

# The Ozone Layer- 5th grade

## NS 696 V: Weather and Climate for Educators

**Objective:** For students to understand the role, importance, and ways to conserve the ozone layer.

**Standards:**

Standard 1: Students understand the processes of scientific investigation and design, conduct, communicate about and evaluate such investigations

Standard 10: Earth and Space Science: Weather and Climate:  
Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space. Students know and understand the general characteristics of the atmosphere and fundamental processes of weather

Standard 13: Students know and understand interrelationships among science, technology, and human activity and how they can affect the world

**Materials:**

T.V./VCR or projector

Worksheet on Ozone layer

Water

Sand

3x3x3 clear plastic cubes with no lids

Overhead transparencies for each group

Scientific Method worksheet

Thermometers

**Lesson:**

1. Introduce terms to students: Ozone layer, conservation,
2. Watch United Streaming video on the Earth's Ozone layer to solidify understanding of the Ozone layer.
3. Introduce experiment. First, groups will gather needed materials for their group. In one cube, students will fill cube 1.5 inches with room temperature water that has been sitting overnight. This is so all water will be at the same temperature to

start with. Next, students will fill the other cube with sand 1.5 inches with sand that has been sitting overnight, so again all students will start with sand that is the same temperature.

4. Students will now fill out steps 1-4 on the district's scientific method worksheet for grades 5-8.
5. Students will take temperature of each cube and record it for a starting temperature.
6. Students will now take both cubes outside and place in direct sunlight. After ----- hour (hours determined by teacher) students will go out again and record temperature now. Temperature should be dramatically different.
7. Now, students will place overhead transparencies on top of cubes. Each group should have a different amount of transparencies to stack on top of their cubes. For example, group 1 may only have 1 transparency for their water cube and 1 for their sand cube. Group 2 may have 2 transparencies for their water cube and 2 for their sand cube, etc.
8. After ----- hours, (time to be determined by teacher) students should now record temperature of each cube. Students should notice that in most cases (depending on how many transparencies they have) the temperature cooled off.
9. When students are back in classroom, they can finish up their scientific method worksheet and be ready for discussion.
10. Have groups record their findings on the overhead or white board so all students can see each groups' findings. Explain to students how important the ozone layer is for keeping out harmful rays, cooling the earth so it doesn't get too hot, etc. Also explain to students comparatively how thick our ozone layer is to the number of transparencies (4). Students can now start to see what happens to the temperature of bodies of water (water cube) and the land (sand cube) if the ozone layer is depleted (lesser number of transparencies).
11. After discussion, have students read about the ozone layer, how humans are destroying it, and what we can do to conserve it, and fill out worksheet to demonstrate their learning and understanding of this topic. Also, have students discuss any additional experiments they would like to conduct about this topic.