

The purpose of this lesson is to allow students to demonstrate knowledge at the culmination of a unit of study about IAQ.

TOPIC(S)	✓	COMPOSITION OF AIR	✓	DEFINING THE INDOOR ENVIRONMENT
✓	EFFECTS OF INDOOR AIR POLLUTION ON OCCUPANTS	✓	SOURCES OF INDOOR AIR POLLUTION	✓
✓	IDENTIFYING INDOOR ENVIRONMENT POLLUTANTS	✓	SOLVING INDOOR ENVIRONMENT PROBLEMS (Preventing and Fixing)	MOVEMENT OF AIR Natural and mechanical airflow (HVAC) VOCABULARY

OBJECTIVE(S)

The students will be able write and deliver an effective speech in a large-group setting.

SCIENCE/HEALTH STANDARD CORRELATIONS

National Science Education Standards, Science Content Standards

6.1 Science as Inquiry

- Levels K-12: Abilities necessary to do scientific inquiry, Understanding about scientific inquiry

6.6 Science in Personal and Social Perspectives

- Levels K-4: Personal Health; Changes in environments
- Levels 5-8: Personal Health; Populations, resources, and environments, Natural hazards
- Levels 9-12: Personal and community health; Environmental quality; Natural and human-induced hazards

Mid-continent Research for Education and Learning (McREL), Science Standards

Earth and Space Sciences 1.1, 1.4, 1.5 and Physical Sciences 8.1, 8.3, 8.5

**See "Curriculum Connections" section for standards that apply to other content areas.*

SUGGESTED GRADE BAND

4-5, 6-8 science, 9-12 science

ESTIMATED TIME LENGTH

5 class periods

LESSON PROCEDURES

PREPARATION

Schedule the project. Students will need access to computers with presentation software. They will also need time to practice and critique speeches in small groups. Create and publish a list of assigned dates and class periods for speeches. Students should have this list a few weeks to get ready. Schedule no more than six speeches per forty-minute class period to allow for questions and set-up between speeches.

PHASE 1 - INTRODUCTION

Activate prior knowledge about persuasive speeches. During a class discussion, discuss how people make decisions based on what they see and hear. Explain that sometimes we have to use skills to convince others about our positions, sometimes called persuasive speeches. Have the students recall and list their own experiences trying to convince their friends about something, and then ask them to share these with the class.

PHASE 2 – DEVELOP A LIST OF CHARACTERISTICS

If possible, watch video tapes of highly effective persuasive speeches. Discuss elements of the speech (opening, key points, closing, length, factual support of topic, etc.) and delivery (body language, articulation, pronunciation, pitch, eye contact, hand gestures, etc.) As a class develop a rubric to evaluate the presentations.

PHASE 3 – DEVELOP PRESENTATIONS

Tell students that they will be making presentations to school board members to persuade them to create a policy for the school district that mandates that each school have an IAQ Team and IAQ Management Plan based off guidance found in the [EPA's IAQ Tools for Schools Action Kit](#) (see Materials section). Students will draft, exchange, revise, and type their proposals for the presentation. You will need several copies of the [EPA's IAQ Tools for Schools Action Kit](#) to assist students in developing their presentations. They will also need time to research IAQ for themselves using the Internet and print material. Keep a list of the characteristics developed during Phase 2 posted in the room. Give them several class periods to develop the presentations.

PHASE 4 – GIVE PRESENTATIONS

Follow the schedule for speakers as posted, adjusting for absences. Remind students about the characteristics of a good audience and a good listener. Remind them of the items on the rubric that relate to being a good audience. Have students make their presentations. Allow time for questions and answers after each speech.

MATERIALS

markers, chart paper, access to computers with Internet access and presentation software, several copies of the [EPA's IAQ Tools for Schools Action Kit](#).

**To order EPA's Indoor Air Quality Tools for Schools (IAQ TfS) Action Kit or any of the supplemental materials found in the Kit, contact IAQ INFO at 800-438-4318 or visit <http://www.epa.gov/iaq/schools/actionkit.html>.*

GROUPING

whole class, small group, independent

ASSESSMENT

Evaluate students for delivery and content of their presentation using the rubric.

MODIFICATIONS/EXTENSIONS

Send invitations to school board members and other key players (principals, counselors, parents, etc.) to hear the presentations. After the students give the presentations to their classmates have them vote on one or two presentations. Then schedule time at an upcoming school board meeting to deliver the presentations. Give students choices for their school board presentation topics. Include options such as, restoring the indoor habitat or what we can learn from our building, etc. Have students work in small groups and co-present.

Short on time? Since time is so precious, if you are not able to implement this entire lesson, try these activities:

- Give students time (in small groups) to explore the [EPA's IAQ Tools for Schools Action Kit](#)
- Have students make a list of the benefits to utilizing the kit as a school
- Have students use this list to design a mock presentation for school board members

CURRICULUM CONNECTIONS

Reading and Language Arts, [International Reading Association and National Council of Teachers of English Standards, Standards for the English Language Arts](#)

- 4: Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes
- 6: Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and nonprint texts
- 7: Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and nonprint texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience
- 8: Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge
- 12: Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information)

Social Studies, [Center for Civic Education, National Standards for Civics and Government](#)

- Content Standard K-12, V: What are the Roles of the Citizen in American Democracy? /What are important responsibilities of Americans?

Health, American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), National Health Education Standards

- Health Education Standard 1, Grades PK-12: Students will comprehend concepts related to health promotion and disease prevention

Technology, International Society for Technology in Education (ISTE), National Educational Technology Standards Project (NETS)

- Performance Indicators K-2
 - 8: Create developmentally appropriate multimedia products with support from teachers, family members, or student partners. (3)
 - 9: Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. (3, 4, 5, 6)
- Performance Indicators 3-5
 - 5: Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3)
 - 6: Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)
 - 7: Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5)
 - 8: Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6)
 - 9: Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)
- Performance Indicators 6-8
 - 4: Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. (3, 5)
 - 5: Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. (3, 6)
 - 6: Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. (4, 5, 6)
 - 7: Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. (4, 5)
 - 8: Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. (5, 6)
 - 10: Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. (2, 5, 6)
- Performance Indicators (9-12)
 - 5: Use technology tools and resources for managing and communicating

personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). (3, 4)

6: Evaluate technology-based options, including distance and distributed education, for lifelong learning. (5)

7: Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity. (4, 5, 6)

8: Select and apply technology tools for research, information analysis, problem solving, and decision making in content learning. (4, 5)

9: Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. (3, 5, 6)

10: Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. (4, 5, 6)

Math, National Council of Teachers of Mathematics, Math Standards

- Data Analysis and Probability
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer

RESOURCES

- [EPA's IAQ Tools for Schools Action Kit](#) (3rd Edition)