

Email jenny.frank@maricopa.gov to request a full Educator Guide that includes an answer key.

Background

Take a look around you. All that empty space is filled with something vital to your existence. Air! Clean air is as necessary for life as clean water, but students typically don't think about the invisible ocean of air that surrounds them. Neither do they think about harmful substances that are added to our air every day. Daily activities like turning on lights or driving a car create air pollution, which can be harmful to our health. Children are especially sensitive to the damaging effects of air pollution because their lungs are still developing. When children are active outdoors, they breathe faster and take in more air. If the air is polluted, they will take in more pollution as well.

Course Introduction

The purpose of this course is to educate students and their families about the importance of clean air, and to encourage them to take simple actions that will help improve local air quality so we can all live, work, and play in a healthy environment. This course was designed with the 5E model in mind and is organized into five modules that students can access online at CleanAirMakeMore.com. Students work independently from home as they complete each module. Use the sample schedule below as a pacing guide.

Sample Schedule

Day 1 Engage	Module 1 Take a Virtual Field Trip	Students attend a virtual field trip to Maricopa County's Air Monitoring Division Warehouse and learn how air pollution is defined and measured from experts in the field. Students will complete a guided note sheet to demonstrate learning.
Day 2 Explore	Module 2 Create a Pollution Collector, Part 1	Students explore air pollution through a simple hands-on lab. They create particle pollution collectors using paper and tape. The collectors are placed at various locations around their home.
Day 3 Explain	Module 2 Create a Pollution Collector, Part 2	Students will retrieve the particle pollution collectors, record, and analyze their data.
Day 4 Explain	Module 3 The Air You Breathe	Students will read "The Air You Breathe" article and complete a crossword puzzle to demonstrate their understanding of the content.
Day 5 Elaborate	Module 4 Research Local Pollution Sources	Students identify local air pollution sources in their communities using Google maps.
Day 6 Evaluate	Module 5 Apply Your Knowledge	Student learning is evaluated in Module 5 as students apply their knowledge to solve an air pollution mystery.

Learning Goal

- Students will understand that air pollution can be identified and measured. They will also understand that air pollution may vary by location and can negatively impact human health.

Arizona Academic Standards

Core Ideas for Knowing Science

E1: The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.

Core Ideas for Using Science

U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.

Science and Engineering Practices

- Asking questions and defining problems
- Constructing explanations and designing solutions

Crosscutting Concepts

- Cause and effect
- Systems and system models

Standards for Mathematical Practices (MP)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.

Social Studies Anchor Standard

G2: Human-environment interactions are essential aspects of human life in all societies.

ELA Anchor Standards

R.1 Read carefully to determine what the text says explicitly and to make logical inferences from it.

W.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

SL.1 Prepare for and participate in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

SL.4 Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.