he was hanging in the arms of the creature.

"Aha! So, you're awake, my little singing minstrel seal. Soon you shall join your friends and you can all sing pretty songs for me."

"Who are you, and what do you want with me?" Trapper cried.

"My name is Muttsok, and I like pretty things. You are going to be part of my collection," he laughed. And with Trapper stuffed neatly under his arm, he headed away from the bay.

Poor Trapper did not know what to do. He thought and thought but was too scared to think of anything.

"I've got to calm down so I can think," he thought. Well, the only thing that would calm him down was to sing, so he began to hum softly to himself, so softly in fact that the creature didn't even hear. Then, as the song built within him, he bellowed his loudest, sourest note ever! The creature was so shocked by the terrible noise that he dropped Trapper so he could hold his hands over his ears.

Trapper hit the ground with a thud and quickly rolled into the safety of the sea.

Trapper hid beneath the waves, but when he realized the creature wasn't following him, he bobbed to the surface and looked around. There on the beach before him was Muttsok, stomping his feet and raging. "Come back here you dumb little seal! You're pretty and I want you."

"Muttsok," shouted Trapper, "why do you have to own everything that is pretty? Can't you enjoy a pretty thing the way it is?"

"No, you stupid seal. What's the fun of seeing something pretty if you can't take it with you?"

"Well," said Trapper carefully, "you can see a pretty sunset and you can't take that with you."

"I tried to take it once," growled Muttsok.

"Yes, but if you had succeeded, then no one else would have been able to see the sunset. Just like all the seals you took, now no one can hear their beautiful song to the sea."

"Well," grumbled the creature as he stirred his foot in the sand, "I still like to collect pretty things."

Trapper thought for a moment. "That's easy, Muttsok. I'll show you all sorts of pretty things to collect."

Trapper swam just a little way up the beach and shouted to Muttsok who had followed. "Look! At your feet there are thousands of beautiful rocks. And look! Above you there are hundreds of pretty winter flowers growing."

Muttsok looked around and saw that there really were pretty things everywhere. He began picking up rocks; then he suddenly stopped. "If I take all the pretty rocks and flowers, then nobody can enjoy them either."

"Ahhh," said Trapper, "you take only the prettiest one and leave the rest for others to share."

So Muttsok took the prettiest rock. Then he climbed way up and picked the prettiest flower, and with them safely clutched in his hand, he rushed back to set the seals free.

After a while, things returned to normal on the island of Samrakan, and the minstrel seals once again sang their beautiful songs to the sea.

Some of the time Muttsok sat with a flower in his hand and a gentle smile upon his face, with small, silent Trapper by his side. If you listened very carefully, you could hear the two of them singing softly out of tune.

If you see those pretty things that nature likes to show
remember all those seals that sing and leave them there to grow.

Social Studies: Geography Skills _____

Five Themes of Geography

FQ: What is geography?

P:_____

_____

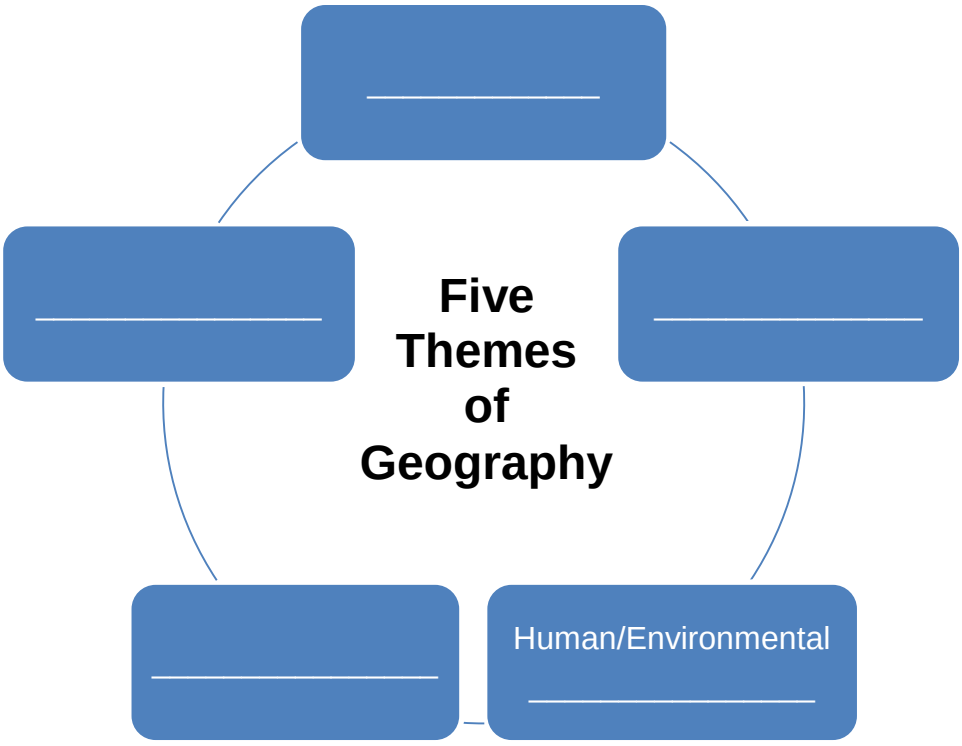
_____

_____

geography - _____

_____

_____



C: _____

_____

_____

Social Studies: Geography Skills _____

Reading Globes & Earth's Hemispheres (myWorld SSH12-13)

FQ: What does a globe show?

P:_____

_____

_____

ocean – _____ largest bodies of water on _____; **Atlantic Ocean, Arctic Ocean, Indian Ocean, & Pacific Ocean**

continent – _____ large bodies of _____ on earth; North America, South America, Europe, Asia, Africa, Australia, Antarctica

hemisphere – (hemi = half) _____ the _____

equator – an _____ line that lies halfway _____ the North Pole and the South Pole

prime meridian – an _____ line of longitude that _____ _____ the North Pole to the South Pole

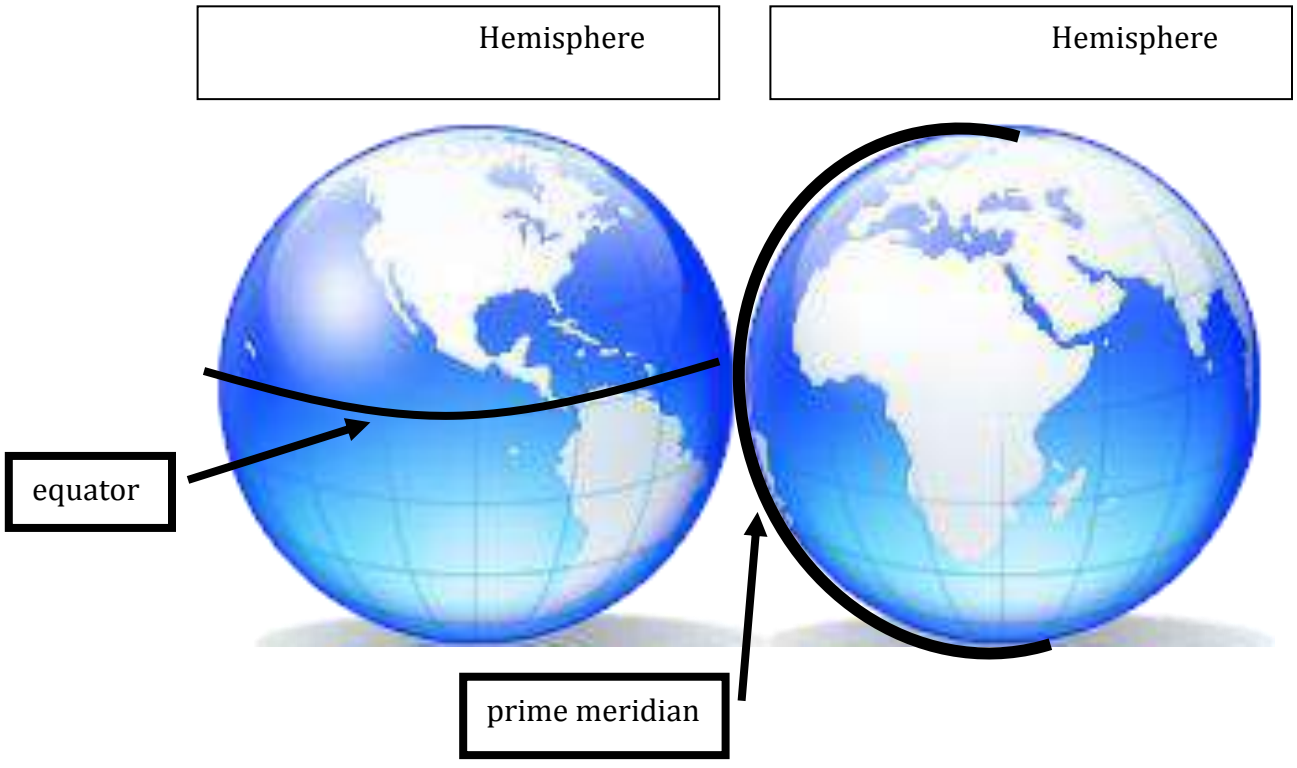
C: Globes are _____ of the earth. They show the _____, _____, and sometimes borders. Globes help us _____ where all of these components are located on the _____.

Let's Dance: Follow the motions that your teacher showed you.
Practice these every day!

1. Northern Hemisphere (arms up)
2. Southern Hemisphere (arms down)
3. Western Hemisphere (arms to the left)
4. Eastern Hemisphere (arms to the right)
5. Prime Meridian (zipper down the front)
6. Equator (hands on your hips)

Song: *Let's be ready to compete with third grade!

North and South America,
Europe, Asia, too.
Africa, Australia, Antarctica… it's true
All these 7 make a list,
Of major blocks of land.
They're the earth's big continents,
Let's give them all a hand!



Globe

There is land on the surface of the globe,
Seven sections of the land on the globe.
What are they called?
Those are the _____.
North America, South America, Europe, Asia, Africa, Australia, and Antarctica.

There is a lot of water on the globe,
Covering three fourths of the globe.
What is it called?
It's the _____.
It is divided into Atlantic, Pacific, Indian, and Arctic.

There is a top point on the globe.
There is a bottom point on the globe.
What are they called?
The _____ _____ is in the Arctic Ocean,

And the _____ _____ is on
Antarctica.

What is the line that circles the globe;
An imaginary line that divides the globe?
What is it called?
It's called the _____.
It lies halfway between the North and South Poles.

Another line that circles the globe?

It divides the east and west parts of the globe.

What is it called?

That's the _____ _____.

It is perpendicular to the Equator and crosses through the North and South Poles.

If you divide the globe into two parts,

And can only see half of the globe,

What is it called?

It's called a

_____.

Name _____ # _____ Date _____

Using Globes – Vocabulary

Directions: Read the clues from the poem "Globe." Use the word bank on the next page to help you fill in the blank to find the answer to each clue. Find the answers in the puzzle below.

D H Y E N P O V K N F Y F Z O
C M E J D G E L O P H T U O S
P R I M E M E R I D I A N N O
P C M Q I J H X R P L O V A A
Q T H U V S N U B J R L C E A
S K M K A G P U H T H E O C E
S O Z R G K Y H H J Q A N O A
V P L G O U Q P E P E Y T Q M
I S B C R T O E P R H I I B Q
A I F R U L A Z A F E I N Z J
O N E Q E J U U P Z U F E I B
U P D U M D Y J Q A X V N R P
W B V S D R Z Q K E W M T G R
B B Z C B P F I G U O V S L H
V R S B C O M X R V W H X B O

Word Bank

North Pole	Ocean	Hemisphere	Continents
Equator	Prime Meridian	South Pole	

Social Studies: Geography Skills _____

Using Maps – Maps Show Direction & Distance

(myWorld SSH14-SSH15)

FQ: Name two parts of a map. Please write in a complete sentence.

P:_____

_____

_____

_____ rose – a small _____ on a map that can help you find _____ and _____ directions

_____ directions – north (___), south (___), east (___), &
west (___)

_____ directions – northeast (____), northwest (____), southeast (____), & southwest (____)

_____ – shows the _____ between distances shown on a map and on _____

C: _____

_____

_____

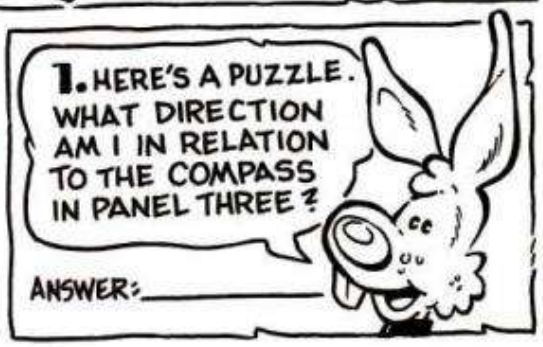
_____

SKILL
Cardinal Directions

Name: _____

ALL TURNED AROUND featuring Jackrabbit Jim and Monkey Mike

The face of a compass shows north, east, south, and west, which are called cardinal directions.



2. Find Monkey Mike in the first panel. In what direction is he in relation to the compass in panel three?

_____

3. If Jackrabbit Jim were facing north, what direction would be to his left?

_____

4. If Jackrabbit Jim were facing east, what direction would be to his right?

_____

5. Monkey Mike scurried west to go back to his tree, but remembered that he had forgotten his bananas at Jackrabbit Jim's. He turned around to go get his bananas. What direction was he facing when he turned around?

_____

6. Monkey Mike is facing west and Jackrabbit Jim is on his right. What direction would Monkey Mike have to turn to face Jackrabbit Jim?

_____

7. Jackrabbit Jim is facing south and his home in the briar patch is directly behind him. Which way would Jim have to hop to get home?

_____

8. Here's a tough one. Monkey Mike was facing north. He turned directly around, then turned to his left, and then turned directly around again. Which direction did he end up facing?

_____

WRAP IT UP! In what direction does your desk face?

SKILL
Intermediate Directions

Name: _____

WHERE THERE'S SMOKE, THERE'S FIRE featuring Fireman Fox and Cowbella

1. **Intermediate directions** fall between cardinal directions. The direction between south and east is "southeast." What is the direction between south and west?

_____

2. If the firehouse is located southeast of Cowbella's barn, in which direction would Fireman Fox have to travel to put out the fire?

_____

3. What is the direction between north and east called?

_____

4. What direction is Fireman Fox in the first panel of the comic strip in relation to the illustration of the compass?

_____

5. Cowbella was facing southwest as she thanked Fireman Fox for putting out the fire. If Fireman Fox was looking directly at Cowbella, in which direction was he facing?

_____

6. Cowbella ran in a northwest direction out of her barn to escape the fire. When she turned around to look at her barn, in which direction was she facing?

_____

7. Fireman Fox faced northwest as he sprayed the fire hose into the hayloft. His fire truck was directly to his left. In which direction was his fire truck in relation to where he was standing?

_____

8. Fireman Fox was facing southeast. What direction was to his right?

_____

WRAP IT UP! Northeast, northwest, southeast, and southwest are called intermediate directions. What are north, east, south, and west called?

SKILL
Intermediate
Directions

Name: _____

FOOD FOR THOUGHT featuring Topsy-Turtle and Quacker

Use the "Food for Thought" map to answer the following questions.

1. After eating at Creature Comforts, Doris Deer went home. She headed north for three traffic circles, southeast for one circle, and then northeast toward her forest. Trace her path with a blue marker. What is the name of her forest?

_____

2. From the restaurant, Samantha Skunk headed southwest to one traffic circle, south to the next circle, and then southwest until she came to the next circle. She lives on the western edge of this circle. Trace her path with a green marker and place a dot where she lives.

3. Fireman Fox left the firehouse to eat lunch at Creature Comforts. In which direction did he have to travel?

_____

4. Quacker decided to leave a visual message for her husband by dropping rose petals along her path. Put red dots along this path. She left the restaurant heading northeast. At the first traffic circle she headed east, then turned southeast at the first circle. At the next circle she headed southwest. After crossing the first bridge she headed northwest. At the third circle she headed northeast to the next circle. She then headed east to the next circle where she turned southeast, back to the restaurant. What was the visual message she left?

_____

5. How many bridges did Quacker cross on her journey?

_____

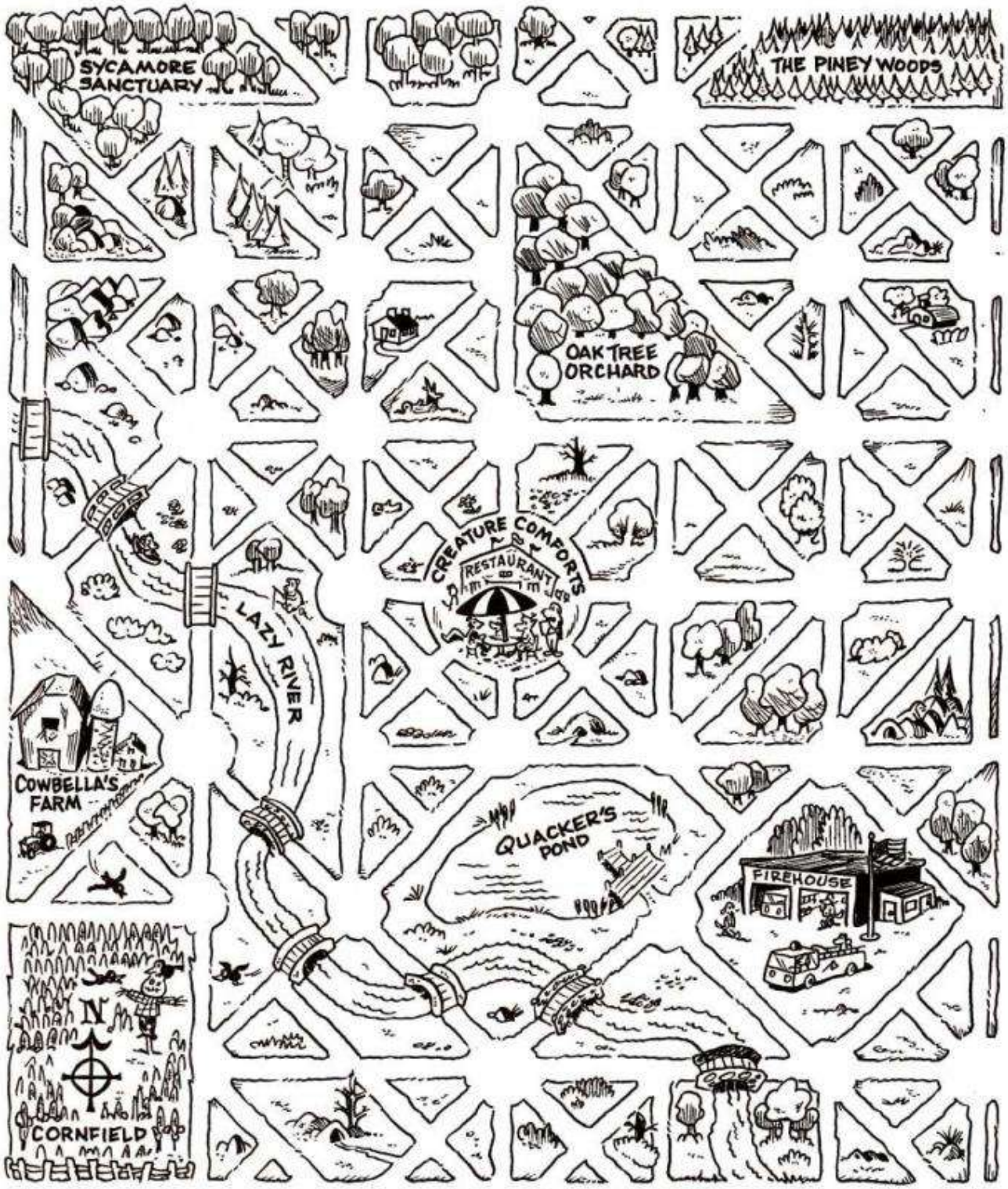
WRAP IT UP! Write directions for a path on the map. Have a friend trace it.

SKILL
Intermediate Directions

Name: _____

FOOD FOR THOUGHT: Neighborhood Map

A "traffic circle" is a circular or semi-circular area where several roads come together.



SKILL
Intermediate Directions

Name: _____

WRONG SIDE OF THE TRACKS featuring Samantha Skunk and Monkey Mike

If you want to be more precise, intermediate directions can be broken down into even smaller increments. North-northeast (NNE) is halfway between north and northeast. East-northeast (ENE) is halfway between east and northeast. The cardinal direction is always mentioned first. Label these two directions on the "Wrong Side of the Tracks" activity sheet.

Use the "Wrong Side of the Tracks" activity sheet to answer the following questions.

1. Monkey Mike ran in the opposite direction of the tiger tracks. Label the abbreviation of this direction on the compass, and draw a picture of Monkey Mike.

2. In which direction is Monkey Mike's tree house? Write the complete direction below and label it on the compass.

_____

3. Topsy-Turtle's log is located halfway between the firehouse and Jackrabbit Jim's. In which direction is it? Write the direction below. Label it on the compass and draw a picture of his log.

_____

4. In which direction is Samantha Skunk's cave?

_____

5. If you wanted to go swimming in Quacker's Pond, in which direction would you have to travel? Write the complete direction below and label it on the compass.

_____

6. Samantha Skunk's schoolhouse is located to the west-southwest. Draw her schoolhouse on the activity sheet and label the abbreviation on the compass.

7. If you completed this page carefully, only one direction has not been written on the compass. Write it below and label it on the compass.

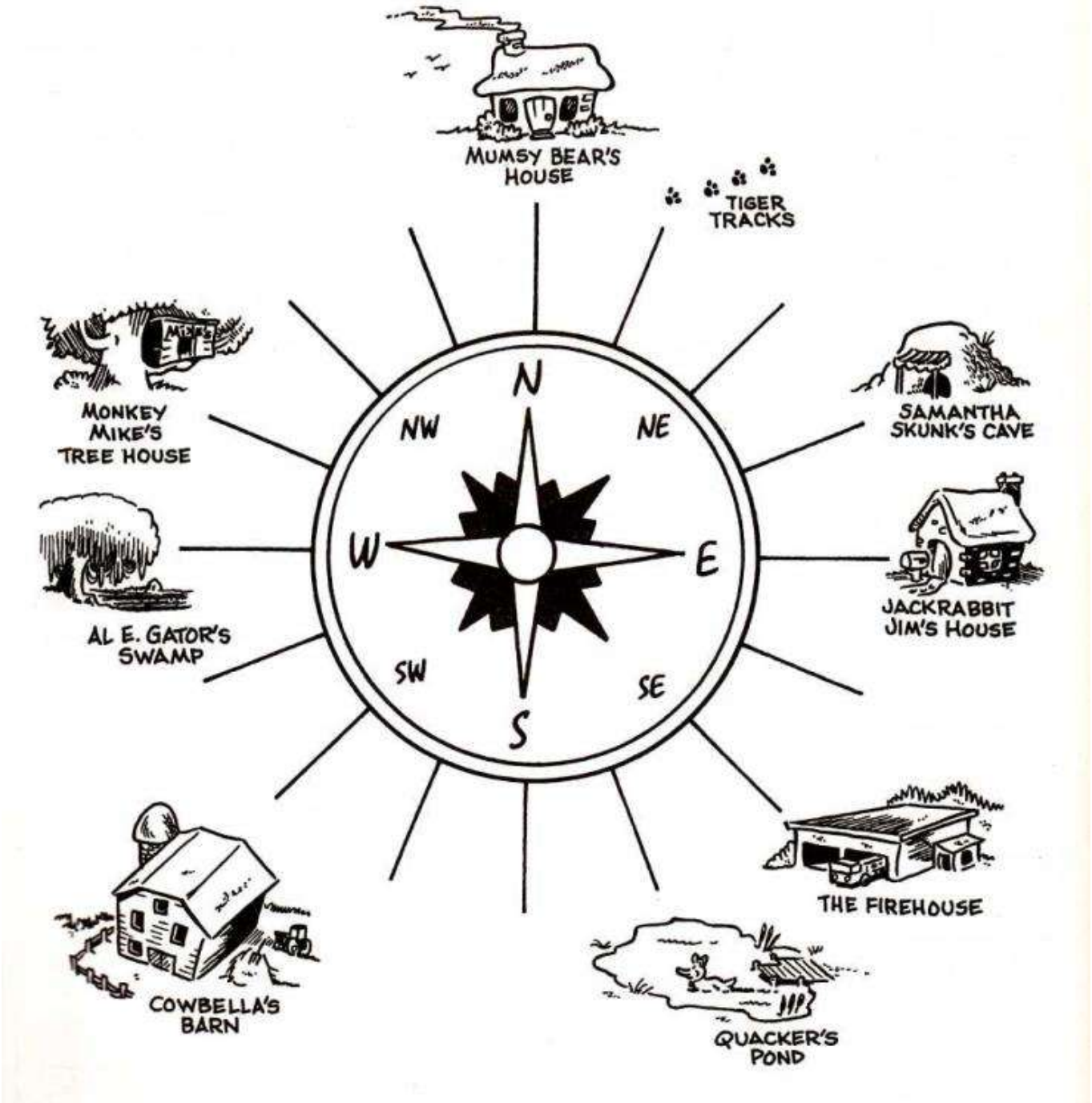
_____

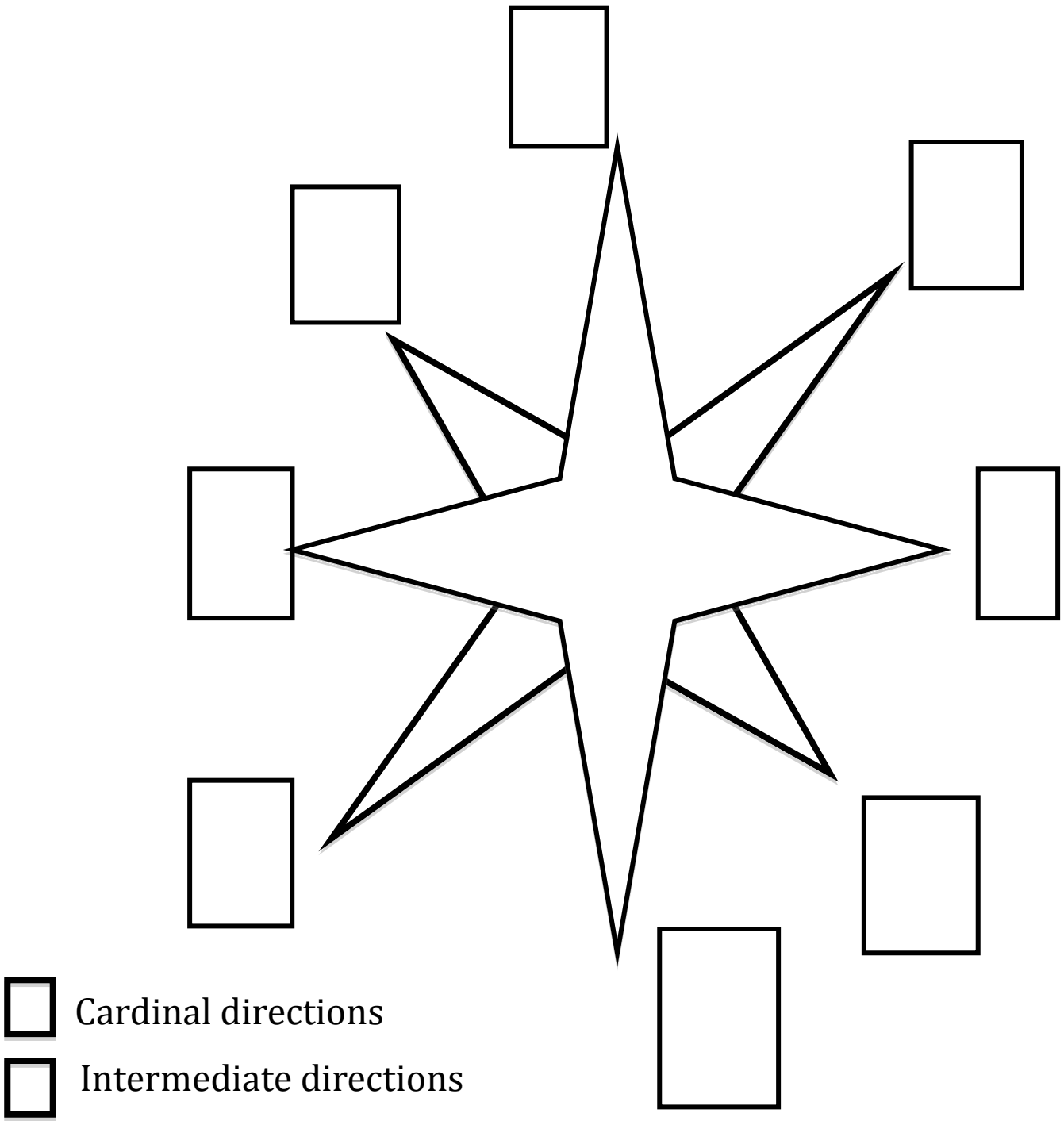
WRAP IT UP! Assume that the seats in your classroom all face north. Create a blank compass, label the cardinal and intermediate directions, and draw icons of one or two objects that are located in each of the directions around you.

SKILL
Intermediate
Directions

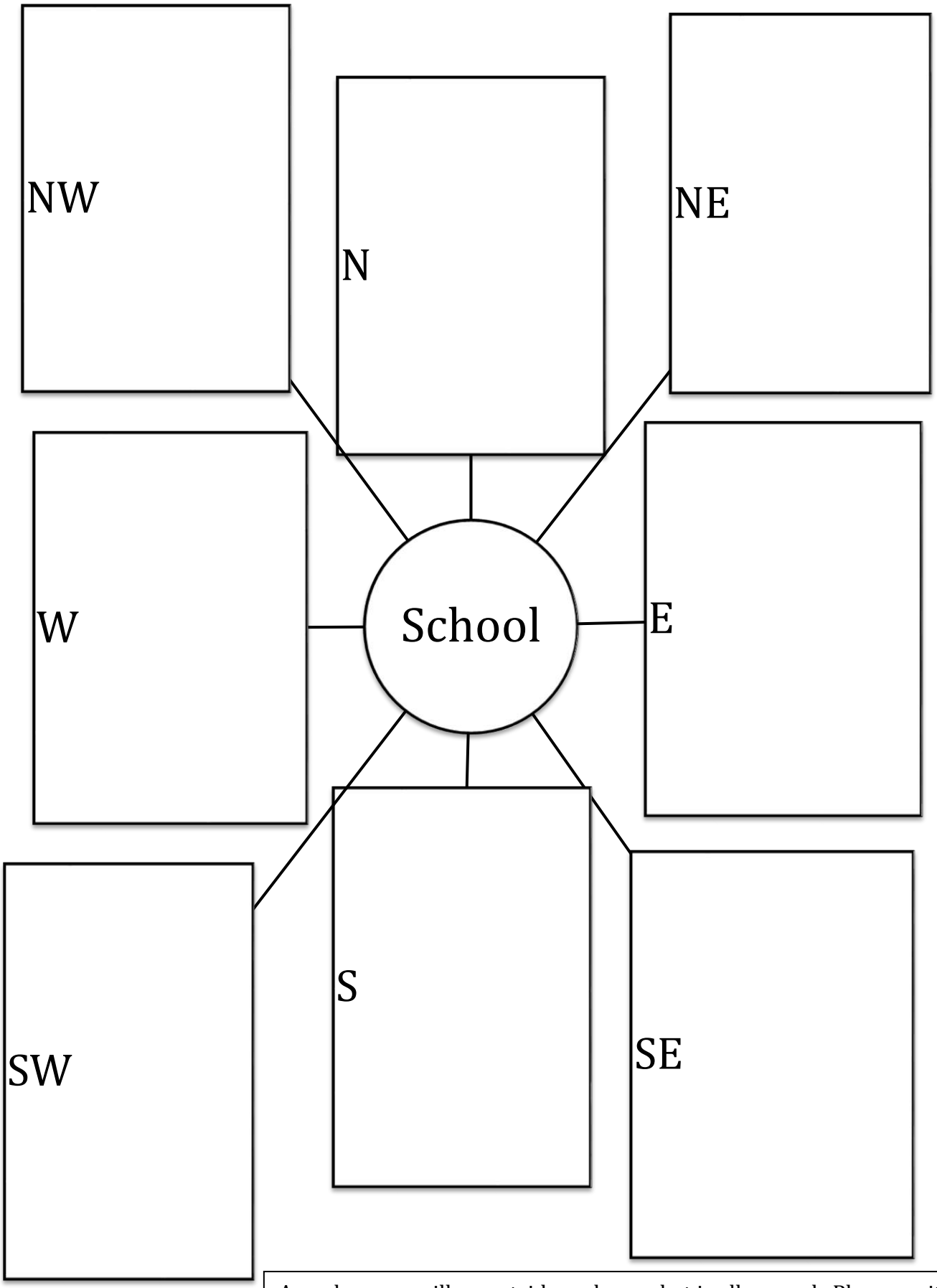
Name: _____

WRONG SIDE OF THE TRACKS: Compass Activity





**** Color the star of the Cardinal Directions RED & the star of the Intermediate Directions BLUE. Label each direction with the correct abbreviations:***
NE, SE, NW, SW, N, S, E, W.



As a class, we will go outside and see what is all around. Please write down everything that you see.
It's raining? Let's look on Google Earth to see what is around us.

Social Studies: Geography Skills _____

Types of Maps – Political & Physical Maps
(myWorld SSH16-SSH17)

FQ: Are all maps the same? Explain how they are the same or different.

P:_____

_____

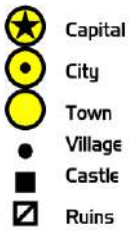
_____

_____

_____

political map – a map that shows information about _____, capital cities, states, and _____; show _____ with lines

symbol – a _____ or shape used to _____ something on a map; a star = _____

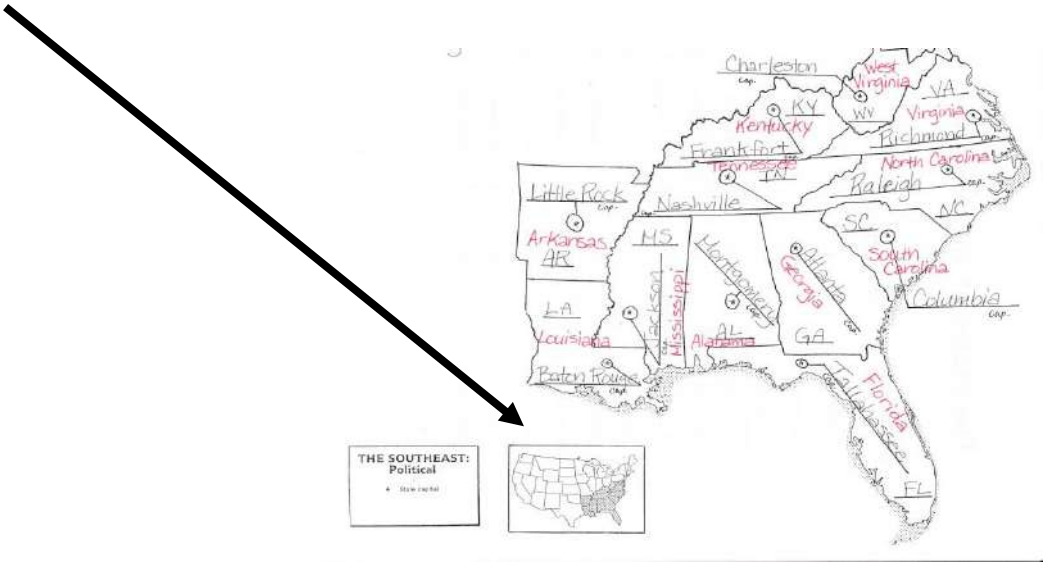


map key – (_____) a box on the map that gives the _____ of each symbol used on a map

physical map – (_____ map or _____ map) a map that shows natural features, such as mountains, hills, plateaus, and plains

atlas – a _____ or book of _____

locator map – a small _____ set onto the main map; it shows where the area of the main map is located



C: _____

_____

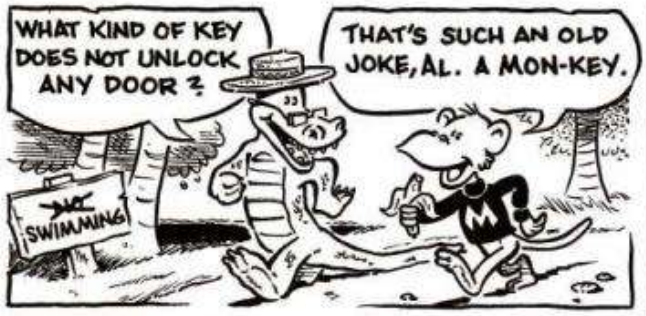
_____

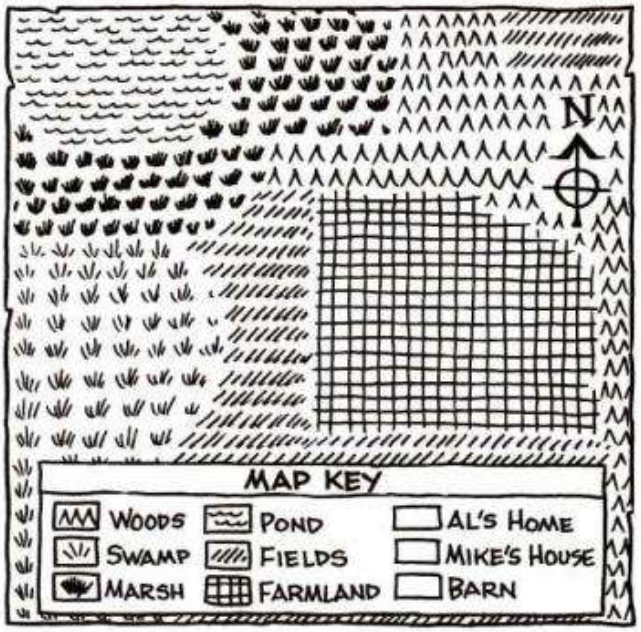
_____

SKILL
Reading a Key

Name: _____

MONKEY BUSINESS featuring Al E. Gator and Monkey Mike





On most maps, a box called a key *or* legend *explains all the symbols used. The symbols are usually simple and remind us of the features they represent. A key allows map makers to give plenty of information in a small amount of space.*

1. What type of feature can be found in the northwest corner of the map?

_____

2. Color this feature and its corresponding symbol in the key blue.

3. What type of feature forms most of the eastern border of the map?

_____

4. Color this feature and its corresponding symbol in the key green.

5. What type of feature can be found in the south-central section of the map?

_____

6. Select different colors to shade the other four landscape features and their corresponding symbols.

7. Al E. Gator lives in the northeast part of the swamp. Create an icon that represents Al's home and add it to both the key and the map.

8. Monkey Mike's tree house is located in the woods near the southeast corner of the marsh. Create an icon that represents Mike's home and add it to both the key and the map.

9. Cowbella's barn is located in the south-southwest section of the farmland. Create an icon that represents the barn and add it to both the key and the map.

WRAP IT UP! Create and color a map key that includes simple symbols representing the following features: mountains, hills, deserts, plains, beaches, and waterfalls.

SKILL
Reading a Key

Name: _____

CLASS ACT featuring Samantha Skunk and Topsy-Turtle

Use the "Class Act" map and an atlas to answer the following questions.

1. Juneau is the capital of Alaska. Use the key to find the capital symbol. Then add Juneau to the map in the correct location.

2. Barrow is the northernmost city on the map. Use the key to find the city symbol. Then write Barrow on the map in the correct location.

3. What is the name of the northernmost mountain listed on the map?

_____

4. Anchorage is the largest city in Alaska. Draw the appropriate symbol from the key under the first "A" in the city's name.

5. Name the two points of interest located on the map.

_____

_____

6. Label the Arctic Circle on the map.

7. Label the Trans-Alaska Pipeline on the map.

8. The highest mountain in North America is located on the map. What is its name and height?

_____

9. If you were traveling from Anchorage to Fairbanks, in which direction would you need to go?

_____

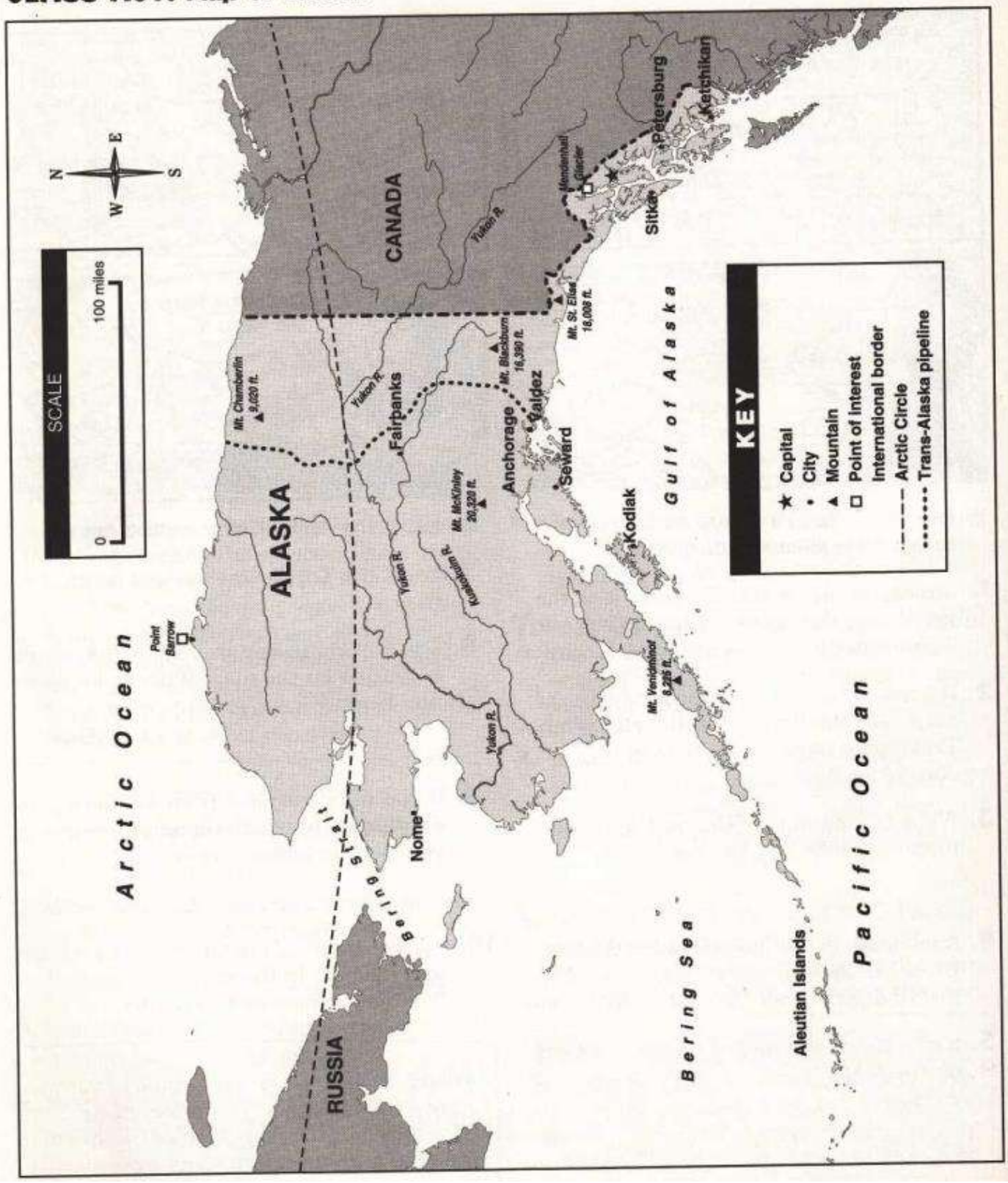
10. An international border separates Alaska and Canada. In the key, add a dashed line that represents this border.

WRAP IT UP! Draw an outline of your state and create a key that identifies your state capital, major cities, points of interest, and important landforms.

SKILL
Reading a Key

Name: _____

CLASS ACT: Map of Alaska



Social Studies: Geography Skills _____

Types of Maps – Elevation Maps (myWorld SSH18)

FQ: What does elevate mean? Think of how it is used in words like, elevation and elevator.

P:_____

_____

_____

_____

elevation map – a map that shows how _____ the land is

C: _____

_____

_____

_____

Social Studies: Geography Skills _____

Types of Maps – Elevation Maps (myWorld SSH18)

FQ: What does elevate mean? Think of how it is used in words like, elevation and elevator.

P:_____

_____

_____

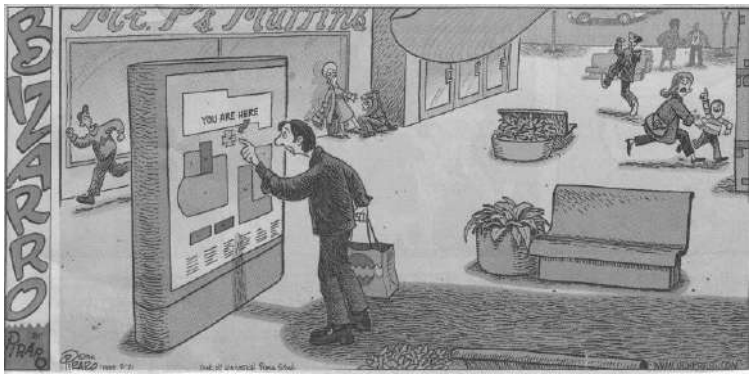
_____

transportation map – a map that shows how you can _____ from one place to another, by bike, car, on foot, bus, train, ship, airplane, etc.

historical map – a map that shows _____ about _____ _____ and where they occurred

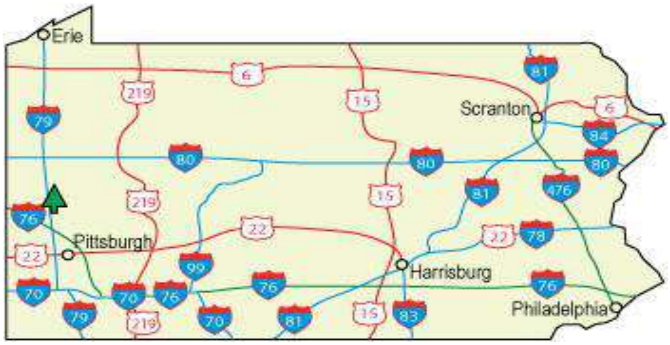
C: People use maps for various reasons. Maps can help you understand:

- _____ _____
- Natural _____ & _____
- Where to _____
- What an area looked like in the _____



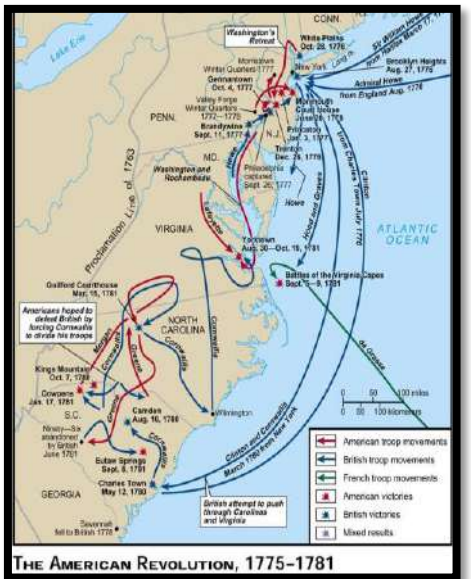
Transportation Maps

- Transportation maps show how you can travel from one place to another.
- Some of these maps are used for cars, bikes, or on foot. Others show bus, ship, trip or ferry routes/times.



Historical Maps

- Historical maps show information about past events and where they occurred.
- Sometimes these maps show boundaries that are different than those we have today.



Directions: In small groups, use your atlas and Regions book to answer the questions below. Be sure to copy the spellings correctly.

Name_____ Date_____

1. What country is at the intersection of the Prime Meridian and the Tropic of Cancer? _____

2. What ocean is at the intersection of the equator and the Prime Meridian (0° Longitude)? _____

3. What is the largest country in South America?

_____

4. What country is at the southern tip of Africa?

_____

5. What large island is northeast of Canada and northwest of Iceland?

_____

6. What island country is off the southern coast of India (and slightly to the east)?

_____

7. What is the largest country in Eurasia in terms of area? (It is also the largest country in the world.)

_____

8. What is the name of the sea that separates Japan from mainland Asia?

_____

9. What large Asian country is south of Mongolia and northeast of India?

_____

10. What is the country approximately 1000 miles off the southeastern coast of Australia? _____

Name _____

Map Study 1

Map Study

Study the map and answer the questions.

1.) Which state does not share a border with Arizona?
- O Nevada
- O New Mexico
- O Texas
- O California

2.) Which state is west of Kansas?
- O Oklahoma
- O Iowa
- O Missouri
- O Colorado

3.) Which state is a peninsula?
- O Illinois
- O Pennsylvania
- O Florida
- O Utah

4.) Which state is on the East Coast?
- O California
- O South Carolina
- O Minnesota
- O Oregon

5.) Which state is south of Nebraska?
- O Washington
- O Oklahoma
- O Maine
- O Wyoming

6.) Which state is East of Mississippi?
- O Georgia
- O Louisiana
- O Arkansas
- O Missouri

Social Studies: Globes & Maps _____

Geography: Giving and Following Directions

FQ: Why do people give directions?

P:_____

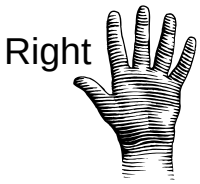
_____

_____

_____

Tip!

Understanding directions: Using "of"
"Is Harrisburg east or west ***of*** Pittsburgh?" If someone uses "of", you need to start at the location **after** that word. So, for this question, start at Pittsburgh and go which way to Harrisburg?



Activity: *Spy Search*

Directions –

1. Everyone will sit on their desks "the city blocks", except for "*007*". He/she will be in the hallway with the door shut.
2. The teacher will pick the "spy" and the "navigator."
3. The teacher will have *007* enter the city where he/she will begin looking for the spy. He/she may ask for directions from the navigator only 4 times. The navigator will give either intermediate or cardinal directions.
4. *007* may only guess who the spy is 4 times.
5. When the turn is complete, the spy will then be the next *007*.
6. Continue playing until all have had a turn being either *007* or navigator.

Observation: What do you notice when you play this game? What can improve your chances?

_____

_____

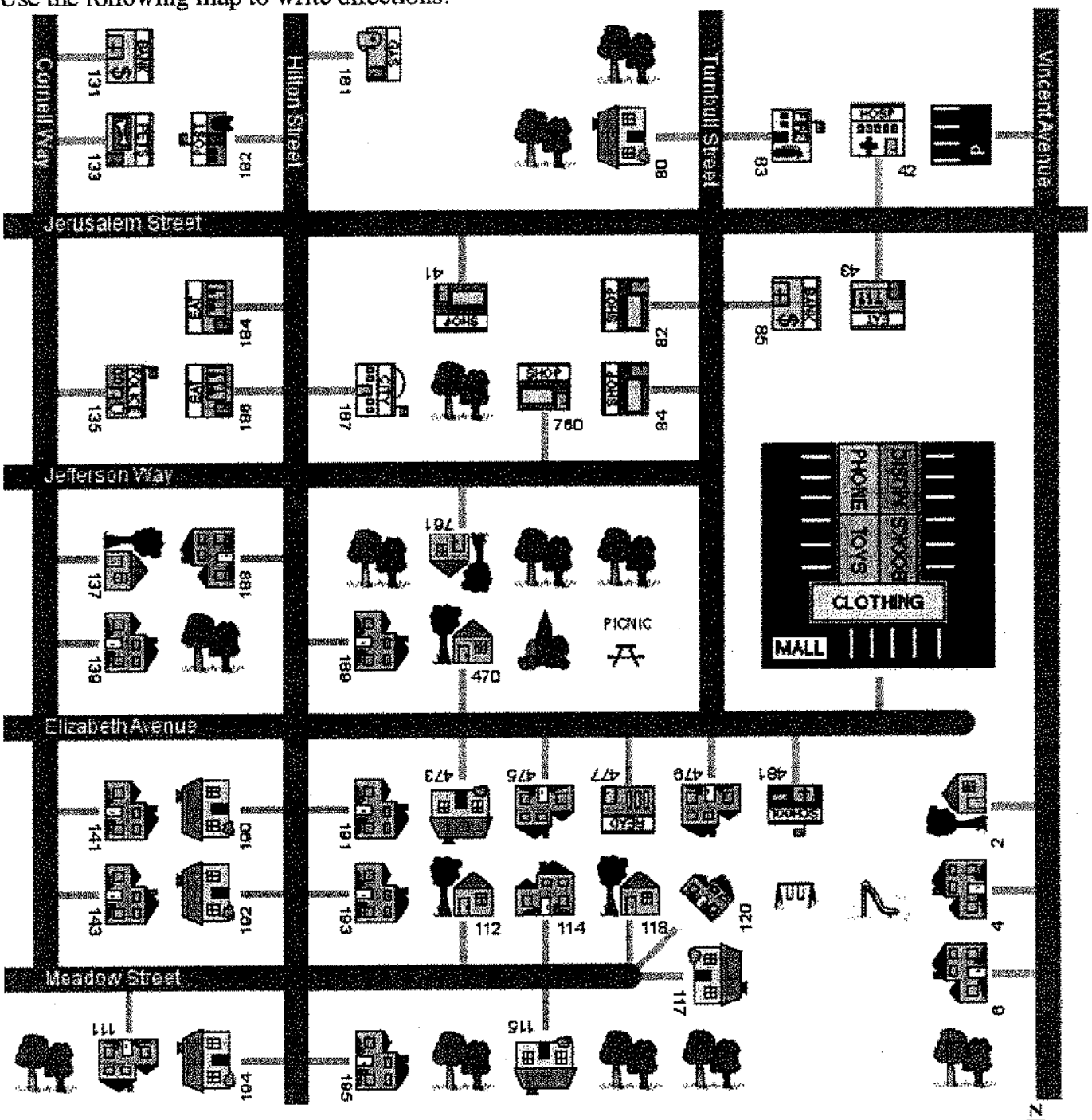
_____

_____

C: It is challenging giving and following _____, but everyone can do it if they concentrate on what is being _____. Cardinal & intermediate _____ can be very helpful if you know where _____ is. "_____" & "_____" is often used when giving directions.

Write Directions

Use the following map to write directions.



Helpful Hint: Use your pencil-tip eraser "car" to drive from house to house. Be sure to pull out of the driveways to know if you are going left or right.

Example of how to write directions: *Turn left out of 470 Elizabeth Ave; turn left onto Turnbull St; turn right onto Jerusalem St; turn left onto Vincent Ave; turn left into the parking lot.*

Name _____  Date _____
(Answer ID # 136776)

Write Directions

1. Write directions to go from the house at 6 Vincent Avenue to the store at 82 Turnbull Street.

2. Write directions to go from the house at 141 Cornell Way to the house at 112 Meadow Street.

3. Write directions to go from the house at 761 Jefferson Way to the house at 2 Vincent Avenue.

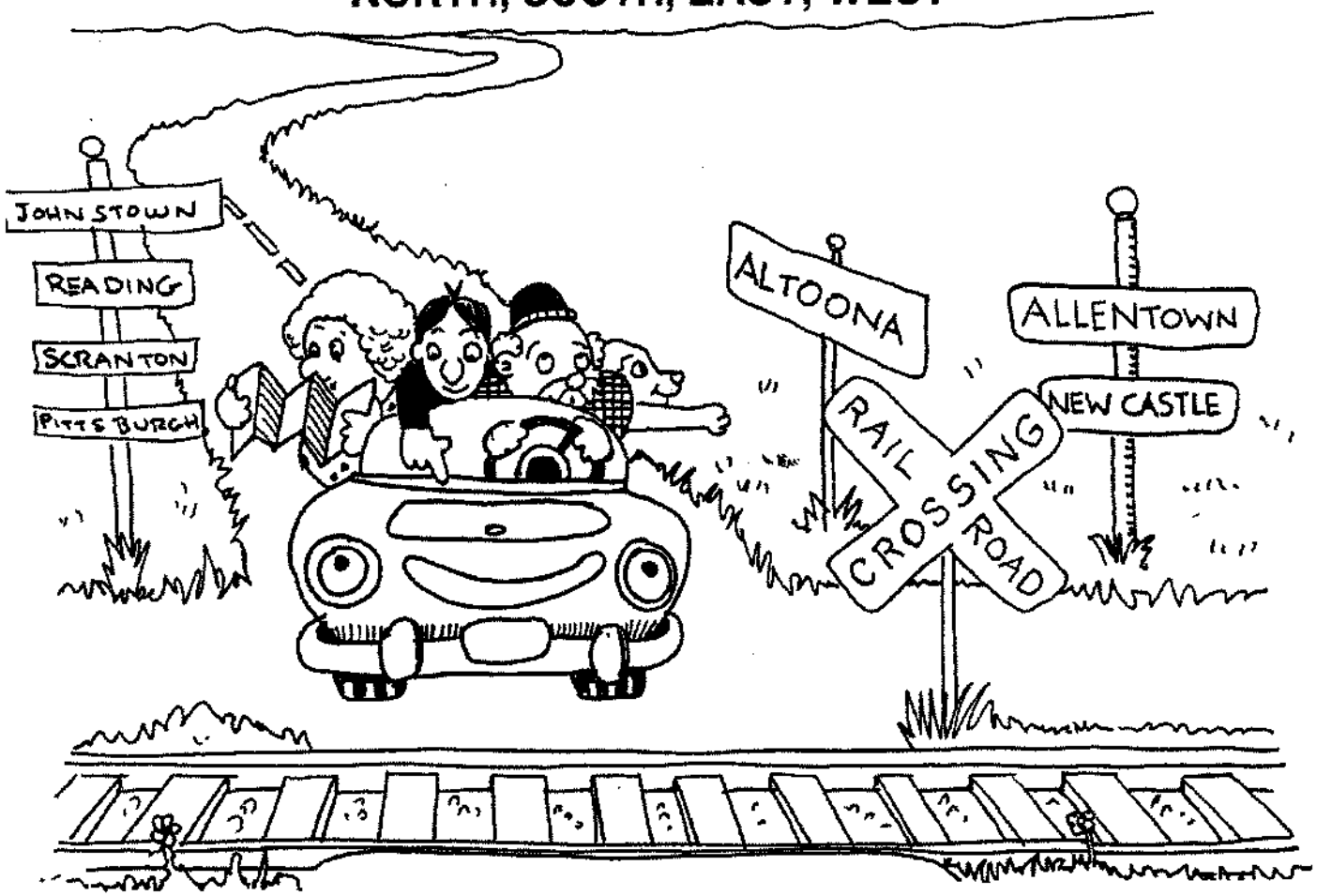
4. Write directions to go from the library at 477 Elizabeth Avenue to the house at 80 Turnbull Street.

5. Write directions to go from the police station at 135 Cornell Way to the house at 479 Elizabeth Avenue.

6. Write directions to go from the school at 481 Elizabeth Avenue to the store at 84 Turnbull Street.

Name_____

NORTH, SOUTH, EAST, WEST



Use the map on page 25 to answer the questions below. Write your answers on the lines provided.

1. Print the correct directions in this compass rose. 
2. Is Harrisburg east or west of Altoona? _____
3. Is Allentown north or south of Carbondale? _____
4. True or false: The city of New Castle is in the eastern part of Pennsylvania. _____
5. Does the Monongahela River run south or north of Pittsburgh? _____
6. Johnstown is east of Pittsburgh and _____ of Brookville.
7. The city that is farthest north on the map is _____.
8. Emporium is west of Scranton and _____ of Chambersburg.
9. Reading is on the _____ bank of the Schuylkill River.
10. New Castle is both _____ and _____ of Bradford.

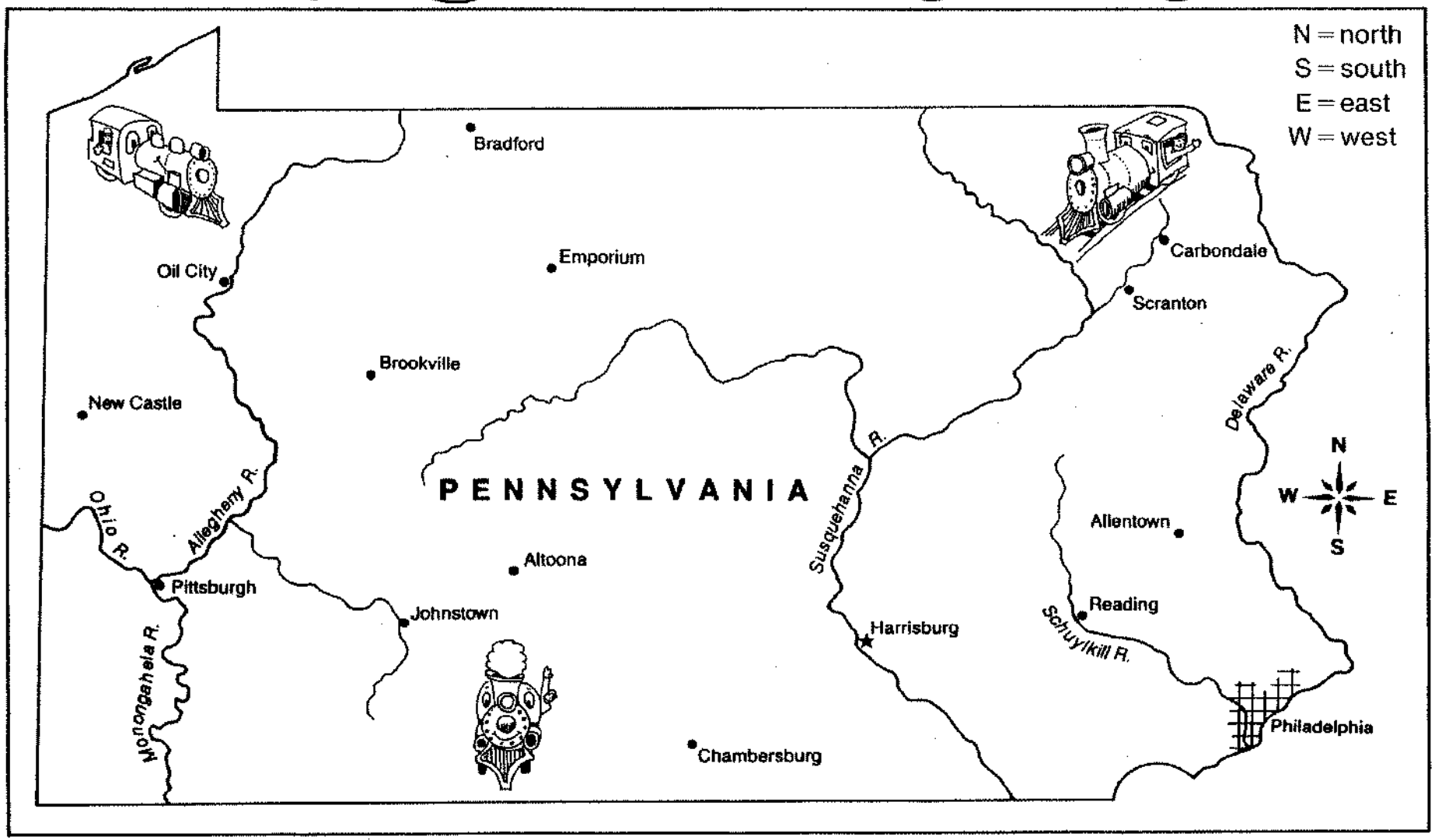
lap Skills
compass rose

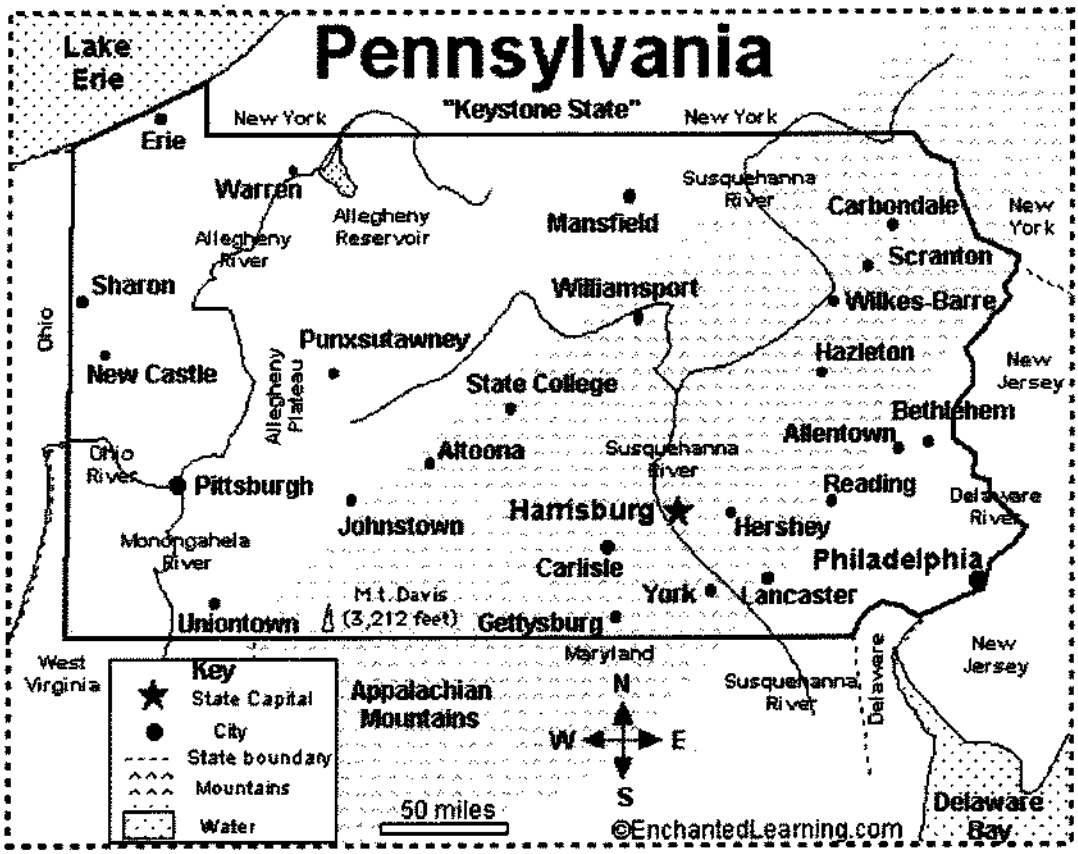
NORTH, SOUTH, EAST, WEST

Name _____

Maps show us where places and things are on the ground. They also help us to find where we are. Most maps have a compass like the one on the right below, to show directions. On almost all maps, north is at the top.

Look carefully at this simple map of the state of Pennsylvania. Then use it to answer the questions on page 26.





1. What is the capital of Pennsylvania? _____

2. Which of the Great Lakes borders Pennsylvania on the northwest?

_____

3. What historic river forms the eastern border of Pennsylvania? _____

4. What two states border Pennsylvania on the west? _____ and

_____

5. What state has the longest border with Pennsylvania on the south?

_____

6. What two states border Pennsylvania on the east? _____ and

_____

7. What Pennsylvania city is located where the Ohio, Allegheny, and Monongahela Rivers meet?

_____

8. In 1776, the Declaration of Independence was signed in which southeastern Pennsylvania city located on the Delaware River? This city also houses the Liberty Bell and was once the capital of the United States. _____

9. On Groundhog Day, people watch the famous weather-forecasting groundhog called "Punxsutawney Phil." This animal lives in which city in west-central Pennsylvania?

_____

10. What mountain range runs through Pennsylvania? _____

The United States

AL = Alabama
AK = Alaska
AZ = Arizona
AR = Arkansas
CA = California
CO = Colorado
CT = Connecticut
DE = Delaware
FL = Florida
GA = Georgia
HI = Hawaii
ID = Idaho
IL = Illinois
IN = Indiana
IA = Iowa
KS = Kansas
KY = Kentucky
LA = Louisiana
ME = Maine
MD = Maryland
MA = Massachusetts
MI = Michigan
MN = Minnesota
MS = Mississippi
MO = Missouri
MT = Montana
NE = Nebraska
NV = Nevada
NH = New Hampshire
NJ = New Jersey
NM = New Mexico
NY = New York
NC = North Carolina
ND = North Dakota
OH = Ohio
OK = Oklahoma
OR = Oregon
PA = Pennsylvania
RI = Rhode Island
SC = South Carolina
SD = South Dakota
TN = Tennessee
TX = Texas
UT = Utah
VT = Vermont
VA = Virginia
WA = Washington
WV = West Virginia
WI = Wisconsin
WY = Wyoming
D.C. = * District of Columbia

States/Capitals test are approaching soon. Each test will be split up by region. These flashcards can be a great help. They are designed for you to be able to make your own "puzzle" pieces in order to check your matches. Because of this, be sure NOT to cut them all out in one pile!

Note: On your tests, you will be asked to locate the states on the map, as well as, match the states' names with their capitals. Map tests will occur during the regions' lesson tests, so you will be required to answer more than just the map portion.

Northeast Region States & Capitals

Map Study Guide

States	Capitals
CT - Connecticut	Hartford
DE - Delaware	Dover
ME - Maine	Augusta
MD - Maryland	Annapolis
MA - Massachusetts	Boston
NH - New Hampshire	Concord
NJ - New Jersey	Trenton
NY - New York	Albany
PA - Pennsylvania	Harrisburg
RI - Rhode Island	Providence
VT - Vermont	Montpelier

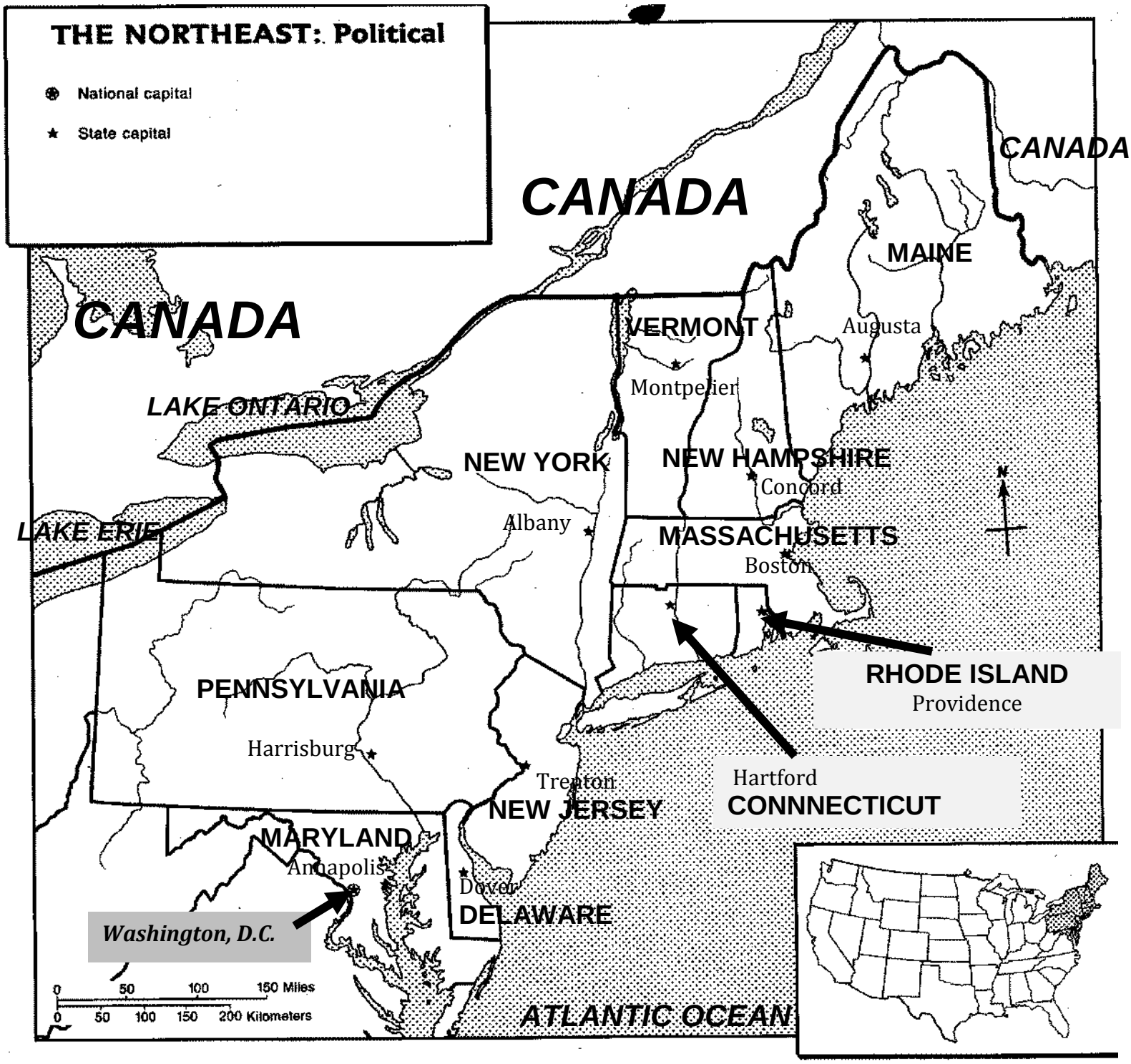
Atlantic Ocean
Lake Erie
Lake Ontario
Washington D.C.

New England States:

Maine, New Hampshire, Vermont, Massachusetts, Connecticut, & Rhode Island

Middle Atlantic States:

New York, Pennsylvania, New Jersey, Delaware, Maryland

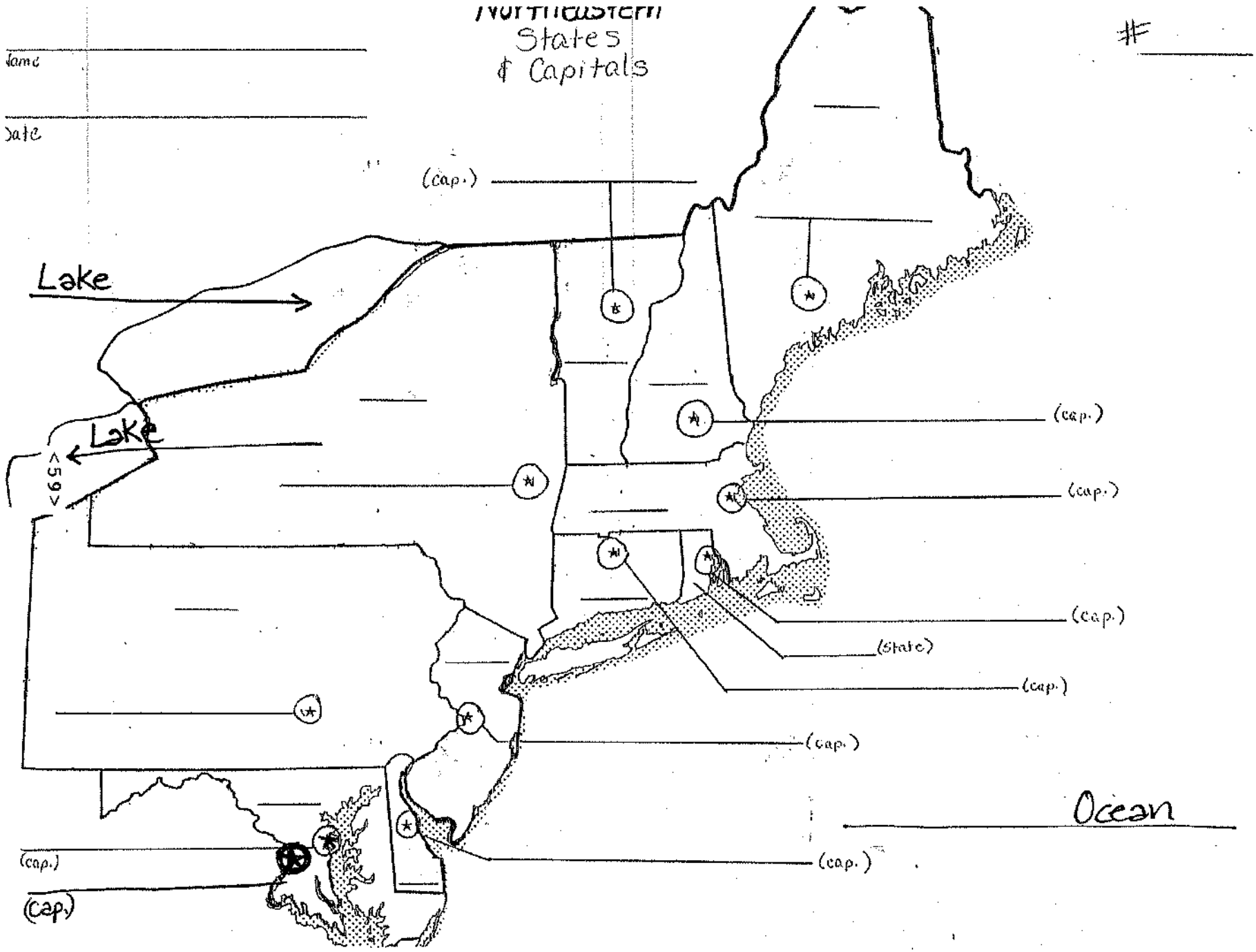

THE NORTHEAST: Political
National capital
State capital
CANADA
CANADA
CANADA
MAINE
Augusta
VERMONT
Montpelier
LAKE ONTARIO
NEW YORK
NEW HAMPSHIRE
Concord
LAKE ERIE
Albany
MASSACHUSETTS
Boston
RHODE ISLAND
Providence
PENNSYLVANIA
Harrisburg
Trenton
Hartford
CONNNECTICUT
NEW JERSEY
MARYLAND
Annapolis
Dover
DELAWARE
Washington, D.C.
0 50 100 150 Miles
0 50 100 150 200 Kilometers
ATLANTIC OCEAN

Name _____

Date _____

Northeastern States & Capitals

#F _____



State Name

_____

State Capital

_____

State abbreviation

_____

State Name

_____

State Capital

_____

State abbreviation

_____

State Name

_____

State Capital

_____

State abbreviation

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State abbreviation

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State Name

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State Capital

_____

State abbreviation

_____

Earth's Changing Surface _____

Inv. 6-4: Soil Composition (Wolf pg.214-224)

FQ: What is soil made of?

P:_____

_____

_____

_____

_____– (HYOO*muhs) the remains of decayed plants and animals

_____– layer of soil; different regions have different amounts of horizons

_____– layer of slightly decomposed organic material on the surface of the soil

_____– the solid rock that forms Earth's surface

_____– the largest particles that make up soil

_____– the smallest particles that make up soil

_____– nutrients that people add to the soil; can be made from _____ or compost & animal waste

C: All soil contains _____, water, _____, and sediment in layers called _____. The particles of soil can be different _____, textures and _____. They can also have different _____ absorption levels.

(Inv.6-4) Make a soil horizon diagram for three different locations.
Use Wolf pg.219 ***Remember to use your ABCDs of drawing.**

Soils of Mid-West (grassland)	Soils of SW (desert)	Soils of SE (coastal plain)

Observation: What do you notice about these three soil horizons?

_____

_____

_____

Changes to Earth's Surface _____

Inv. 7-1: Earth's Landforms

(Wolf pg.230-237)

FQ: Name as many landforms as you can.

P:_____

_____

_____

_____– a natural feature on Earth's surface

_____– an area that is higher than the land around it; at least 1,600 ft. tall; some are volcanoes

_____– an area with higher land around it; formed by rivers or glaciers

_____– large, flat landforms

_____– flat area that is raised higher than the land around it

_____– like a plateau, but smaller

_____– (BYOOT) like a mesa, but smaller

_____– shape of landforms in an area

_____– formed at the end of rivers, these are formed by the movement of sand and sediment; often fan shaped

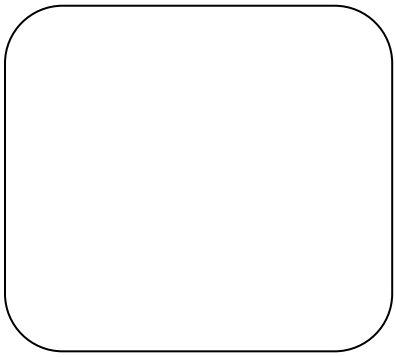
_____– hills of sand form by wind, found in dry areas or along sandy coasts

_____– a body of land surrounded by water

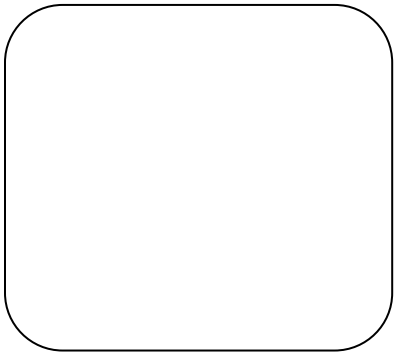
(Inv.7-1) LAB – Make a landform model

1. Each person in your group will make a different landform out of clay. Use your textbooks to help you form yours.
2. When you have finished, place each of your landforms on one poster and label them: delta, dunes, island, butte, mesa, plateau, plains, valley, mountains, or volcano.
3. Make a drawing of your group model below.

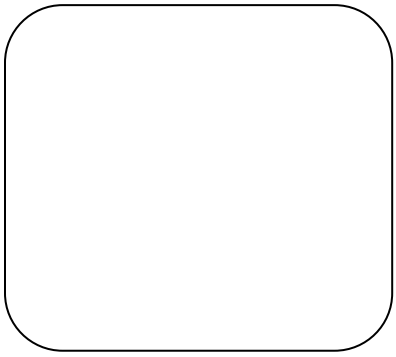
Landforms= forms (types) of land



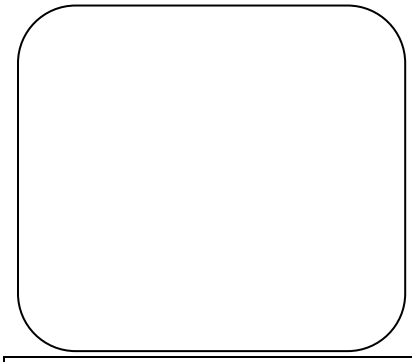
plains	mountain	valley



basin	peninsula	island



plateau	mesa	butte



delta	gulf	coast

What's your favorite landform? Draw it here.

Changes to Earth's Surface _____

Inv. 7-2: Earth's Landforms Change (Wolf pg.238-247)

FQ: What causes changes to Earth's landforms?

P:_____

_____

_____

_____– a mountain that forms as lava flows through a crack onto Earth's surface

_____– melted rock

_____– Earth's thinnest layer that is made of solid rock

_____– layer of Earth that crust sits on; thickest layer

_____core – liquid center of Earth; made mostly of iron and nickel

_____core – solid center of Earth; temperature reaches 9,000°F

_____– the shaking of Earth's surface caused by movement of rock in the crust

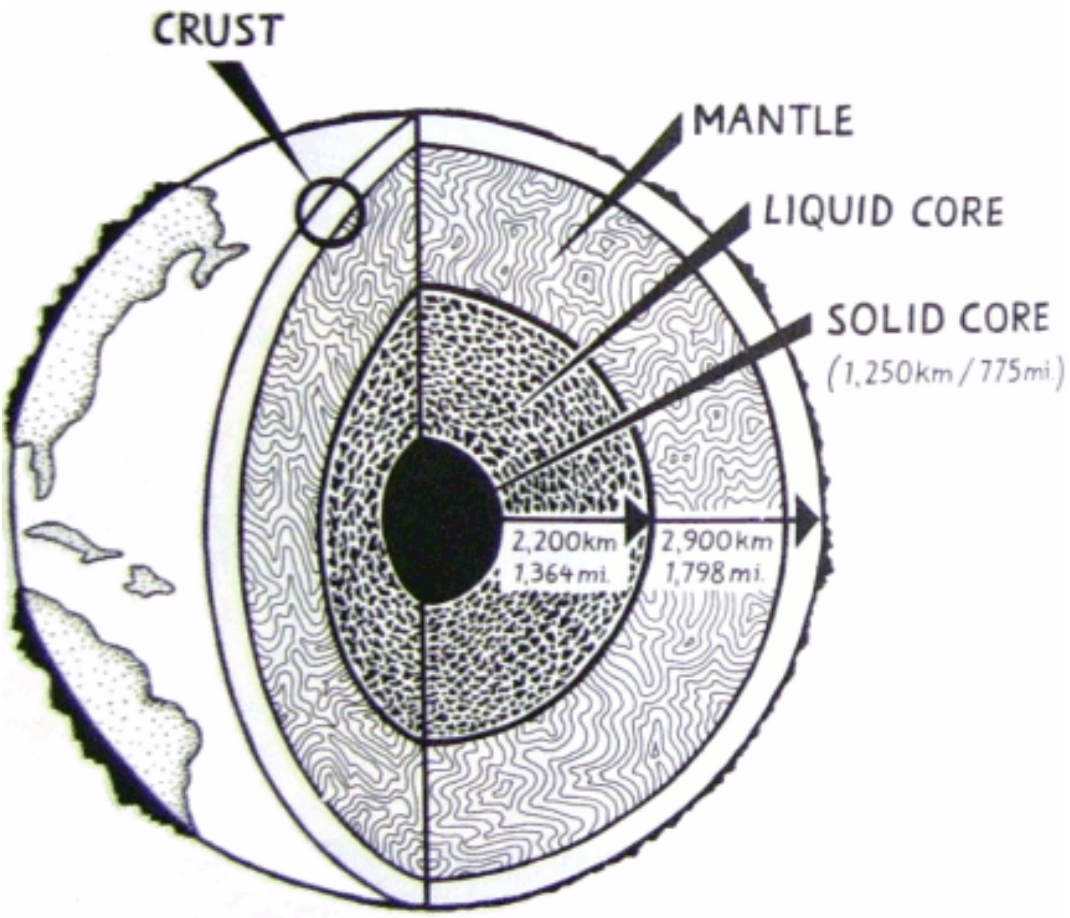
_____– a break in the crust, where rock moves; causes earthquakes

_____– soil and rock that rivers drop (deposit) on the river bed; forms deltas & floodplains

_____– a large piece of ice that moves under its own weight

_____– (FYAWRDZ) form where the glaciers have widened a valley near the coast

C: Earth's landforms change because of the _____ of the Earth's crust, and river, glacier, wind, and water _____.



Changes to Earth's Surface _____

Inv. 7-3: Fossils (Wolf pg. 250-255)

FQ: What are fossils?

P:_____

_____

_____

Watch: *Fossils & Plate Tectonics*
http://www.neok12.com/php/watch.php?v=zX665b6c417a74564f5f067f&t=Fossils

_____ – the remains or traces of an organism that lived long ago

_____ – the information about Earth's history that is contained in fossils

Draw the steps of fossil formation.

1. Sediment covers organism	2. Parts of organism decay	3. (MOLD) Hole is left in sedimentary rock	3. (CAST) Mold fills with minerals

C: Fossils are formed in many ways, including _____ in sediment that turns to _____, preserving the shape of an organism. Fossils tell us a lot about Earth's _____!

Watch: *StudyJams – Images of Fossils*
http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/fossils.htm

Observation of images: As you are looking at the fossils on the slideshow, write down what you see. What do you notice about these fossils?

Observing LAB: *(Teacher Completed LAB)* ***Petrified "Wood"***

Predict: Will the "petrified wood" burn? Why?

Observation: What happened? Why do you think it burned or didn't burn? Explain.

The Water Cycle _____

Inv. 8-1: About the Water Cycle (Wolf pg.268-273)

FQ: What is the water cycle? Please explain.

P:_____

_____

_____

LAB – From Ocean to Pond (Wolf pg. 267)

Observation: What do you infer happened to the salt water as it sat in the sun? -

_____

_____

_____

_____

_____– when water moves from the surface of Earth to the air and then back to Earth's surface again in a never-ending process

_____– water that falls back to the earth; such as: snow, sleet, hail, rain

_____– (makes clouds) the process by which a gas changes into a liquid; you see this on your bathroom mirror after a shower

_____– the process by which a liquid changes into a gas; water from oceans, lakes, rivers, puddles, and even your sweat evaporates into the air

_____– water that is not evaporated and collects underground

_____– precipitation that is not soaked up into the soil

LAB – Runoff Materials: 2 sponges, saran wrap, water, 2 beakers, 2 trays
Observation: What affect did the "pavement" have on the sponge's absorption? -

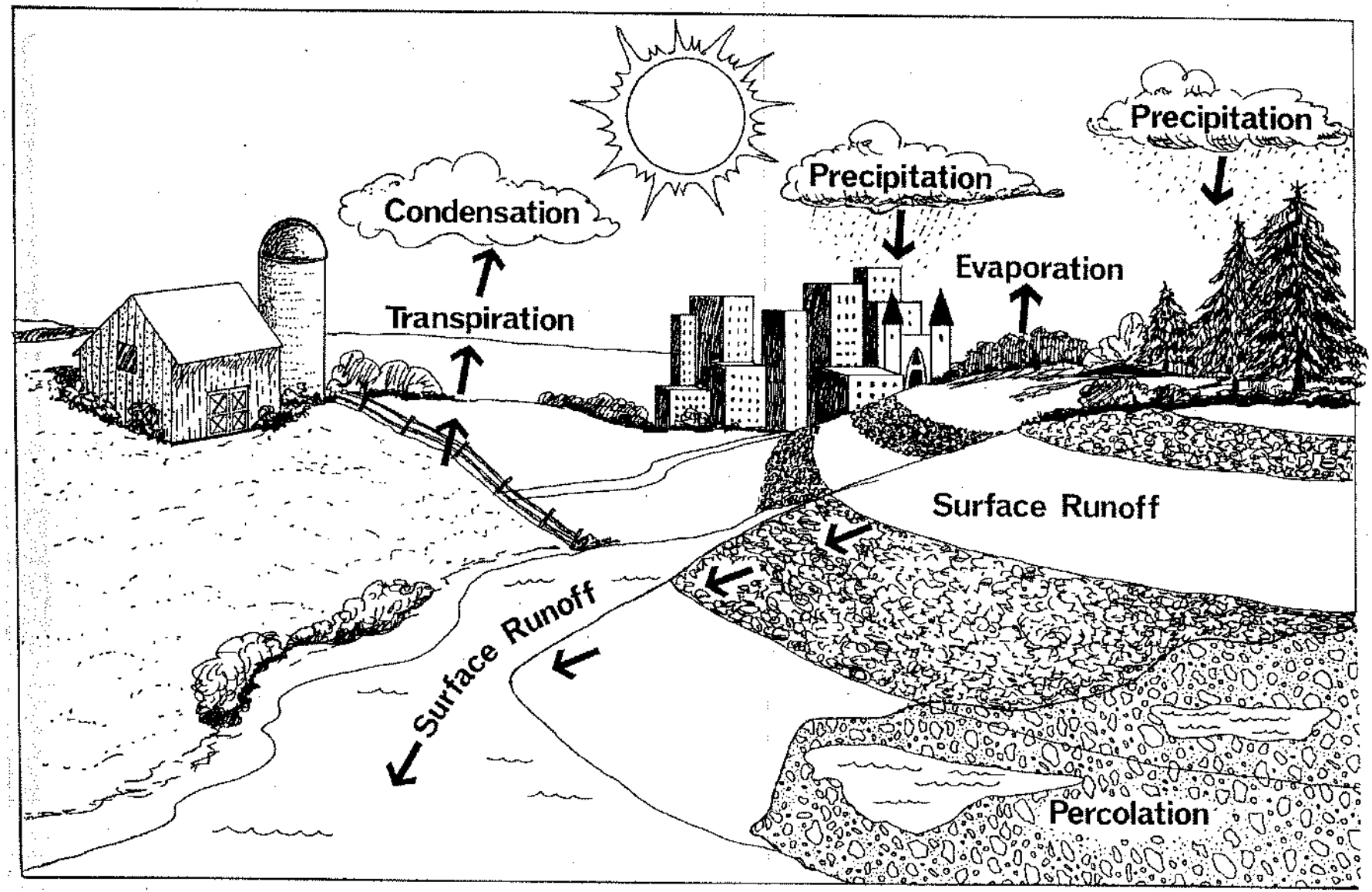
_____
_____
_____
_____

What affect would this have on wildlife around the area?

_____
_____
_____
_____

C: In the water cycle, _____ causes liquid water to turn into water vapor (_____), condensation causes water vapor to form _____, and then precipitation falls from the clouds back to the _____.

THE WATER CYCLE

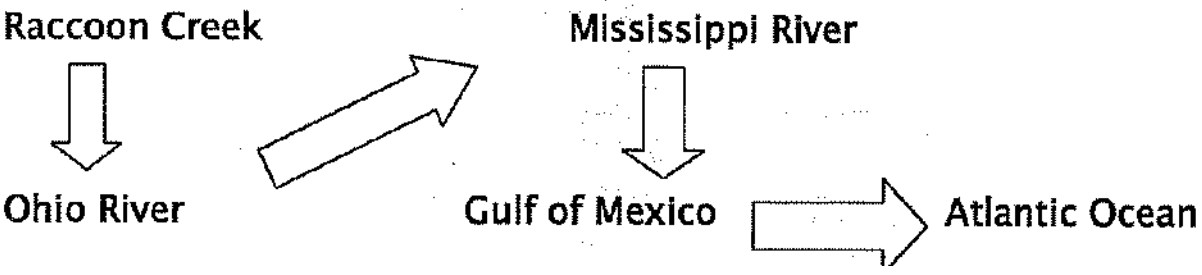


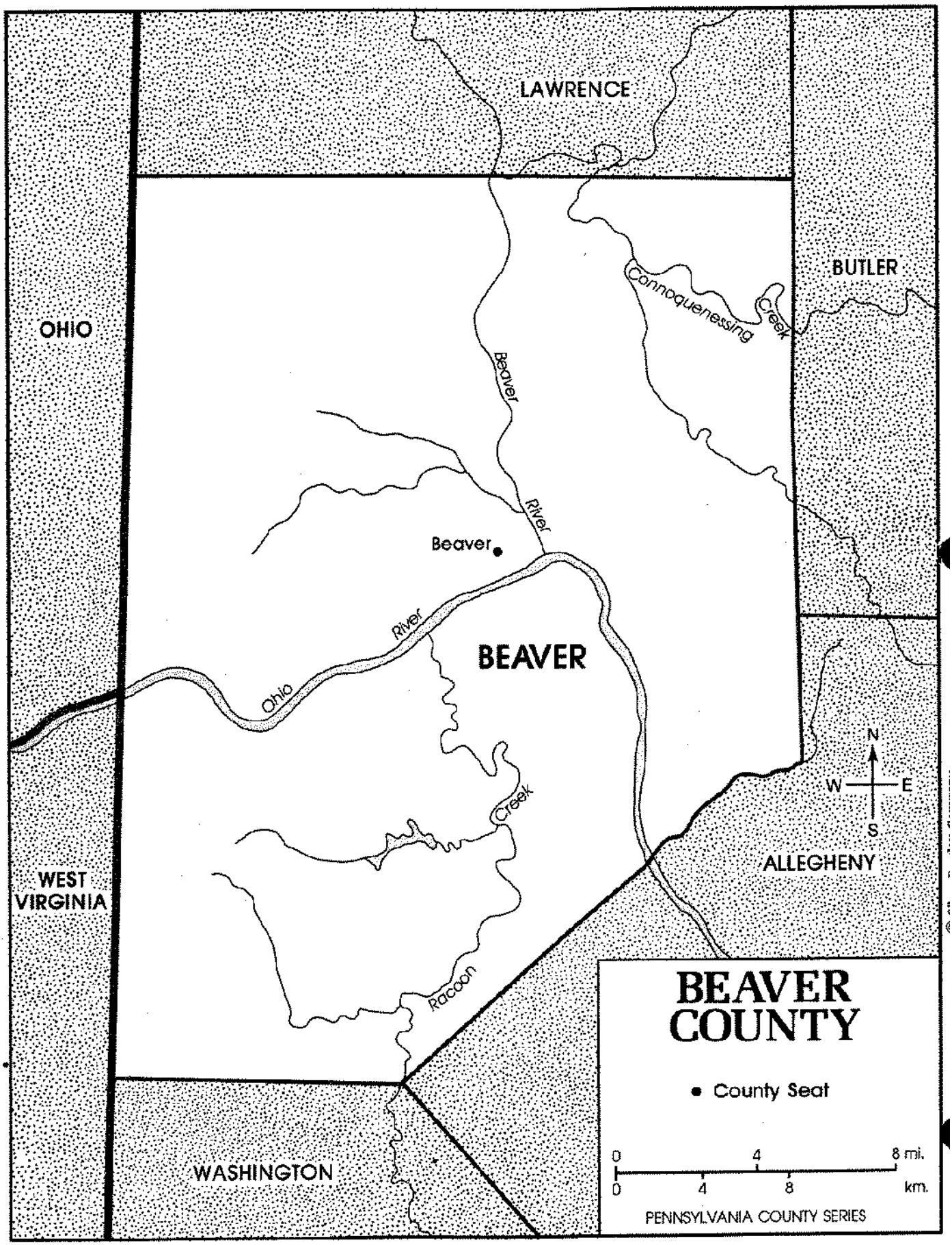
What is a watershed??

Even though a watershed sounds like it might be a building where water is stored, it is actually something much more! A **watershed** is a land area that drains to one specific point - usually a lake, river, stream or creek. The Environmental Center and Wetlands are located in the *Raccoon Creek Watershed*. This means that all of the water that passes through and falls on or near the wetlands will eventually drain to Raccoon Creek. Raccoon Creek is an important creek for fishing and recreation. It has had some problems in the past with acid mine drainage pollution from old coal mines, but with the help of new clean water laws and local watershed groups, the water is much cleaner now and is getting cleaner all the time!

As the water passes through the wetlands from Raccoon Creek, the wetland plants and soil also help to remove particles of dirt and silt from the water and make the water cleaner than it was before. This is just one of the reasons that wetlands are so important to the environment!

Here is the path that water takes as it moves through Raccoon Creek and the wetlands on its way to other watersheds!




LAWRENCE
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8
km.
PENNSYLVANIA COUNTY SERIES

The Water Cycle _____

FOSS Water: Inv. 1-3: Water on a Slope

FQ: 1.) Does water always fall down hill?
2.) How does changing the slope or quantity of water change the speed at which it flows down hill?

P:_____

_____

_____

_____

_____

10 minutes: Let's discuss a procedure: ***How will we test these questions? (Group discussion, then class discussion – be prepared to explain to the whole class what your group thinks.)***

slope- _____

flow- _____

_____

C: The _____ the drop, the _____ water moves. The _____ the slope, the _____ it moves. The _____ the slope or the _____ the drop, the slower it moves downhill.

Remember to use your ABCD's when making scientific drawings.

Experiment Notes:

The Water Cycle _____

Inv. 8-2: Climate & Weather

(Wolf pg.274-281)

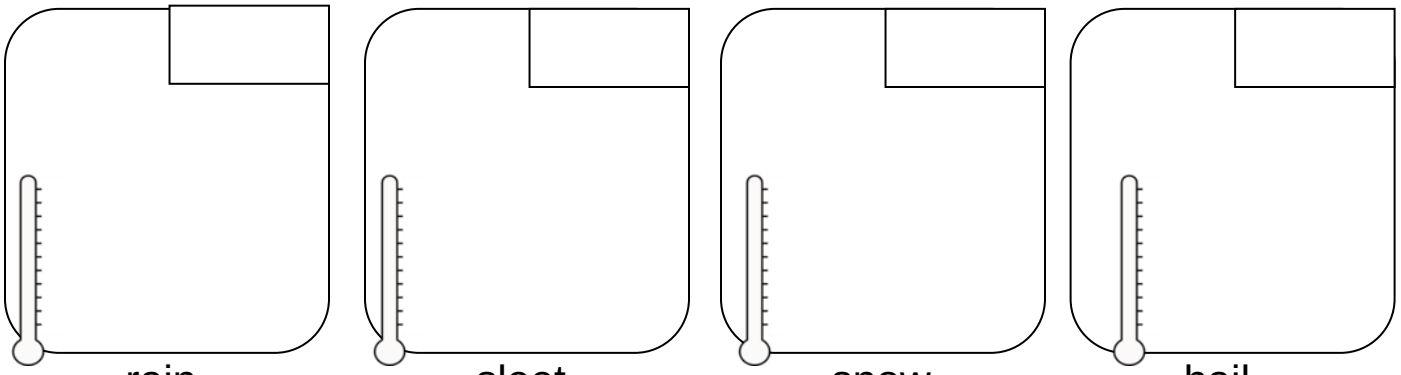
FQ: How does weather affect you?

P: _____

_____

_____

Draw what each of these forms of precipitation looks like.



rain sleet snow hail

_____– average precipitation and temperature in an area over many years; it is what you know that area to be like

_____– a fast spinning spiral of wind that stretches from the clouds of a thunderstorm to the ground

_____– a large tropical storm with wind speeds of 74 miles per hour or more

_____– severe snowstorms that last for hours; strong winds, blowing snow, and very low air temperatures

Sing: *Study Jams – Solid, Liquid , & Gas*

Everything around us
Is made of matter
Solid, liquid or gas
Matter can move from
One state to another
Sometimes really fast
Solid, liquid & gas you see
Are states of matter changed by heat
Melting, boiling and freezing points
Heat moves molecules where it wants.
Ice is a solid
And then a liquid
When tempratures increase
The heat keeps rising
Before you know it
It disappears into steam
Solid, liquid & gas you see
Are states of matter changed by heat
Melting, boiling and freezing points
Heat moves molecules where it wants.
Water is a liquid
That turns to vapor
When exposed to heat
Add freezing tempratures
You'll see a solid
As ice appears on the scene
Solid, liquid & gas you see
Are states of matter changed by heat
Melting, boiling and freezing points
Heat moves molecules where it wants.
Vapor is a gas
That turns to liquid
When cooled to extremes
If the mercury keeps falling
The liquids gonna
Form ice suddenly
Solid, liquid & gas you see
Are states of matter changed by heat
Melting, boiling and freezing points
Heat moves molecules where it wants.
Solid, liquid & gas you see
Are states of matter changed by heat
Melting, boiling and freezing points
Heat moves molecules where it wants.

C: Weather affects what we _____, what we _____, and what we _____. Temperature and _____ are two key parts of climate. The United States has many _____ climates, so people have _____ to different ways of living because of it.

The Water Cycle _____

Inv. 8-3: Land & Location Affect Weather

(Wolf pg.282-285)

FQ: Is your climate here different from Florida's? Explain why.

P :_____

_____

_____

LAB – Heating Land vs. Water (Wolf pg. 283)

Time	Land temperature (°F)	Water temperature (°F)

Observation: What is the variable we are testing in this experiment? _____

How did the soil and water temperatures compare?

_____

_____

_____

_____breeze – a breeze moving from the water to the land

_____breeze – a breeze moving from the land to the water

_____– the height above sea level

C: _____ warms and cools slower than land, so those living _____ to large bodies of water have more moderate weather. Those living - _____ away from large bodies of water have _____ hot and cold weather.

The _____ you are above sea level, the colder the climate is. Also, the _____ you are to the equator the warmer it is.

The Water Cycle _____

FOSS Water: Inv. 3-1: Evaporation (2 day lab)

FQ: 1) When it rains and the pavement gets wet, who dries it?

P :_____

_____

_____

evaporation- _____

water vapor- _____

FQ: 2) What do you think the scale will look like tomorrow? Please explain.

P :_____

_____

_____

C: The cup _____ took longer to evaporate, than the cup _____. The cup without the lid evaporated _____.

Remember to use your ABCD's when making scientific drawings.

Experiment Notes:

The Water Cycle _____

FOSS Water: Inv. 3-2: Evaporation Location (4 day lab)

FQ: What effect does air temperature have on evaporation?

P :_____

_____

_____

seriate- to put objects _____ by one

_____

Observations: List the temperatures of each room daily.

Day #	Location A	Location B	Location C	Location D
Day 1				
Day 2				
Day 3				
Day 4				
Day 4 measurements	ml	ml	ml	ml

C: The _____ locations had evaporated _____. This occurred because _____ _____ _____.

Amount of evaporation	Letter of location
Most evaporation	
Second most evaporation	
Third most evaporation	
Least evaporation	

Temperature of locations	Letter of location
Warmest location	
Second warmest location	
Third warmest location	
Coolest location	

Remember to use your ABCD's when making scientific drawings.

Experiment Notes:

Understanding Ecosystems _____

Inv. 4-2: Factors that Influence Ecosystems

(Wolf pg.138-147)

FQ: What do you think can change an ecosystem?

P :_____

_____

_____

_____– (‘bio’ = life) living parts of an ecosystem; such as:

_____

_____– nonliving parts of an ecosystem; such as:

_____

_____– the average amount of temperature and precipitation

(_____) in an ecosystem over many years; an abiotic factor

_____– the number of different kinds of living organisms

Power Point: Biomes

C: The biotic and abiotic parts of an ecosystem influence ecosystems _____! Climate affects the kinds of plants and animals in an ecosystem. When there is _____ of diversity, _____ living organisms can survive in an ecosystem.

USA Climate Zones		
Biomes	Regions	Climate description
Temperate forest		Four seasons; warm summers and cold winters; spring/fall are moderate; trees are deciduous
Grassland		Seasons are extreme in Mid-West; grasses full of wildflowers/few trees
Taiga		Just south of tundra; very cold in winter; most trees are evergreens
Desert		Less than 10 in. of rain in a year; hot days/cold nights
Tundra	Alaska	Coldest climate (-40°F to 64°F); “treeless plain”
_____/ _____ rain forest	Hawaii (tropical) & Washington (temperate)	Rains 7-33 ft./year; plants are lush and green; lots of life and diversity!

The Wetland Habitat

Wetlands have food, water and shelter for a variety of animals making them an important **habitat** for these creatures. These animals include amphibians, reptiles, mammals, birds and aquatic macroinvertebrates.. A habitat is the place where an animal or plant lives. For animals, the area needs to have 3 main things to be a habitat - *food, water, and shelter.* Plants need water, nutrient-rich soil, and sunlight. The wetland habitat provides these things for plants and animals and then some, making it a diverse area with many kinds of life in it!

Amphibians -animals include frogs, toads, salamanders, and newts. Amphibians are cold-blooded and change from a juvenile with gills to breathe under water, to an adult with lungs to breathe on land. Unlike other land animals, amphibians lay jelly-like eggs in water. They also have a smooth skin covering. **Examples at the wetlands:** *American toad, green frog, bullfrog, spring peepers, spotted salamander, newts.*

Reptiles -includes turtles and snakes. Reptiles are cold-blooded and lay eggs on land - though some snakes can have their babies live. Both juveniles and adults breathe air. Their skin is covered with scales. **Examples at the wetlands:** *painted turtle, snapping turtle, corn snake, black snake, northern water snake.*

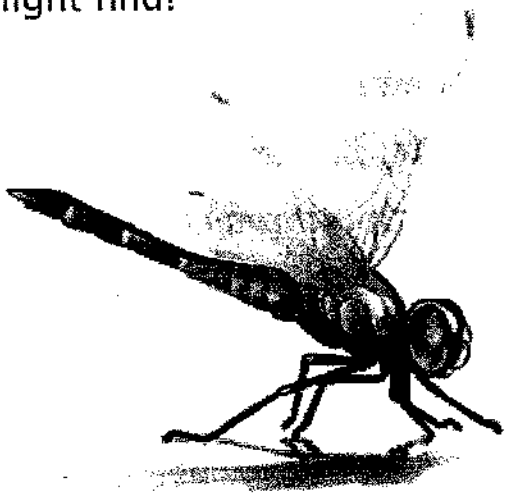
Wetland mammals - mammals are warm-blooded animals with fur or hair that have their young live. Home may be in burrows, trees,

nests, or on the forest floor. **Examples at the wetlands:** *beaver, muskrat, cottontail rabbit, groundhog, whitetail deer, red fox.*

Wetland birds – feathered animals that lay eggs. May live and nest near water or on land. Many of the birds seen at the wetlands are migrating waterfowl – which means they move to southern climates when the weather turns cold. **Examples at the wetlands:** *great blue heron, mallard duck, Canada goose, green heron, red-winged blackbird, yellowlegs, killdeer, pintail, wood duck.*

Aquatic Macroinvertebrates – creatures that live in the water – ponds, streams, rivers, lakes. An important part of the food chain for fish and birds and also indicators of the health of a body of water. Many will become flying insects as adults (dragonflies, damselflies, cranflies, stoneflies) but begin their lives as aquatic insects. **Examples at the wetlands:** *dragonfly nymphs, stonefly nymphs, crayfish, water boatmen, backswimmers, crawling water beetles, whirligig beetles.*

The next pages show some of these aquatic macroinvertebrates in more detail. If your group is doing a pond study, these are some of the things we might find!



Understanding Ecosystems _____

Inv. 4-1: Parts of Ecosystems (Wolf pg.130-137)

FQ: What are the parts of an ecosystem?

P :_____
_____
_____

_____– a community and its physical environment together

_____– all living and nonliving things that surround you; this can be inside or outside

_____– one plant or animal

_____– a group made up of the same kind of individuals living in the same ecosystem

_____– all the populations that live in the same place

C: An ecosystem is composed of a community of various plants and animals and the _____ and _____ things that surround them.

Outdoor LAB – Hula Hoop Ecosystem

HARD EYES - Using a hand lens, observe the ecosystem within your hula hoop. List all of the living and nonliving things you find.

Living	Nonliving

SOFT EYES - Now, observe the ecosystem outside your hula hoop. List all of the living and nonliving things you find.

Living	Nonliving

<u>Observation</u>: What did you notice about these two lists?

_____

_____

_____

_____

_____

Changes to Earth's Surfaces _____

FOSS Water - Inv. 4-1: Water in Earth Materials

FQ: What happens when you pour water through different materials?

P :_____

_____

_____

_____ – when liquid slowly empties from an object

_____– when an object is thoroughly wet with liquid

_____– a natural resource

Draw/write about your observation.

C: I claim that _____ soaks up more water than _____. I know this to be true, because _____.

Water in Earth Materials

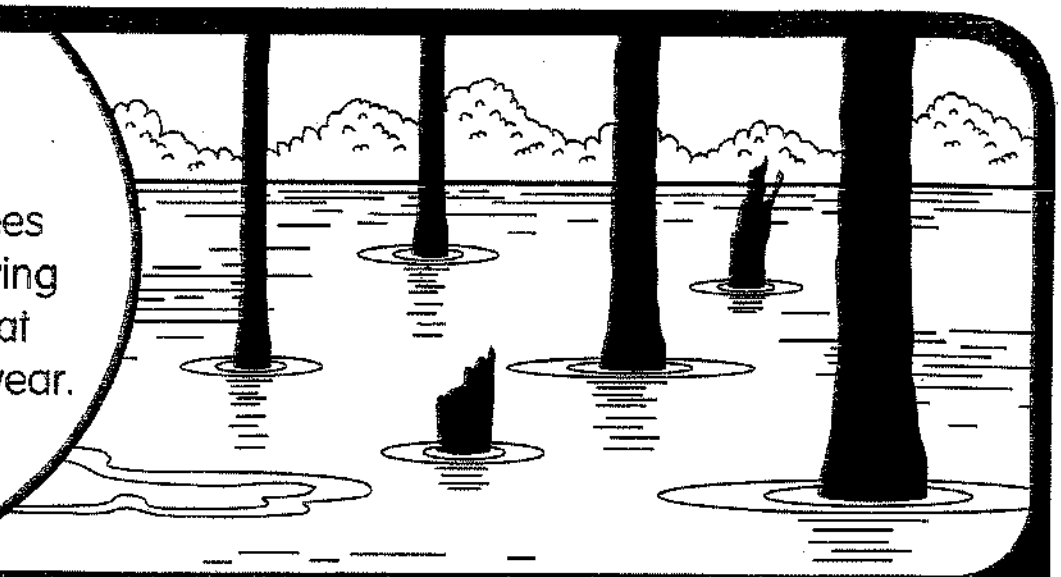
1. Get 2 plastic cups with holes. Line each cup with a filter paper in each.
2. Pour dry soil into one filter paper. The soil should be about 1 cm below the rim of the cup.
3. Set the soil cup on one side of the balance.
4. Set the other filter-lined cup on the other side of the balance.
5. Add gravel to the empty cup until the balance is level. You now have the same mass of soil and gravel.
6. Place each of the cups in a large plastic cup.
7. Use the syringe to carefully squirt 50 ml of water in each filter. Observe what happens.
8. After the water has stopped draining into the large cup (about 5 minutes), place the cups back in the balance and observe. Record which cup is heavier.
9. Use the graduated cylinder to measure the amount of water that you collected in the large cups. Record your answers.

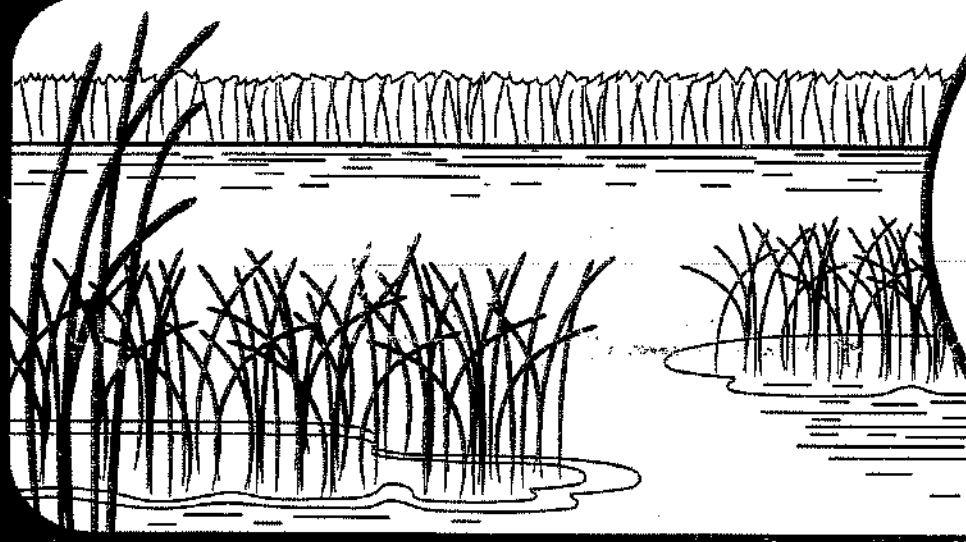
Types of Freshwater Wetlands

There are three main types of freshwater wetlands: swamps, marshes, and bogs. Each has something special about it.

Swamp

A swamp has trees and shrubs growing in it. It is flooded at least part of the year.



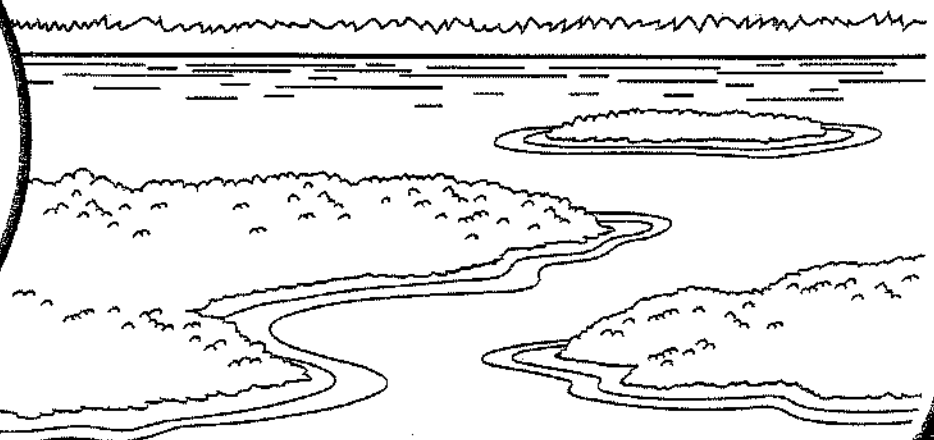


Marsh

A marsh is too wet for trees and shrubs. Grassy plants like cattails and reeds grow in it.

Bog

A bog is usually covered with moss. When the plants die, layers are built on top of each other forming peat.



How To Play - Into The Forest Game - Game Rules

Rules of the Game:
As life in the forest goes on and on, so this games does not play out; it must be timed to be ended. Use your watch, clock, egg timer or stopwatch to keep time.

Timing:
There are two different ways of timing the game. Choose one or the other before each game

1. Timed Rounds: Play 3 or 4 rounds of 20 minutes each. After each round, record each player's score. After all rounds have been played whoever has the most points wins.

2. Long Version: Set your timer for 45 minutes. Whoever has the most points at the end of the time wins.

To Start:

1. Deal out all the cards. (Because there are 41 cards in the deck some players will get one less card than others. These players will be awarded 5 extra energy points at the beginning of the game or round.)

2. The first player starts by asking any other player for a Showdown.

To Play
Players may ask each other for either a Showdown or a Challenge. In a showdown each of the two players lays down a card face-up at exactly the same time. If one card "eats" the other then that player takes the "eaten" card and puts it in their hand. If both cards "eat" each other, or, if neither card "eats" the other then it is a stand-off and each player keeps their original card. At the end of a Showdown play passes to the next player no matter who wins
the Showdown.

In a Challenge one player asks another for a certain card and shows the card with which he or she is taking it. Example: "Sophie, I want your grass card, and I'm taking it with my deer card." The player then wins the card and is entitled to another turn.

As long as the player can win cards in a Challenge he or she is entitled to another turn.

If the challenger was wrong and the person being challenged did not have the card the challenger asked for, then the challenger must give up his challenging card to the person wrongly challenged and his turn is over.

If a player does not want to challenge another, he or she can ask someone for a Showdown - and this ends the player's turn.

Scoring:
At the end of each round or game each player counts their energy points. The person with the most energy points wins that round or game. (Note: Energy point scores are printed in the top right corner of each card.)

Special Cases:
Sometimes two kinds of animals can eat each other. For instance, preying insects eat spiders, and spiders eat preying insects. In a Showdown neither takes the other, But, in a Challenge, the challenger does take the other card.

Death & Decay Cards
The two Death & Decay cards are very powerful. Thus there are restrictions on their use:

1. Death & Decay may be used as a challenging card only once in a person's turn. (It may be used in an unlimited fashion when defending oneself in a Showdown, however.)

2. There are plants and animals that take Death & Decay cards: anything that consumes decayed or decaying matter. In a Showdown they provide a stand-off with Death & Decay. In a Challenge the challenger wins. However, a person may capture only one Death & Decay card by Challenge on any one turn.

Name _____ Group _____

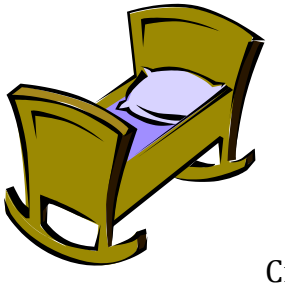
Characteristics of Marshes

The marsh has many jobs. Below are some clues to help you predict what kinds of jobs it has. Look at the pictures and think about how a marsh could be similar to the item/place shown. What characteristics might they share? Please explain your thinking.

1.  Sponge_____

2.  Pillow_____

3. Egg beater_____

4.  Cradle_____

5.  Strainer_____

6.  Coffee filter_____

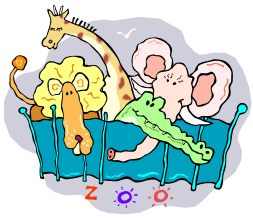
7.  Antacid_____

8.  Rice_____

9. 

Soap_____

10.  Resort_____

11.  Zoo_____

Understanding Ecosystems _____

Inv. 4-3: Humans Affect Ecosystems

(Wolf pg.148-159)

FQ: How do humans affect ecosystems?

P :_____

_____

_____

_____ – the parts of ecosystems that humans use, including: _____

_____ – when _____ substances mix with water, air, or soil

_____– a _____ change that humans make to repair damage to ecosystems; plant new trees and create new ecosystems

_____– a person who promotes conservation, especially of natural resources

C: Humans use _____ natural resources. People have affected ecosystems in _____ ways using these resources, but now they are trying to make more positive effects.

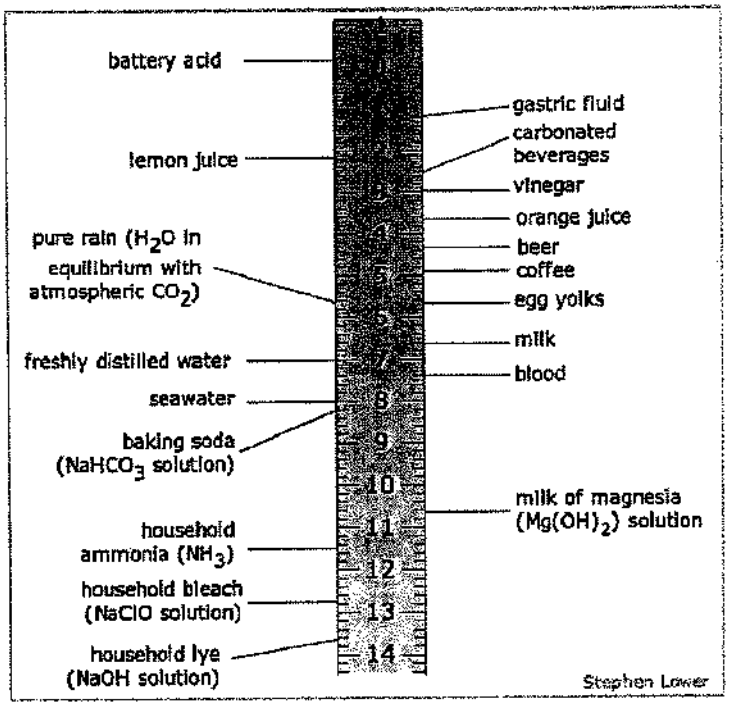
What do wetlands do?

Wetlands are very unique and special environments combining land and water *habitats* to form an *ecosystem* of plants and animals living together. Besides being an important animal and plant habitat, wetlands do other great things like...

Absorb excess water – Wetland soil is able to hold much more water than other soils. Wetlands can help protect the lands around it from flooding caused by runoff or overflow of streams and creeks!

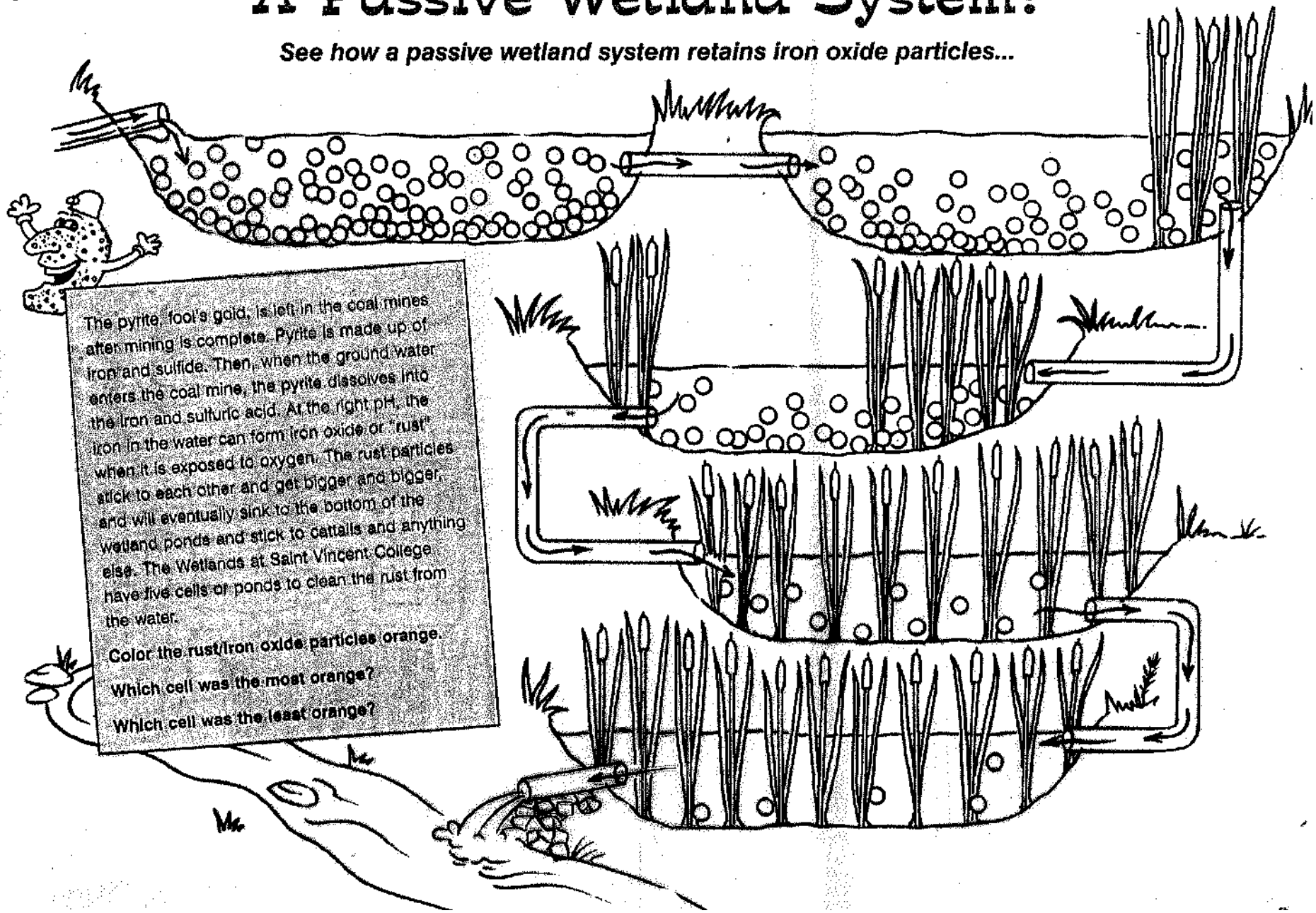
Filter and clean the water – Wetland plants – like cattails – and the soil in the wetlands help to filter sediment and bacteria out of the water.

Remove acid from the water – Acid can enter waterways from rainfall pollution, or from acid mine drainage from abandoned coal mines. Wetland plants help to regulate the acid by raising the pH (percent hydrogen) of the water to a more neutral level.



What Happens To Iron Oxide In A Passive Wetland System?

See how a passive wetland system retains iron oxide particles...



The pyrite, fool's gold, is left in the coal mines after mining is complete. Pyrite is made up of iron and sulfide. Then, when the ground water enters the coal mine, the pyrite dissolves into the iron and sulfuric acid. At the right pH, the iron in the water can form iron oxide or "rust" when it is exposed to oxygen. The rust particles stick to each other and get bigger and bigger, and will eventually sink to the bottom of the wetland ponds and stick to cattails and anything else. The Wetlands at Saint Vincent College have five cells or ponds to clean the rust from the water.

Color the rust/iron oxide particles orange.

Which cell was the most orange?

Which cell was the least orange?

How Do We Clean It Up? Why Use Wetlands?