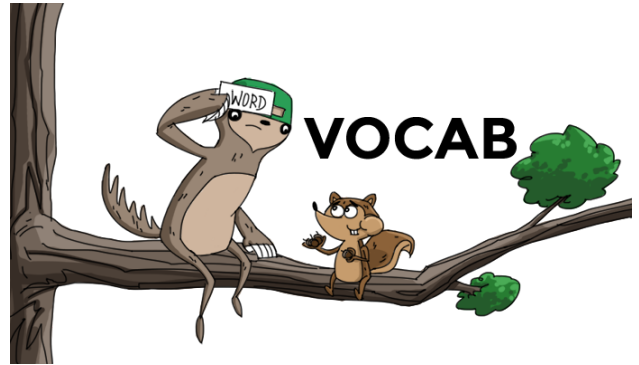




Sun-Earth System Lesson 1: The Solve Student Handout

I. Vocabulary Warm up

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**.
2. Write the definitions on the back of the cards. Then, match the vocabulary word with the correct picture on the Sun-Earth System Mind Map. When you're ready to glue, raise your hand so you can check your Mind Map with your teacher.
3. Fold along the dotted line on each vocabulary card to create a flap. Put glue **ONLY** on the hinge of your vocabulary cards (the word should be on top). **You should be able to open the flap to see the definition and the picture underneath.**
4. Discuss with your group:
 - a. What does the sun provide to Earth?
 - b. Do you think that the angle of sunlight is the same everywhere on Earth?
 - c. How do the poles differ from the equator?

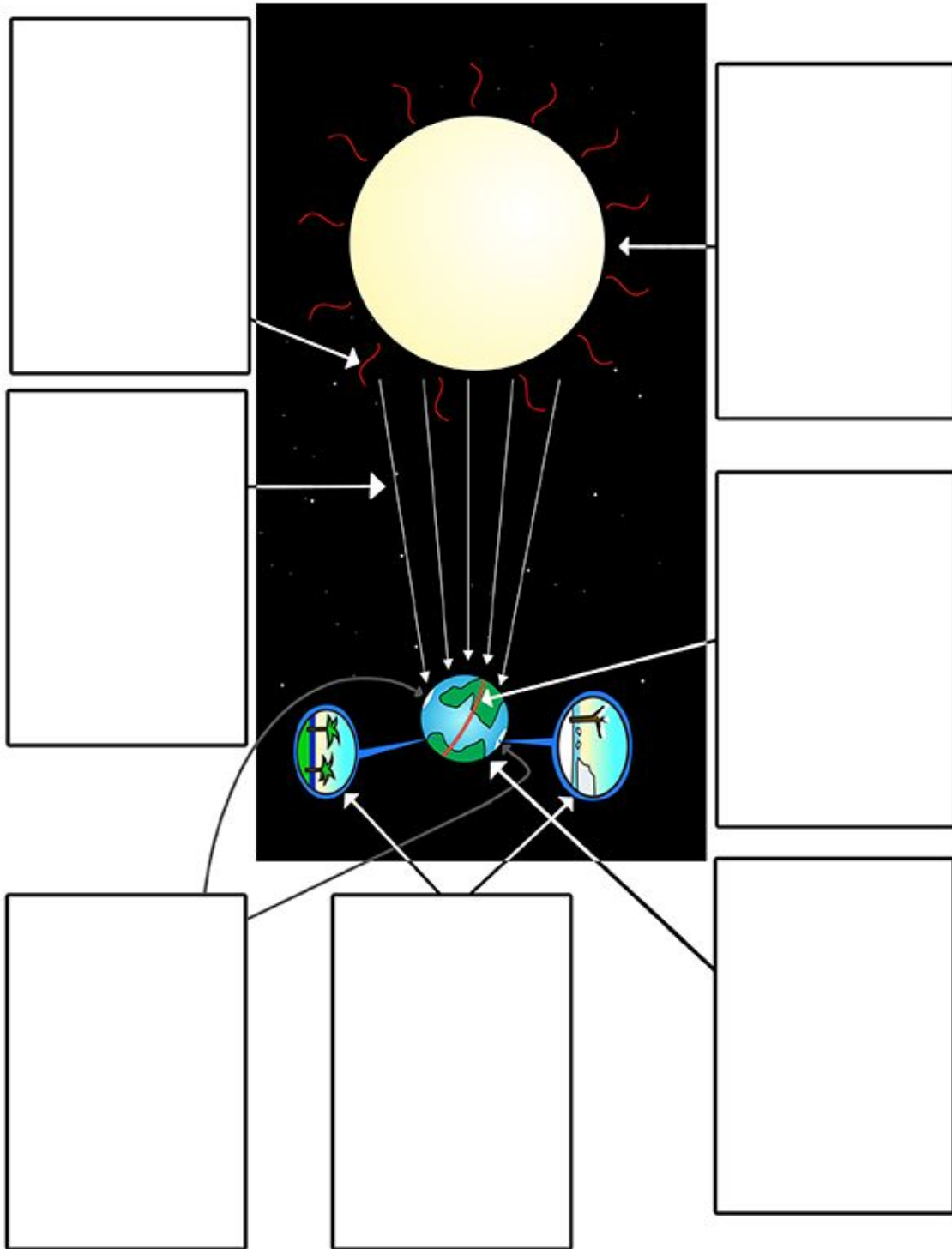




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Mind Map:





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Sun	Equator	Heat
Earth	Seasons	
Angle of Sunlight	Poles	

Vocabulary

- **Angle of Sunlight:** space, measured in degrees, between the surface of the earth and the rays of the sun
- **Earth:** the planet on which we live
- **Equator:** region of the earth equally distant from both poles
- **Heat:** high temperature
- **Poles:** either of the two points on Earth that are the northern and southern ends
- **Season:** time of year marked by particular weather patterns and daylight hours
- **Sun:** the star which provides warmth to Earth



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II. Read Mosa Mack's Comic Mystery

Either on your own, in a small group, or as a class (your teacher will let you know), read Mosa Mack's Comic Mystery on Sun-Earth System. Then, fill out the questions below. Include a page number in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Comic Mystery Questions

1. When Neve tells Mosa the earth is flat, what example does she use to prove to him that the earth is actually round?
2. Neve later believes that New Zealand's winter is caused by the sun circling to the other side of the earth? Why is this incorrect?
3. After watching Billy (the squirrel) spin the earth ball on his fingertip, Neve gets a new idea. What is Neve's new idea to explain why we have night and day?
4. What does Emma (the little girl) add to their theory about the orbits of the earth and the sun?



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5. Neve initially thinks that the varying distance between the Earth and Sun causes seasons. But Mosa knows this isn't right. How does she use her knowledge of the equator to prove Neve wrong?

6. Why is it warmer at the equator and colder at the poles?

7. Fill in the blanks with "more" or "few": In the summer there are ____ daylight hours at the poles. In the winter, there are _____ daylight hours at the poles.

8. What general rule does Emma (the little girl) come up with about the North and South?

9. What did Mosa figure out? Why do we have seasons? And if it is summer down in New Zealand, where can they go to find winter?



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III. Exit Ticket: Check for Understanding

Complete the exit ticket below, or you can take the quiz online!

Name: _____

Date: _____

1. Which of the following is evidence that the earth is round?
 - a. Neve's example with his magazine and apple
 - b. A ship slowly appears on the horizon as it approaches
 - c. Earth's oceans are very deep
 - d. Both a. and c.
2. The sun orbits around the earth. True or false?
 - a. True
 - b. False
3. As the earth orbits the sun, it gets closer to the sun at times. This is what causes summer. True or false?
 - a. True
 - b. False
4. How are the poles different from the equator?
 - a. The poles are colder than the equator
 - b. The sun hits the poles at an angle, while the sun hits the equator head-on
 - c. There is great variation in daytime and nighttime hours at the poles, which is not true for the equator
 - d. All of the above
5. The Northern and Southern Hemispheres always have opposite seasons. True or false?
 - a. True
 - b. False
6. What is the best explanation for seasons?
 - a. The sun orbits the earth
 - b. The earth spins once a day, creating day and night
 - c. The earth is tilted, causing incoming sunrays to hit the rounded surface of the earth at different angles in opposite hemispheres
 - d. The earth is farther away from the sun at times and closer at other times