

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
LAB # \_\_\_\_\_

## **EARTH'S SHAPE**

**INTRODUCTION:** Pictures of the Earth taken from space show that the Earth appears to be perfectly round and smooth. However, to us, the Earth appears to have a highly irregular surface. In addition, accurate measurements of the Earth's shape show that the equatorial diameter is slightly different from the polar diameter.

**OBJECTIVE:** After you complete this lab, you will better understand the true roundness of the Earth.

### **VOCABULARY:**

**model:**

**sphere:**

**oblate spheroid:**

### **PROCEDURE:**

The ratio of the polar diameter to the equatorial diameter of a sphere is a measure of its roundness. In a perfect sphere, dividing the polar diameter by the equatorial diameter would give a value of 1, since both diameters are equal. The farther from 1 the computed ratio is, the less spherical a globe is.

In this exercise, you will compare the roundness of a globe model of Earth to Earth's actual roundness.

1. Use the values given for the equatorial diameter of the Earth in the Data Chart on the Report Sheet to calculate the Earth's roundness ratio. Record this value on the Data Chart.
2. Measure the equatorial and polar diameters of the globe represented in the diagram. Record these measurements in the Data Chart on the Report Sheet.
3. Calculate the roundness ratio for the globe using the data from procedure 2. Record this value on the Report Sheet.

## REPORT SHEET

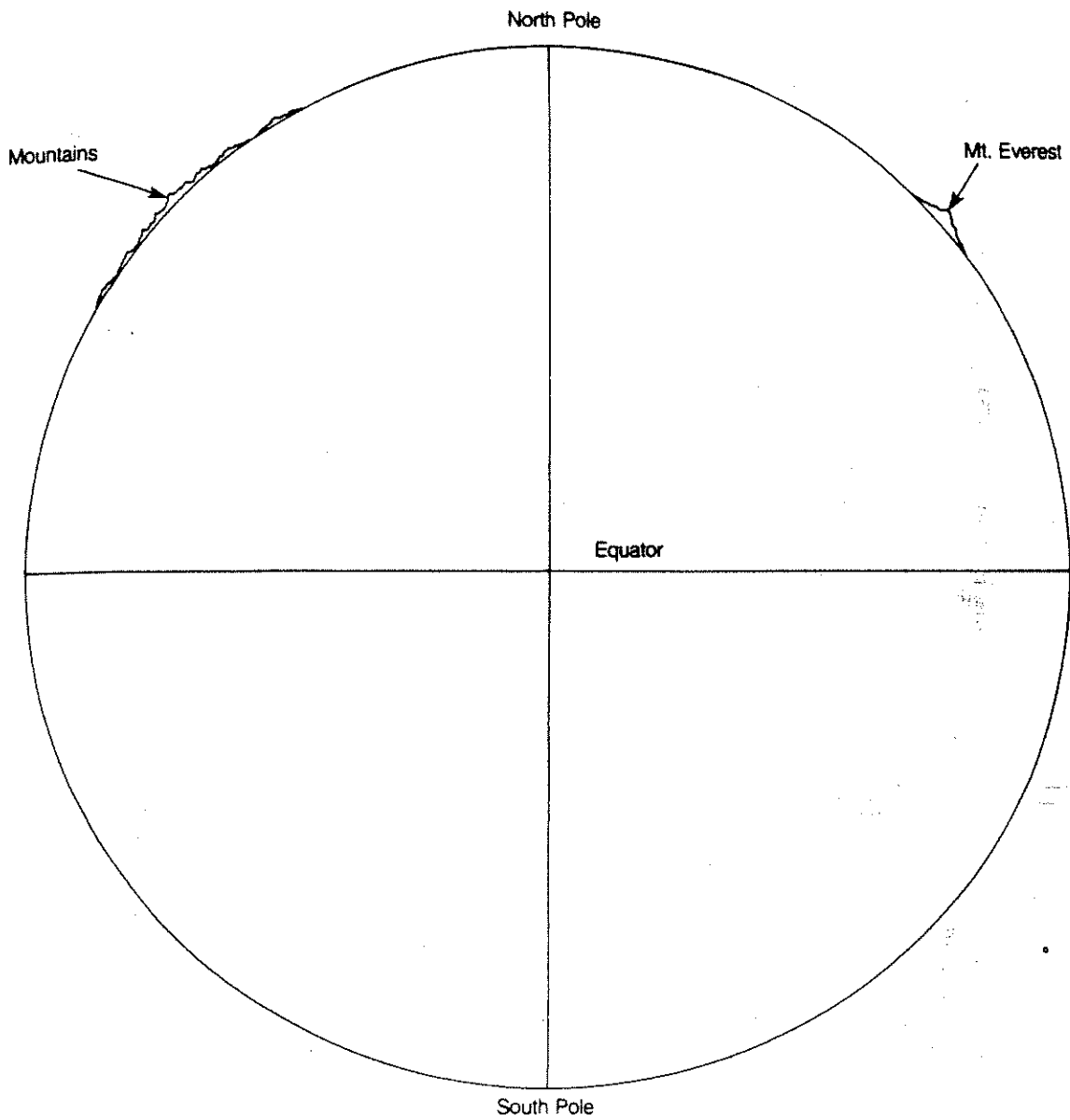
**POLAR  
DIAMETER**

**EQUATORIAL  
DIAMETER**

**ROUNDNESS  
RATIO**

<b>EARTH</b>	<b>12,714 KM</b>	<b>12,756 KM</b>	
<b>GLOBE</b>			

## **CLASSROOM GLOBE**



## DISCUSSION QUESTIONS

1. Using the roundness ratio you calculated, which is more nearly a perfect sphere, the Earth or the classroom globe? Why?
2. How does Earth's polar diameter compare with its equatorial diameter?
3. Is Earth a perfect sphere? How do your data confirm your answer?
4. As viewed from space, what does Earth's shape appear to be?
5. Where would you weigh more, at the north pole or at the equator? Why?
6. Which object best illustrates Earth's shape:  
A) An egg    B) a pear    C) a ping pong ball    d) a golf ball