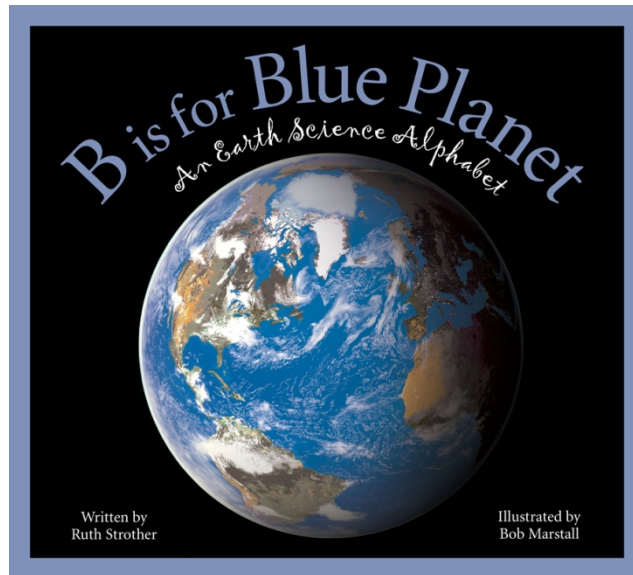


Teacher's Guide



B is for Blue Planet: An Earth Science Alphabet

Author: Ruth Strother

Illustrator: Bob Marstall

Guide written by Jillian Hume

**This guide may be reproduced for use with this express
written consent of Sleeping Bear Press**

Published by

Sleeping Bear Press

315 E. Eisenhower Parkway, Suite 200

Ann Arbor, MI 48108

800-487-2323

www.sleepingbearpress.com



B is for Blue Planet
Equivalent Fractions



After reading *B is for Blue Planet* complete the problems below. In the rectangle, shade the area that represents the sentence. Then record the fraction, decimal, and percentage that it represents.

1. About three-quarters of the earth's surface is covered in water.

Fraction: _____ Decimal: _____ Percentage: _____

2. Coral reefs provide a rich habitat for around 25 percent of all ocean life that we know of.

Fraction: _____ Decimal: _____ Percentage: _____

3. Only about one-eighth of an iceberg's mass shows above water.

Fraction: _____ Decimal: _____ Percentage: _____

4. The rainforest canopy is home to about 90 percent of the rainforest animals.

Fraction: _____ Decimal: _____ Percentage: _____



B is for Blue Planet
Create a Game Board



With a partner, read *B is for Blue Planet*. When you have finished reading it, use questions below as a guide for creating a game board using ideas from the book.

What age is your game for? _____

How many players? _____

What is the goal of the game? _____

How do you win the game? _____

What will you make the pieces out of? _____

Title of the Game: _____

Write rules for your game on the back of this worksheet.

Create a rough draft of your game board. When you have finished, create a final game board on a large piece of cardboard, construction paper, or even a paper grocery bag!

B is for Blue Planet

Make a Fossil



Fossils are the remains of prehistoric plants and animals, but why not make your own fossil?

With an adult, carefully follow the instructions below to create a fossil of shells, leaves, sticks, or even small toys!

Draw a picture of what you think your fossil will look like (prediction) and your actual fossil.

Prediction:

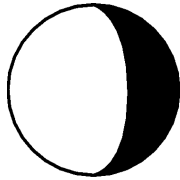
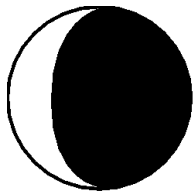
Actual:

Materials:

- 1/2 cup of salt
- 1 cup of flour
- 1/2 cup of brewed coffee (cold)
- 1 cup of used coffee grounds
- Measuring cups
- Mixing spoon
- Mixing bowl

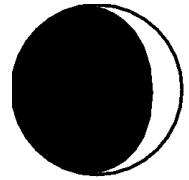
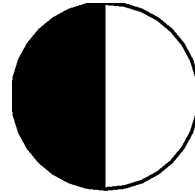
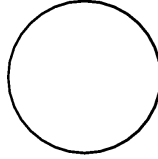
Procedure:

1. Add salt, flour, coffee, and grounds to mixing bowl; stir until well mixed.
2. Pour the dough out onto a large sheet of waxed paper and knead it until it's smooth.
3. Break off a piece large enough for the imprint you want to make, roll it into a ball, and use the heel of your hand to flatten it out.
4. Press the object you wish to make a fossil imprint of firmly into the dough. You can use more than one object if you like. Carefully remove the objects to leave the prints behind. Let your fake stone dry overnight. When complete, you'll have a fossil!



B is for Blue Planet

Moon Journal



As you read in *B is for Blue Planet*, the changing positions of the moon, earth, and sun in relation to each other determine how much of the moon is visible to us. First, complete the calendar below, filling in the month and days of the week. Put a small number in the upper right-hand corner of each box for the date. Then, observe the moon every night for a month. Draw a picture to show what you see. If it's too cloudy to see the moon, draw clouds.

| | | | | | | | |
|--------|--|--|--|--|--|--|--|
| | | | | | | | |
| Sunday | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |



B is for Blue Planet

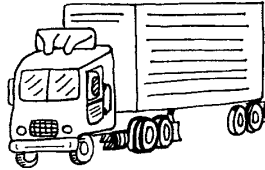
Trash into Cash



It is important to recycle and reuse as much as possible. Instead of throwing old toys in the trash, Julie decided to sell her old toys in the neighborhood garage sale so she could buy new ones. Use the picture and price tags below to help you solve the problems. Be sure to show your work.



\$1



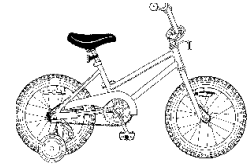
\$.75



\$.25



\$.50



\$3.00

1. What three items must Julie sell to make \$4? _____

2. How much will she make if she sells her book and truck? _____

3. How many books must Julie sell to make \$ 1.50? _____

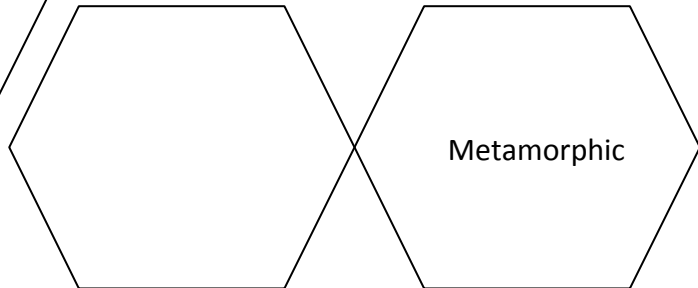
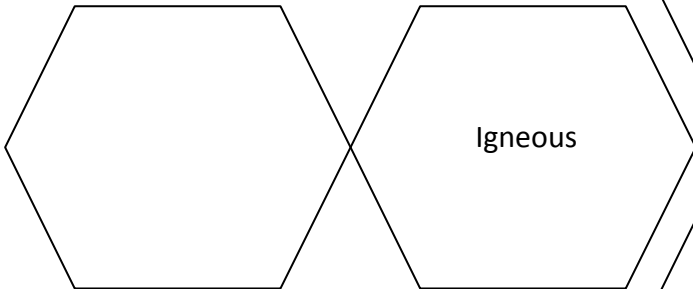
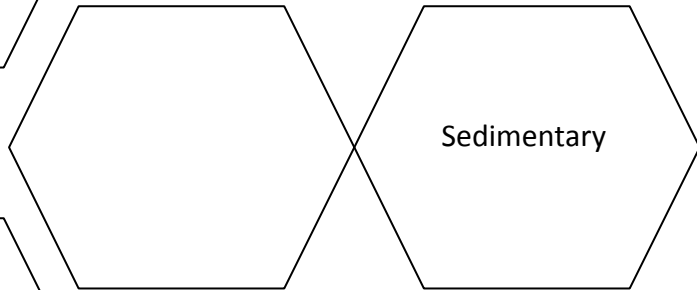
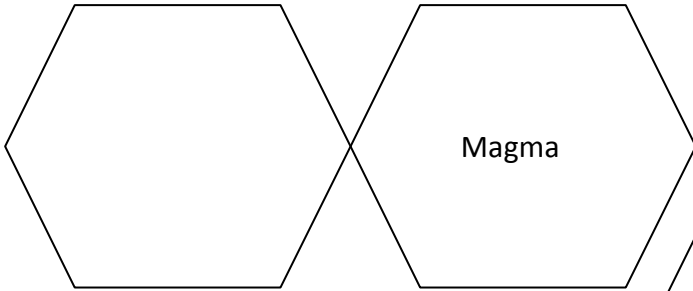
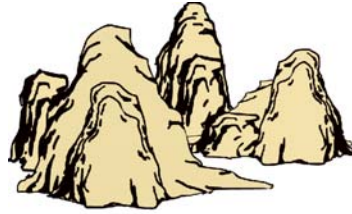
4. How much money would Julie make if she sold her stuffed dog, the book, the truck, and her doll? _____

5. If someone bought the stuffed dog, the book, and the bike with \$4, how much change would they get? _____

B is for Blue Planet

Rock Vocabulary

While reading the page I is for Igneous Rock in the book *B is for Blue Planet*, cut out the definitions with the dotted lines around them, and paste them next to the word that they define, or fact that they go with, in the chart below.



Molten
Slurry

Most fossils
are found
in this type
of rock.

Forms when
other rocks are
exposed to heat
and pressure
inside the earth.

Forms when
magma or lava
cools and
becomes solid



B is for Blue Planet

Rhyming Words



Below are 20 words from the book *B is for Blue Planet*. Your goal is to come up with as many rhyming words as you can for each word!

Swirl _____

Blue _____

Million _____

Bee _____

Rain _____

Earth _____

Roll _____

Hot _____

Ice _____

Land _____

Spin _____

Rock _____

Less _____

Cave _____

Moon _____

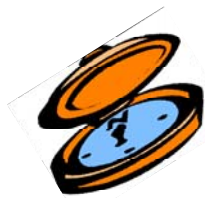
Day _____

Solar _____

Oil _____

Tide _____

Sun _____



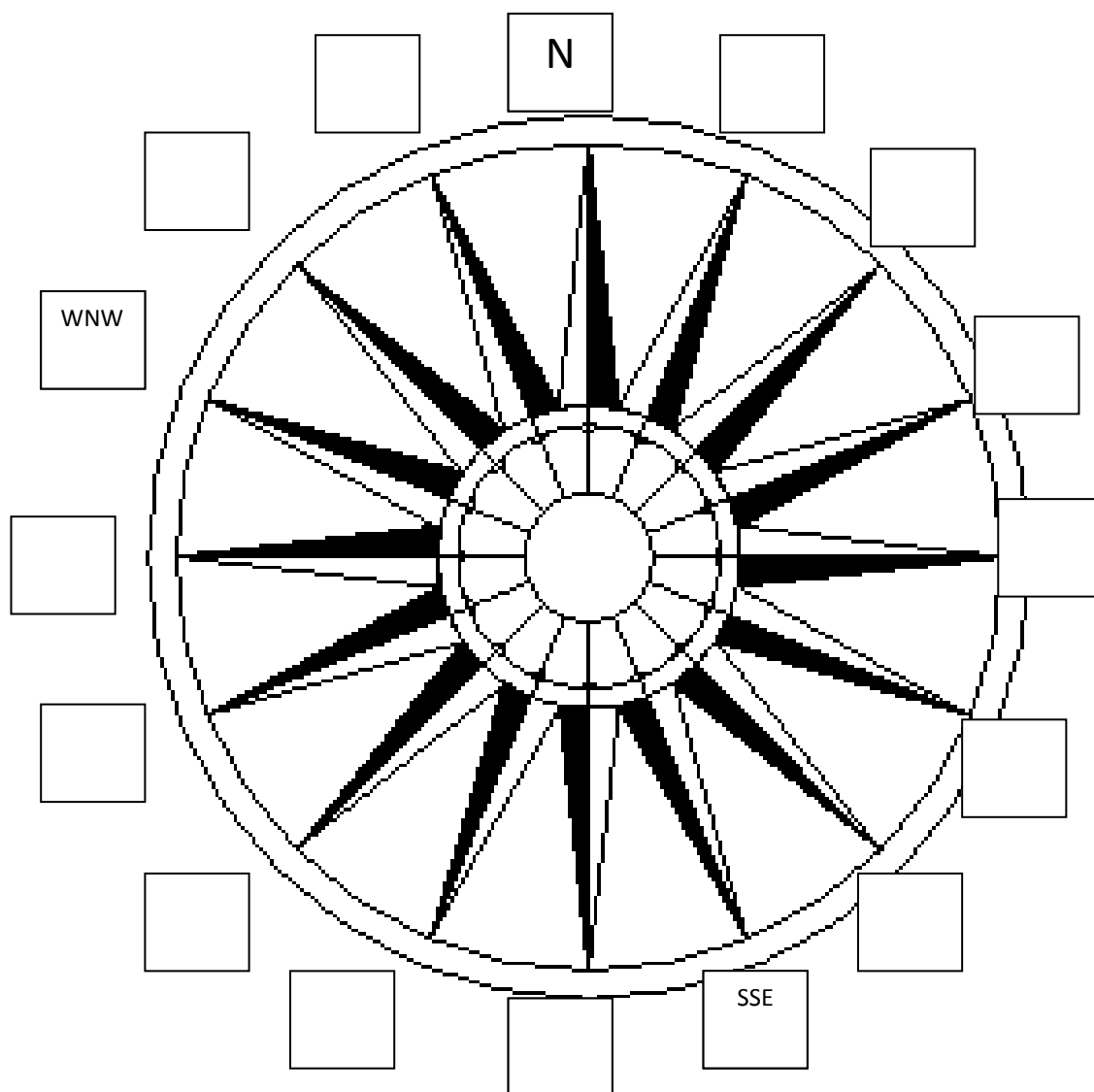
B is for Blue Planet

Create a Compass



A compass is a tool that is used to navigate, or travel, the earth. The needle on a compass will always point north because of the magnetic north pole of the earth. Below is a 16-point compass. Use the abbreviations below to complete the compass.

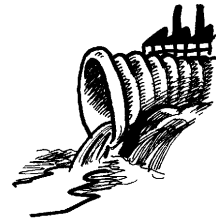
| | | | |
|---|-----|----|-----|
| N | NNE | NE | ENE |
| E | ESE | SE | SSE |
| S | SSW | SW | WSW |
| W | WNW | NW | NNW |





B is for Blue Planet

Oil Spill Cleanup



Oil spills are difficult to clean up. They contaminate the ground, oceans, lake, rivers, and streams. Try this experiment to better understand the harmful effects oil spills have on our blue planet.

Materials:

Dark-colored olive oil, cake pan, a feather, dog fur, liquid dishwashing soap, spoon

Procedure:

1. Fill the cake pan half full of water. Drip in some olive oil to simulate an oil spill.

2. Drag the feather and dog fur through the oil.

Would it be hard to clean oil off of thousands of animals after a spill in the ocean? Why?

3. Shake the cake pan to create wave action. The oil spreads and breaks up, but does not mix with the water.

Would it be easier to clean up an oil spill soon after it happened, or weeks later? Why?

4. Scrape some of the oil out of the water with a spoon. Is it hard to get all of the oil out?

5. Try using paper towels, cotton balls, or fabric. Do these help clean up the oil spill? Are they realistic for a body of water the size of the ocean?

6. Add about a tablespoon of oil to the center of the pan. Then, drip a couple drops of dishwashing soap right into the center of the oil. What happens? _____

Other things to think about: Is it realistic to dump liquid soap into the ocean? Would it be cheap or expensive? Would you want soap in your drinking water? What effect might soap have on sea animals and plants? If the soap dissolves the oil, would the soap always be in the ocean?

B is for Blue Planet

Water Cycle

After reading the book *B is for Blue Planet*, fill in each box in the picture below with the letter that matches the process happening, or the object. When you have finished, turn this page over and create a landscape of your own that includes all five of the terms listed and label them.

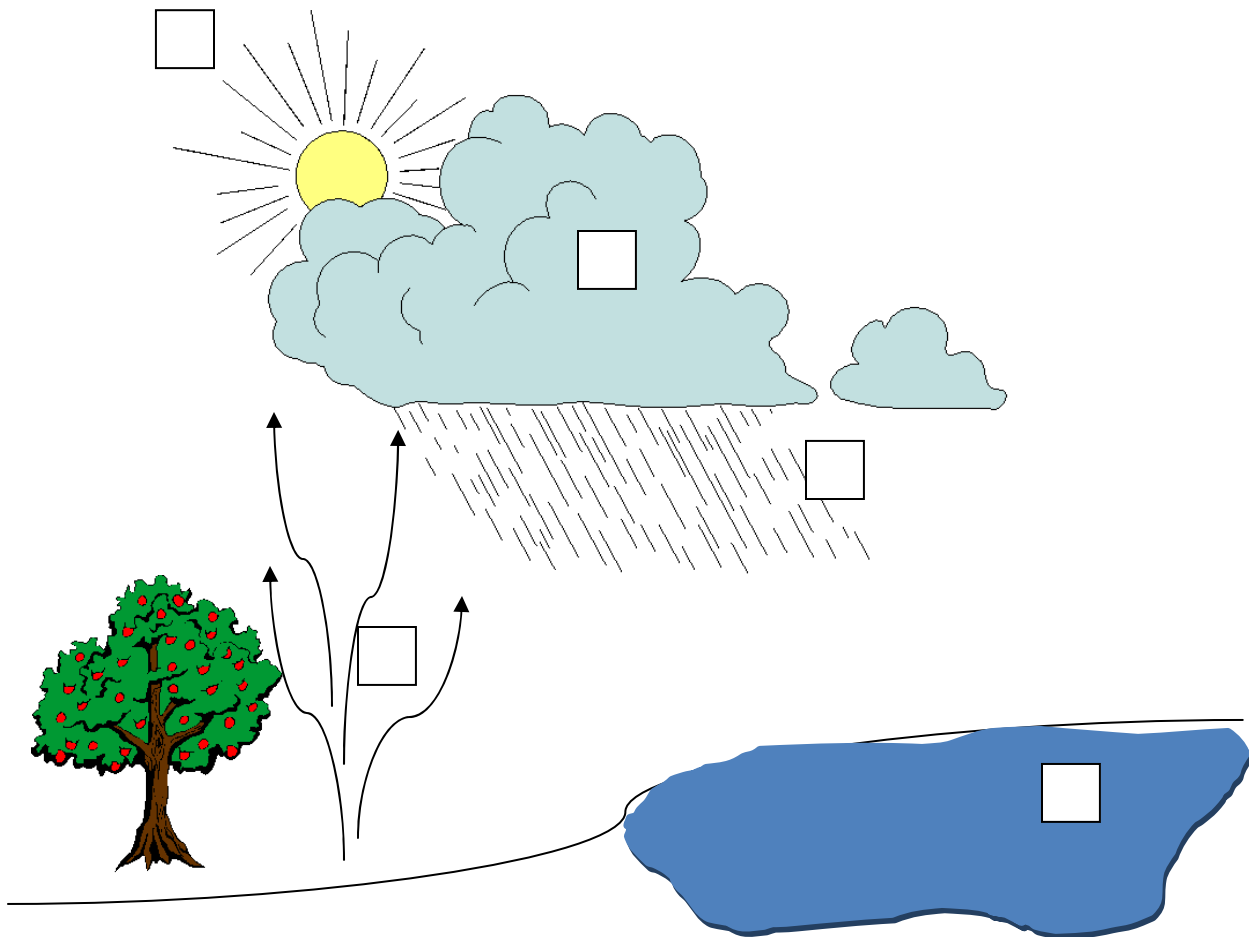
A. Evaporation: Liquid water is heated by the sun until it rises as water vapor into the atmosphere.

B. Precipitation: Water falling to the earth in the form of weather—including rain, sleet, hail, and snow.

C. Condensation: Water vapor molecules join together, becoming liquid, in the form of clouds.

D. The Sun: Creates all of the weather on Earth through the uneven heating of Earth's surface.

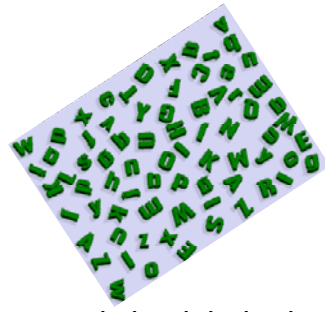
E. Liquid Water: All living things need this to survive and it is an important part of the weather system.





B is for Blue Planet

Alphabetical Order



Below are words from the book *B is for Blue Planet*. Put all of the words in alphabetical order.

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

earthquake

mountains

minerals

lava

fossil

Antarctica

hurricanes

rainforest

amber

precipitation

erosion

pebbles

glacier

coral

jellyfish

limestone

desert

tsunami

million

molten



B is for Blue Planet

Yes, No, Why

Use the book *B is for Blue Planet* to determine if the sentence is correct or not. Then, provide a reason for your choice.



1. From the sky, the earth looks like a blue planet. Yes or no, and why?

_____ because _____

2. Coral reefs are not easily destroyed. Yes or no, and why?

_____ because _____

3. There are a lot of clouds in the desert. Yes or no, and why?

_____ because _____

4. Although the surface of the moon is like Earth's, there are differences. Yes or no, and why?

_____ because _____

5. The Northern Lights are created by shooting stars. Yes or no, and why?

_____ because _____

6. Scientists believe that in 10 million years Los Angeles and San Francisco will be right next to each other. Yes or no, and why?

_____ because _____

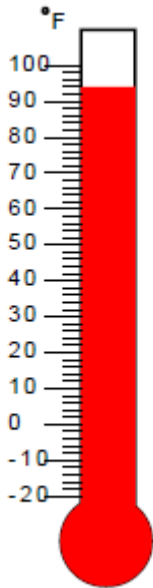


B is for Blue Planet

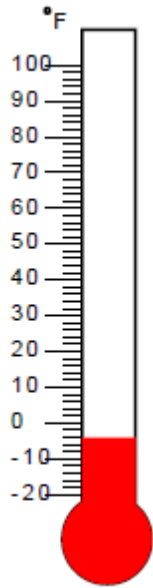
What is the Temperature?



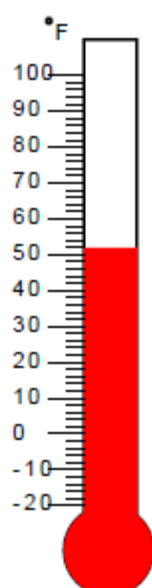
Temperatures around the world, both on land and in the sea, are constantly changing. Below are eight thermometers that measure the temperature on the Fahrenheit scale. Write the correct temperature in the space below each thermometer.



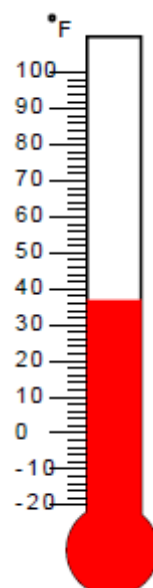
1. _____



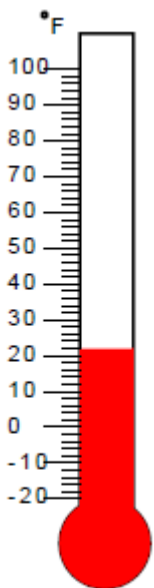
2. _____



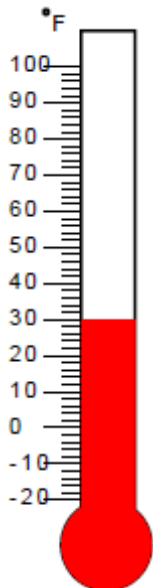
3. _____



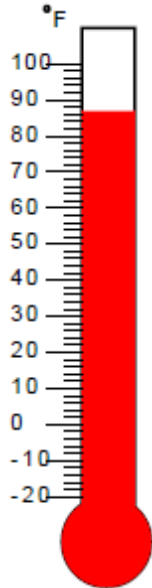
4. _____



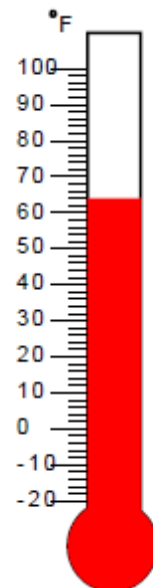
5. _____



6. _____



7. _____



8. _____



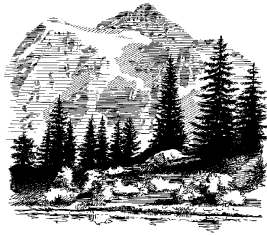
B is for Blue Planet

Creating a Map



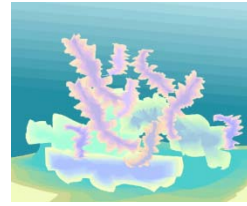
Maps are a very important part of earth science. There are many types of maps such as climate maps, political maps, road maps, and topographical maps. A cartographer is someone who makes maps. Below is a space for you to be a cartographer. First, decide what you are going to create a map of. Maybe you're going to make a map of your bedroom, classroom, neighborhood, city, state, country, or even a map of the world. Remember that every map has a title, compass, and key. You can include a scale if you would like.

I am creating a map of my: _____



B is for Blue Planet

KWL Chart



Sometimes, reading a book can spark an interest in a more specific idea. While reading *B is for Blue Planet*, find a topic that interests you. After reading about it, record what you already know and what you want to know. After researching your topic, record what you learned.

Topic: _____

| What you know K | What you want to know W | What you have learned L |
|-------------------------------|---------------------------------------|---------------------------------------|
| | | |



B is for Blue Planet

Add a Page



There are more concepts and facts about earth science than those introduced in *B is for Blue Planet*. Create your own alphabet page, including research about the topic, and an illustration. If possible, as a class, each person can chose a different letter and create an entirely new earth science alphabet!

_____ is for _____



B is for Blue Planet

Crossword Puzzle

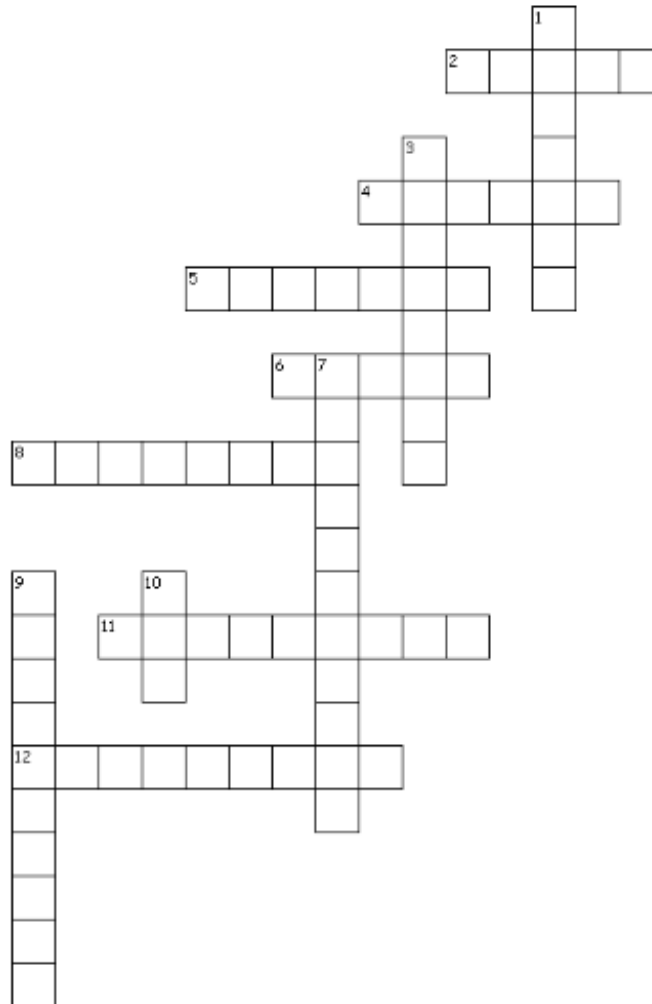


Across

2. Zone in which the temperature never goes above 50 degrees Fahrenheit
4. Oil, natural gas, and coal are called _____ fuels
5. The force that creates tides
6. The pathway that water takes to get to the top of plants
8. Zone in which temperatures are over 64.4 degrees Fahrenheit
11. A combination of sand, clay, and salt water
12. A large storm that forms over ocean waters

Down

1. Flowing ice that carves changes in the land
3. _____ lights, a spectacular show of dancing colors in the night sky
7. Old Faithful is located in _____ National Park
9. A powerful force that is responsible for creating mountains, volcanoes, and tsunamis
10. A ball of fiery-hot hydrogen and helium gas that lights and heats the Earth





B is for Blue Planet

Newspaper Article


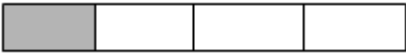




Write a newspaper article about your favorite trip/vacation that you have taken. Be creative. You might want to describe things in nature that you found fascinating, or describe the impact humans have had on the area you visited. Include a sketch of the location that you wrote about.

The form is a large, hand-drawn outline of a newspaper page. It has a rounded bottom and a small tab on the right side. Two horizontal lines are drawn near the top, indicating where to write the article.

ANSWER KEY

Equivalent Fractions

1. $\frac{3}{4}$, .75, 75% 
2. $\frac{1}{4}$, .25, 25% 
3. $\frac{1}{8}$, .125, 12.5% 
4. $\frac{9}{10}$, .9, 90% 

Trash Into Cash 1) Bike, truck, dog 2) \$1.25 3) 3 4) \$2.50 5) \$. 25

Rock Vocabulary

Sedimentary: Most fossils are found in this type of rock.

Igneous: Forms when magma or lava cools and becomes solid.

Metamorphic: Forms when other rocks are exposed to heat and pressure inside the earth.

Magma: Molten slurry.

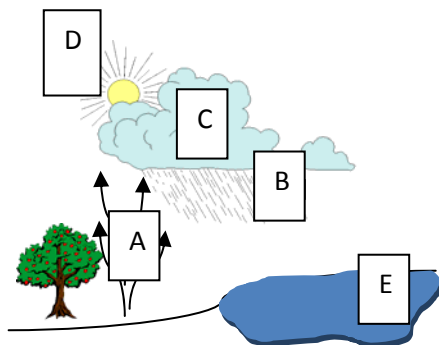
Create a Compass: Starting at North going clockwise:

North, North North East, North East, East North East, East, East South East, South East, South South East, South, South South West, South West, West South West, West, West North West, North West, North North West

Oil Spill Cleanup

2) Yes, because the oil sticks to the feather and fur. 3) Soon after the oil spill, because it is contained in a smaller area. 4) Yes, it is hard to get all of the oil out with the spoon because it moves and is slippery. 5) Answers vary, but it is not realistic in a large body of water. 6) The soap dissolves the oil.

Water Cycle



Alphabetical Order Amber, Antarctica, coral, desert, earthquake, erosion, fossil, glacier, hurricanes, jellyfish, lava, limestone, million, minerals, molten, mountains, pebbles, precipitation, rainforest, tsunami

Yes, No, Why

1. Yes, because 75% of the earth is covered in water.
2. No, because it is made of limestone and can be destroyed by a diver's touch or warming water temperatures.
3. No, because of the low humidity in the desert.
4. Yes, because there is no water, no soil, is dry, with greater temperature span.
5. No, because they are created by electrically charged particles carried by the sun's wind.

6. Yes, because one plate is moving northwest and the other is moving southward.

What is the Temperature? 1) 94 2) -4 3) 52 4) 37 5) 22 6) 30 7) 87 8) 64

Crossword Puzzle:

ACROSS 2) Polar 4) Fossil 5) Gravity 6) Xylem 8) Tropical 11) Quicksand 12) Hurricane

DOWN 1) Glacier 3) Northern 7) Yellowstone 9) Earthquake 10) Sun