

Civil Air Patrol's ACE Program

Coming in for a Landing Kindergarten Academic Lesson #4

Topics: Earth's land and water, counting (science, S.S., math, L.A.)

Length of Lesson: 40 minutes

Objectives:

- Students will identify landmasses and water on a globe.
- Students will gather data and form a conclusion based on data.
- Students will conclude that there is more water on Earth than land.



Next Generation Science Standards:

- Science and Engineering Practices: Developing and Using Models
 - Use a model to represent relationships in the natural world.
- Analyzing and Interpreting Data
 - Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.

CCSS ELA:

W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

CCSS Math:

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

K.CC Counting and Cardinality

Background Information:

Earth's surface is composed of both land and water. Earth is the only planet in our solar system that has liquid water, which makes life possible. A little more than 70% of Earth's surface is covered by water while close to 30% of Earth's surface is land. This lesson allows students to realize this science/geography fact through a fun, interactive activity.

Materials:

- inflatable globe (looks like a beach ball and is available at most teacher and science stores)
- chalkboard, dry erase board, or chart paper and marker
- paper or copies of the "Globe Data Sheet" provided with this lesson (optional)
- green and blue crayon for each student, or a pencil can be used (optional)

Lesson Presentation:

1. Ask students if they have ever heard of the word UFO. Ask students if they know what it means. Explain that it is some type of flying object that no one knows really what it is. It is an Unidentified Flying Object. It may not be a plane, a rocket, or a space shuttle. That would lead one to believe it is a spaceship from outer space! Ask students if they think spaceships from outer space and aliens are real. Explain that an alien in this context is a being from another planet!

2. Tell students that we will pretend that UFOs are real and that the Secret Spaceship Agency called to let the students know that there is a UFO out in space that is headed for Earth. Their satellites are viewing this UFO from space and it appears that the UFO has lost all its power and it is headed straight for Earth. So, the UFO could land anywhere on Earth. The agency wants to know if the kindergarten class thinks the UFO will land in water or on land when it finally gets to Earth.
3. Have the class vote on where they think the spaceship is most likely to land on planet Earth: on land or in water.
4. Tell students that while we may not know for sure, we can get more information to see where the UFO will probably land. Tell them that when we gather information, we are collecting data. Data means information. They will act like scientists today, as scientists do fun activities to gather data or information.
5. Hold up the inflatable globe. Ask students if they know what it is. While walking around the room showing the globe, explain that it is a globe. It shows every place on our planet, Earth. It shows where land and water are. Ask students how they can tell which part on the globe is land or water. Explain that the water is blue and the land is green.
6. Put a small sticker on the globe to show the state where the students live. Ask them to notice how much more of the world there is than just this one place where they live.
7. Explain how the class will gather data to answer their question regarding where the UFO will land. Tell them that the class will take turns tossing and catching the globe. When a person catches the globe, he or she needs to freeze their hands and look to see if their pointing finger is touching land or water. Ask each student to hold up their pointing finger on the hand with which they hold their pencil (index finger next to thumb). Show students an example by tossing the globe, catching it, and showing them what your index finger landed on. Practice this procedure with the class. (Teachers may want to place a sticker on the index finger to remind students which finger to watch.)
8. Once students seem to understand the globe concept, tell them that they will gather data and compare the number of times fingers land on land and in water. The location with the highest times of landing will be the best scientific guess about where the UFO will land.
9. Prepare to collect data as a class, making two columns on the chalkboard/ dry erase board for "Land" and "Water," making a tally mark (or writing "w" for water and "l" for land) for each landing site. If you want students to also document the results at their seats, distribute copies of the "Globe Data Sheet," or allow them to use their own paper to copy your information as you demonstrate and write it on the board. If students are documenting data using the "Globe Data Sheet" or their own paper, consider allowing them to use a green crayon and blue crayon to write the letters "w" and "l."

10. Tell students that you will say, "3, 2, 1, toss" prior to each toss, and when the student who catches the ball identifies whether his/her finger is touching land or water, the teacher will write the data on the board. (If students are also documenting data, have everyone write the appropriate beginning letter for either land or water in the correct column on their data sheet.) Repeat the procedure about 10-20 times according to time available. You may choose to make sure that each student has an opportunity to catch the ball in order to contribute data.
11. Help students total their data. Ask the class how many total times a pointer finger landed on water. Tell them to count the number of Ws they see on the board (or that they wrote on their paper). Write the total number in the box at the top of the water column on the board (and on student data sheets if used). Ask students how many times a finger landed on land. Tell them to count the number of Ls they see on the board or wrote on their data sheet. Write the total number in the box at the top of the land column on the board (and on student data sheets if used).
12. Ask students to think about their data or information. Tell them that now that they have more information (in fact, they actually did an experiment like a scientist), they can make a scientific guess about whether the UFO will probably land on land or in water. (Data results should show that the UFO is more likely to land in water since there is more water than land on Earth.)
13. Ask students what you should tell the Secret Spaceship Agency when you call back to tell them where the class thinks the flying UFO will probably land. Ask students why it will probably land in water. (There is more water on Earth than land, so there is a greater chance the UFO will land in water.) Thank students for being good scientists and helping you collect data to answer the Secret Space Agency's question. Tell them the Secret Space Agency just learned that the UFO just got its engines working and is headed back to its home.

Summarization:

Ask students what they learned about the surface of Earth today. Explain that when Earth is viewed from space satellites, we can get a better idea about what Earth really looks like. The benefits of seeing Earth from space are that it can help us determine what the weather will be like and understand Earth better. Images from probes and rovers sent to other planets let us see what their surfaces look like and compare them with our own planet.

Character Connection: Learning to understand Earth better is just one of the things we need to learn about in life. We also need to learn about how we can be useful on the Earth as smart and good people who will protect our planet for the future.

Drug Demand Reduction (DDR) Connection: See page 9.

Assessment:

- teacher observation
- completed data sheets

Additional activities to help enrich and extend the primary lesson (optional):

- Have students color the "Globe Coloring Sheet" provided in this lesson plan.
- Allow students to draw and color a flying spaceship (UFO) and alien. To incorporate shapes in their drawing, tell students that they should use at least one square, one circle, and one triangle in their drawing.
- Bring a large map of a state or country to school and discuss with the students how a map and a globe are alike and different. Distribute a copy of the world map (included) to each student. Allow them to color the land in different colors (such as brown or green). After students finish coloring, give them some type of small sticker, such as a star, to place on the map to indicate where they live in this great big world.
- Tell the students that just like each of them are different, many people, places, and things are different in other parts of the world compared to where they live. Reading a book or showing a video about different countries may demonstrate this for the students.
- Read about the different kinds of maps that people use to find their location, everything from floor plans to world atlases.
- Have students cooperate to make a floor plan of the classroom, or of the playground.

STEM Kit Connection: Explain to students that weather also plays an important part in space exploration. Rockets and other spacecraft cannot take off or land in bad weather. Forecasters work hard to predict when a "window" of good weather will make a liftoff possible, and sometimes spacecraft have to come back to Earth in an alternate landing zone due to bad weather at the primary site. Use the readings from the Weather Station Kit to determine if your location is having weather that would make it a safe liftoff or landing zone.

Associated Literature and Media:

- [The Earth by Melvin and Gilda Berger](#) (video reading)
- [The Big Blue Marble](#) ebook by NASA (Note - you will need Flash Player installed to use interactive ebook.)
- [Me on the Map by Joan Sweeney](#) (video reading)
- ["How much water is on Earth?"](#) is a NASA SpacePlace video.
- [NASA's solar system exploration page](#) has wonderful images of the planets.



GLOBE DATA SHEET

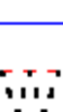
NAME _____

Trace or write a blue "w" in the water column each time someone's pointing finger (index finger next to thumb) lands on water on the globe. Trace or write a green "l" in the land column each time someone's pointing finger lands on land on the globe.



water

total times landed on water



land

total times landed on land

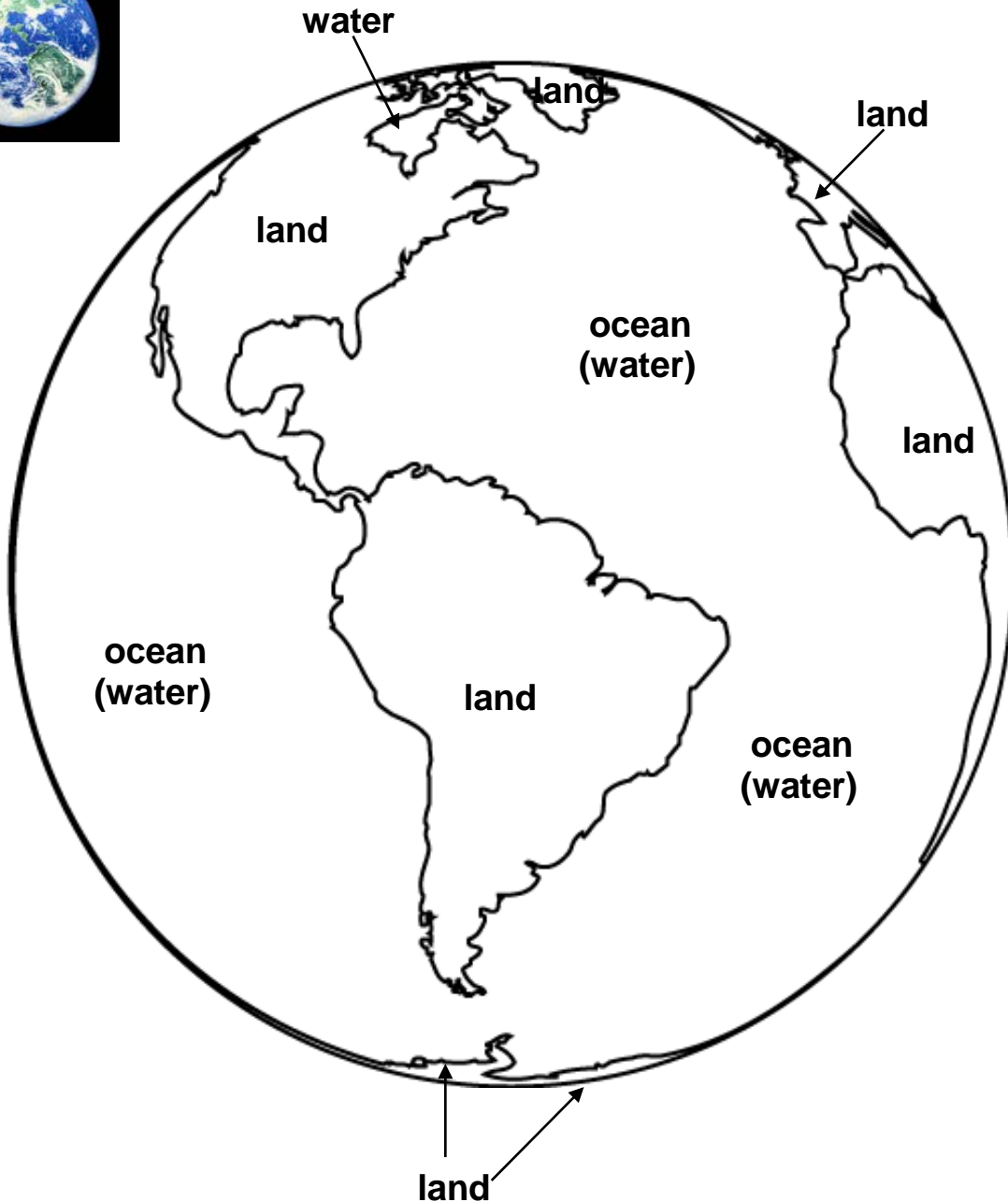




Globe Coloring Sheet

NAME _____

Color the land **green**. Color the ocean water **blue**.

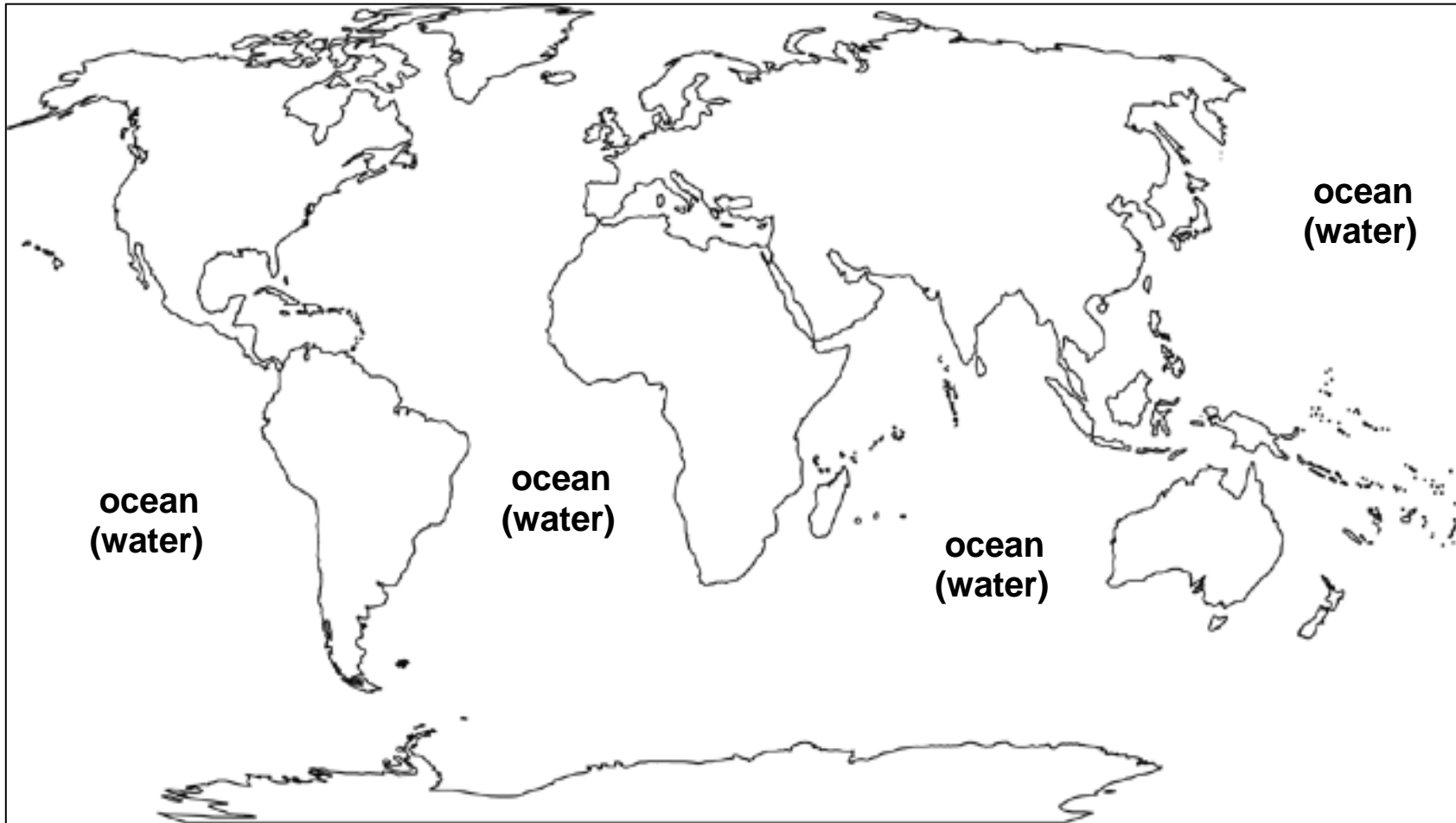


There is more water on the Earth than land.

WORLD MAP

NAME _____

When we make a flat picture (map) of the globe, it looks like this picture. Create a colorful world by coloring the water blue and coloring the land any other colors except blue.



There is more water on the Earth than land.

