



## Lesson 1: What is Ozone—Up High and Down Low?

Oklahoma Department of Environmental Quality

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**Grade Level: 5-12 | PASS Skill: Standard 4, (5:1c, 2)**

**Objectives:** Students will be able to recognize content-specific vocabulary and explain the differences between stratospheric ozone and ground-level ozone in the troposphere.

**Materials:** Vocabulary Crossword Puzzle (.pdf) \*includes answer key\*

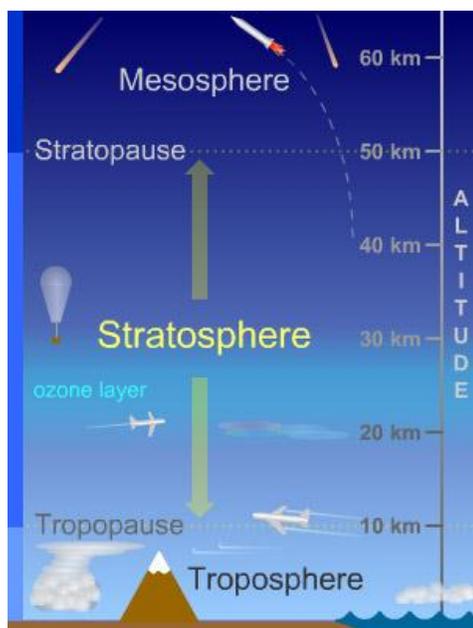
**Pre-requisite Knowledge:** An understanding of the layers in the Earth's atmosphere and the ability to identify the unique features of each is helpful, but not necessary.

**Activity:** Students will complete a vocabulary based crossword puzzle to develop understanding of the key terms associated with the workbook and lesson plans 1 – 6

**Notes to Teacher:** Content vocabulary can be displayed on a vocabulary word wall in the classroom and various other vocabulary development activities can be utilized in addition to the Vocabulary Crossword Puzzle.

**Additional Resources:** <http://www.epa.gov/oar/oaqps/gooduphigh/>

Ozone (O<sub>3</sub>) is a naturally occurring, colorless gas found in the upper and lower portions of the Earth's atmosphere. Depending on the level where it is present, ozone can be beneficial or harmful to living organisms.



### Good Ozone

The Earth's atmosphere is a mixture of gases that covers the planet; it is divided into distinctive layers, one of which contains an abundant amount of ozone.

The ozone layer, as it is called, is really a part of the stratosphere. Stratospheric ozone plays a protective role by absorbing harmful ultraviolet radiation from the sun.

### Bad Ozone

In the lower portion of Earth's atmosphere, ozone is a harmful pollutant that can irritate the lining of the lungs. Ground-level ozone may also accompany man-made pollutants to form smog, a brownish haze that contaminates the air and reduces visibility.

In the troposphere, ozone forms from the chemical reaction of gaseous pollutants. These gaseous pollutants are emitted from natural and man-made sources and require sunlight to chemically react.

