

Sun/Earth Comparison Math Essay

Overview:

Students learn about the self-questioning process involved in writing a math essay by reading a sample math essay and identifying the transition words.

Objectives:

The student will:

- be introduced to the self-questioning process involved in writing a math essay;
- read a math essay; and
- identify transition words in a math essay.

Materials:

- Highlighters (one per student)
- STUDENT WORKSHEET: “Sun/Earth Comparison Math Essay”
- REVIEW SHEET: “A Sun/Earth Comparison”

Activity Procedure:

1. After studying the REVIEW SHEET: “A Sun/Earth Comparison,” distribute highlighters and the STUDENT WORKSHEET: “Sun/Earth Comparison Math Essay.”
2. Inform students that a self-questioning process can be used to explain how math problems are solved. Ask students to complete the self-questioning process portion of the worksheet (questions 1-5) and then to discuss the two important questions: What do I already know? and What was I asked to find?
3. Explain that when completing a math essay students must describe how they used what they already knew to find the answer. Transition words like first, second, and final can be helpful. Ask students to read the sample math essay and highlight the transition words.

Answers to Student Worksheet:

1. 100 cm
2. 1 cm
3. 1,393,000 km
4. 150,000,000 km
5. sun and Earth
6. The words first, second, and final should be highlighted.

A Sun/Earth Comparison

1. Fill in the blank: Most scientists agree that the diameter of our sun is _____ times larger than the diameter of Earth.

Find the Distance between Earth and Sun Models

2. To find the distance between clay Earth and paper sun models, use the following formulas:

A. Formula for Finding the Scale of the Diameter of the Paper Sun:

$$\frac{\text{_____ km/cm}}{\text{paper model sun scale}} = \frac{1,393,000 \text{ km}}{\text{diameter of the sun}} \div \frac{\text{_____ cm}}{\text{diameter of paper model sun}}$$

B. Formula for Finding the Distance between the Clay Earth and Paper Sun

$$\frac{\text{_____ cm}}{\text{distance between clay Earth and paper sun}} = \frac{150,000,000 \text{ km}}{\text{average distance between real sun and Earth}} \div \frac{\text{_____ km/cm}}{\text{paper model sun scale}}$$

C. Formula for Converting Centimeters into Meters

$$\frac{\text{_____ meters}}{\text{_____}} = \frac{\text{_____ cm}}{\text{distance between clay Earth and paper sun}} \div 100$$

Note: The complete “A Sun/Earth Comparison” activity can be found in Unit 3 of the *Aurora Alive* Introductory Teacher’s Manual.

Sun/Earth Comparison Math Essay

Directions: Words can be used to explain how math problems are solved. Use “A Sun/Earth Comparison” Review Sheet to complete questions 1-6 to learn one method for writing a math essay.

Question:

How did you find the distance between the sun and Earth models?

Answer:

What do I already know?

I know that:

1. My model sun is _____ cm in diameter.
2. My model Earth is _____ cm in diameter.
3. The true diameter of the sun is _____ km.
4. The average distance between the sun and Earth is _____ km.

What was I asked to find?

I was asked:

5. How I found the distance between the _____ and _____ models.

Sample Math Essay

6. In the Sample Math Essay below, highlight the transition words: first, second and final.

The first step was to divide the diameter of the sun by the diameter of my paper sun model. The second step was to take that number and divide it by the average distance between the real sun and Earth. The final step was to convert centimeters to meters.