



Atmosphere Mural



Objective: Students will discover the altitude extent of Earth's atmosphere, layers within atmosphere, temperature and air pressure changes, and common occurrences, both natural and man-made.

Materials:

- Blank sheet of paper,
- Meter stick/ruler,
- Colored pencils and a
- Textbook and notes

Procedure: Reference your Earth Science Textbook *Chapter 17 The Atmosphere: Structure and Temperature* to complete this assignment. *Cross out the numbers when you have completed each step.*

1. Obtain material for the project. Place your name and period on the back of your paper, near the top.
2. Turn paper over and position paper with long part vertically. In the middle at the top in bold letters give a **TITLE TO YOUR MASTERPIECE.**
3. At the bottom of the paper, draw a straight line across the paper, about one inch from the bottom, title this temperature (Celsius).
4. On the sides of your mural, create two vertical columns from top to the bottom line about 2 cm wide. Label one column **AIR PRESSURE** and the other **ALTITUDE**.
 - a. For the altitude column mark each cm to the top and label the heights above Earth's surface. The scale is **1cm = 4 km** in altitude.
 - b. For the air pressure column, use your notes or the book's diagram to label the air pressure at the beginning of each layer.
5. For the **LAYERS** use the altitude column to estimate and label 4 layers of atmosphere (troposphere, stratosphere, mesosphere, and thermosphere). Draw horizontal lines across the entire width of the paper. Label the layers of the atmosphere at each line.
6. For temperature, indicate whether or not the temperature is rising or falling within each layer, this will be a line that is drawn diagonally left or right in the mural indicating change with height. The temperature scale should be across the bottom from -100°C to 65°C (*hint: use figure 6 on page 480*). **Be sure to remember how temperature changes at the pauses.**
7. Draw, label and color all of the following objects at the proper altitude:
 - a. Mt. Everest: 8km tall
 - b. Airplane at the edge of the stratosphere
 - c. Rainbow in the troposphere (up to 18 km)
 - d. Meteors in the mesosphere
 - e. Aurora Borealis (Northern Lights) in the thermosphere
 - f. Space station in the thermosphere
 - g. Ozone layer in the stratosphere (10-50km)

Follow-up questions: Refer to pages 481-487 in Earth Science text. Use sentences to answer each question marked with an asterisk (*). *Do not start sentences with because.*

1. What variables are being graphed? What units are used to measure each?
2. *What is the coldest layer, include the temperature range in Celsius?*
3. *What the hottest layer, include the temperature range in Celsius?*
4. *Which layer contains the majority of air in the atmosphere?*
5. *Describe how temperature changes as altitude increases in the troposphere.*
6. *We have not talked a lot about why the temperature changes this way in the layers. Write out an explanation for why you think the temperature decreases and increases at different points in the atmosphere. Be very thorough in your explanation for each layer.*

Atmosphere Mural Grading		
Graded procedure	Points Received	Points Possible
Layers named		7
Altitude column		3
Temperature column		3
Air pressure column		3
Mural objects		7
Questions		10
Neatness/creativity		10
Total Points		50