OBJECTIVES:
Students will:

1. Apply the methods of scientific inquiry to conduct a research study about the media environment and career interests of their peers.

2. Design survey questions, gather survey data, analyze and interpret the results.
   - Formulate questions that can be addressed through a survey.
   - Select and use appropriate statistical methods to analyze data.
   - Select and use appropriate graphical representations of data.
   - Propose and evaluate possible relationships between two characteristics of the sample.
   - Consider and propose alternate interpretations of the results.

3. Conduct a simple content analysis of the media materials identified through their survey.

4. Communicate effectively to an audience and defend the results of their research.

5. Compare similarities and differences in the media environment of their peers in different parts of the country.

6. Use spreadsheets, graphing software, presentation software and the Internet to support research and communicate results.

7. Demonstrate knowledge of current career opportunities in information technology.

8. Recognize that men and women of different ethnic backgrounds engage in activities involving science, engineering, and technology.

9. Recognize and evaluate stereotypical messages portrayed in the media about the role of men and women of different ethnic backgrounds in information technology.
PROCEDURES

Introduce the research project
Introduce the overall unit as a collaborative research project: “We are researchers studying the media environment of middle school students.

What do we mean by media?
[books, TV, radio, movies, magazines, newspapers, the Internet] Media are ways to communicate information. The information may be text, it may be pictures, it may be sounds, or any combination. We are particularly interested in the influence of the media on young people’s ideas about technology.

What do we mean by technology?
Technology can be lots of things, but we are most interested in information technology [computers, printers, scanners, cameras, camcorders, Walkmans, DVD players, MP3 players, video game stations, modems, etc.] We are also interested in learning about middle school students’ career interests. We are one of 12 middle school classrooms nationwide working together on this research project about media, information technology, and careers. Each classroom will survey other middle school students in grades 6, 7, or 8 and we will share our results with each other via the Web.”

Make hypotheses
If appropriate to your curriculum, describe the research project as a type of scientific inquiry. Researchers are scientists. “What is the scientific method? What are the questions that we want to answer? What are our hypotheses? How will we collect data to answer our questions? How will we analyze the data?”

MATERIALS

- Computers with spreadsheet software, PowerPoint, and Internet access (Inspiration software optional)
- Copies of Student Media Survey
- Spreadsheet template for data entry
- Copies of Magazine Coding Form
- Recent issues of students’ favorite magazines, as identified by the survey
- Copies of Parental Consent Form
- Pencils
- VCR and videotapes of students’ favorite movies (optional)
- Career database template (optional)
- Three issues of each of the Top Ten boys and girls magazines (optional)
- Student rubrics and other assessment forms (optional)
PROCEDURES

**Develop new questions**
Have students read and critique the questions in their groups of four. Are these good questions for middle school students? What makes a “good” question? Note that there are different types of questions: some are “yes, no, maybe” questions; some ask how often; and some have lines for students to write their own answers.

**Ask students to discuss in groups additional questions that they would like to add.**
“ There are already 25 questions on the survey, but I want to add 5 more. What else would you like to know related to the media, information technology, and careers?”

Here are examples of questions that students suggested:

1. What are your 3 favorite songs and artists?
2. What are your 3 favorite websites?
3. What are your 3 favorite video games?
4. When you get home from school, which do you do first: watch television or do your homework?

One person in each group can be the recorder and responsible for writing down the questions. After several questions have been developed, ask each group to discuss the questions and select the best question to write on the board or overhead projector. Evaluate the questions as a class:

- Are they appropriate to the topic?
- Are they worded clearly and succinctly?
- Are they consistent in format to the other questions on the survey?
- What other ways could we word the question?

The groups then revise their questions based on the feedback from their classmates and from you, the teacher. When you approve the questions (no more than 5), they become part of your classroom’s survey.

Once your questions have been submitted, you will have access to view the questions developed by the other participating classrooms.

**Pilot the new questions (optional)**
Explain that survey researchers usually pilot, or try out, their surveys with a small group before distributing them to the entire sample. The purpose of the pilot is to find out if the questions are clear, easy for respondents to understand, and not ambiguous. Then revisions can be made before distributing the survey.

In this case, the basic set of 25 questions has already been piloted. If you decide to pilot the new questions, choose about 4-6 middle school students who will not be respondents for the final survey. Then have your students discuss if any revisions are needed in the questions they wrote.
PROcedures

Obtain parental consent
Ask students who will be participating in this project to take home the Consent Form to inform parents about the project and obtain permission for their students to participate.

Administer the survey
Students distribute the survey to other students in the school. We suggest sixth graders survey other sixth graders, seventh graders survey other seventh graders, and eighth graders survey other eighth graders, but feel free to adapt this plan to your situation.

In some schools, students may decide that they want to survey all students in grades 6-8, but of course that will add considerably to the time you need to devote to data entry and analysis.

Students can be divided into groups of 2-4 to visit the other classrooms, explain the purpose of the survey, distribute copies, answer questions that arise, and collect the surveys when they are finished.

Discuss with the students in advance their roles in the group (such as . . . .). Discuss how long the survey should take (15-20 minutes) and the questions they may encounter (e.g. “If I don’t know the answer, is it OK to leave a question blank?” or “What’s the difference between a movie and a video?”) Of course, one team of students can administer the survey in your own classroom first as a model for the other teams.

Data analysis
When all the surveys are completed, use a marker to number them. This number becomes the ID number of the respondent. The order of the surveys doesn’t matter, but this ID number will assist students in keeping track of the completed surveys during the analysis phase.

Divide students into groups of 2-4 and assign each group a task. The tasks include:

1. Download the spreadsheet template from the project Web site and modify it to include the additional questions that you added to the survey.

2. Enter data into the spreadsheet template for the questions that have multiple choice or “yes, no, maybe” answers. One student in the group can be the typist, one the reader, and one the proofreader and they can rotate roles. Several groups can work on this task, each group doing a different set of questions. Be careful to enter the data on the row in the spreadsheet that corresponds to the respondent’s ID number.

3. For the questions that have written answers, assign 2-4 students to analyze each question. Discuss with the class the questions they want to answer and the most efficient strategy. For example, what are the Top Ten books for 7th grade boys? For 7th grade girls? What percentage of 7th grade boys/girls didn’t answer the question about a favorite book? One strategy is to divide the survey forms into groups by gender and grade. For each group, count the frequency of each response and make a tally chart. Then determine the Top Ten list for girls and the Top Ten list for boys. Ask the students what they would do next to find the Top Ten books for all 7th graders.

We encourage students to interview students outside of their class, rather than interview each other. However, if they are only able to work within their class group, it is acceptable.
PROCEDURES

Data analysis
Each student group is responsible for the analysis of one or two questions. The group must produce:

• The Top Ten list for boys, for girls, altogether
• Charts that represent the findings visually
• Frequency table by gender (by grade level? by ethnicity?)
• Tally charts
• Percentages

Content analysis
Students do a content analysis of images in current issues of the Top Ten boys’ magazines and Top Ten girls’ magazines as identified from their survey. Download the Magazine Coding Form from the project Web site and make copies for students.

Collect three recent issues of each of the Top Ten magazines from the school’s media center, local public library, or from contributions that the students bring from home (or if necessary, purchase recent issues from a newsstand).

Working in pairs or small groups, students page through an issue of a magazine looking for images of people and technology in articles and ads.

They tally on the coding form what kind of technology is shown (e.g. household appliances, hand and power tools, beauty accessories, cars and motorcycles, phones and entertainment, computers, scientific equipment, etc). They will also code whether the people are white males, white females, males of color, or females of color.

Students analyze the coding forms by tallying across all three issues of each magazine. Then they look for patterns based on race, gender, and technologies portrayed for the Top Ten boys’ magazines and Top Ten girls’ magazines.

Report the findings
The students prepare PowerPoint presentations reporting their findings. Before going to the computer, they can plan their slides using 4x6 index cards. The presentations must state the question(s), answer the question(s) based on the survey findings, and include appropriate graphs and tables to represent the findings visually. The students present these results orally to their peers in the school who participated in the survey. Consider inviting parents, the principal, students in other grades, and the local media to the presentations, too.

Research careers related to technology
Students are given a list of careers related to computers, engineering, and information technology. Each student chooses one career and finds information about it on the Web (a list of suggested URLs is available on the project Web site), in the Department of Labor Occupational Outlook Handbook, and in books about technology careers (see suggested readings below). After researching the career, the student writes a report in which he or she “creates” a typical person who might have this career. In this report the student provides the following:

• A physical description of the person, including gender, size, and basic appearance
• An explanation of what the person’s job duties are
• The education the person needed to get into this career
• The skills this person is required to have for this career
• A list of the resources the student used in researching the report (a list of Web sites and books, etc.)
ADAPTATIONS

For the content analysis, an alternative is to use two issues of each magazine that are three or four months apart to see more variety in the advertisements and to see if there is change over time.

If students who participated in the survey are not able to attend the oral presentations, the student researchers can prepare a concise written report with charts to report the results to them.

DISCUSSION QUESTIONS

- Are there differences between the way girls are presented in the media and how boys are presented? Are there differences in how girls and boys are presented in relation to technology? Are there differences in how girls and boys are presented in relation to computers and computer use?

- How are minority groups presented in the media? How are minority groups presented in relation to the use of computers and other technologies?

- What are the differences between the way boys spend their time with media and the way girls spend their time? Do boys and girls read and watch different things? What do they read and watch?

- What are the messages in the media most watched and read by boys? What are the messages in the media most watched and read by girls? What sort of activities are encouraged by the media read and watched by boys? What sort of activities are encouraged by the media read and watched by girls?

- Overall, who appears to be more influenced by the media – boys or girls? What evidence supports your statement?

- Why did these books and movies make our Top Ten list? Are these books heavily advertised?

- If a student leaves blank the question about his or her favorite books, what might be the reasons? How can we interpret a blank response?

- For this research project, what is the population? What is our sample? Why
EXTENSIONS

Compare your school’s results with the results of the project’s participating schools. Cumulative results can be found in the downloadable Final Report and individual school data can be accessed at the Middle School page on the web site.

Discuss with the class as a group what questions you have that can be answered by comparing the two sets of data. Assign one question to each group of 3-4 students. Give them a copy of the data and ask them to determine how to analyze the data to answer the question. Each group will prepare one PowerPoint slide to share their findings with the rest of the class.

Conduct a content analysis of students’ favorite movies or videos as a whole group activity. Select a 10-minute clip from 5 favorite videos. After showing a video clip through one time, show it again and ask students to consider the portrayal of gender and racial stereotypes and the media messages about information technology.

Conduct a content analysis of the Web sites that students reported using to research career information.

Correlate this project with a science unit on classification and technology. What is technology?

Name things that you think represent technology. How would you classify these different types of technology into categories (e.g. household appliances, hand and power tools, beauty accessories, cars and motorcycles, computers, phones and entertainment, office equipment, scientific equipment, construction equipment, robots, etc)? What do the things in each category have in common? What is information technology? Use Inspiration software to record students’ contributions during the class discussion.

EVALUATION

Assessment activities may include student self assessment, peer assessment, and teacher assessment. For example:

- Reflective writing activity at the conclusion of the unit. Students write a paragraph about their experience as a researcher and a learner: What did you learn? Why was it important? What was the most interesting part to you? What would you do differently? Did you use your time wisely?

- Rubric (5 levels) to describe how well the group worked together. Every student does an individual rating for everyone in the group, including him/herself. Then average the ratings that are given for each person.

- Rubric (3 levels) to assess the PowerPoint slides and oral presentations (knowledge of content, visual communication skills, oral communications skills)

- Peer assessment of PowerPoint slides by two “critical friends” prior to presentation.

- Teachers’ observation of students’ participation and performance. For example, can students apply the skills of data analysis in a real-world project? Can students follow step-by-step directions? Can students use software tools to accomplish specific tasks?
EVALUATION (continued)

- Teachers’ observation of students’ contributions to cooperative group work.

- Concept maps by students (by hand or using Inspiration software) showing “What is technology?”

SUGGESTED READINGS

For students


For teachers


For more resources, see the Getting the Media Message web site:

Bibliography
www.csm.ohiou.edu/mediamessage/bibliography.htm

Web Links
www.csm.ohiou.edu/mediamessage/related.htm
VOCABULARY

**Coding:** In content analysis, the process of quantitatively categorizing types of people, images, words, objects, and so forth appearing in written or electronic communication.

**Content Analysis:** A systematic counting of how often particular kinds of images, people, words, objects, and so forth appear in written or electronic forms of communication.

**Data:** Factual information, such as measurements or statistics, used in mathematical and scientific calculation.

**Ethnicity:** Reference to races or large groups of people classed according to common traits and customs.

**Frequency:** The number of times a particular answer occurs in response to a single question.

**Gender:** Sex, as in male and female.

**Hypothesis:** A preliminary assumption, the validity of which is tested by scientific or empirical study.

**Image:** A visual representation of reality presented in written or electronic communication.

**Information Technology:** Skills, knowledge, tools, and objects used to gather, store, analyze, and exchange information electronically.

**Item:** A single piece of information obtained from a single question in a survey.

**Media:** Channels of communication; a publication, broadcast, or other means of delivering information, news, or entertainment to readers, viewers, listeners, or computer users.

**Pilot:** Prior to conducting a survey or other research project, a test of questions to be used to insure that they are understandable, unbiased, unambiguous, and answerable.

**Population:** A group of individual persons, objects, or items from which samples are taken for statistical measurement.

**Random Sample:** A sample selected from a population in such a way that every element in the population has an equal chance of being included in the sample.

**Role:** A socially expected pattern of behavior usually determined by an individual’s status in society; for example, society often expects men and women to behave in socially predetermined ways.

**Sample:** A representative part of a statistical population that is studied to gain information about the entire population.

**Stereotype:** A standardized, often prejudicial, mental picture that is held in common about a group and often represents oversimplification.
VOCABULARY (continued)

Survey: A set of questions used to obtain statistically useful or personal information and opinions from individuals.

Tally: A method of counting using hatch marks.

Technology: Skills, knowledge, tools, and objects used to provide comfort and support to humans and their environment.

Variable: A single item in a survey that may have any one of a set of possible answers, such as the variable “gender” may have the answer of either “male” or female.”

ACADEMIC STANDARDS:

Grade Level: 6-8

Science Standards:
- Students identify questions that can be answered through scientific investigations.
- Students design and conduct a scientific investigation.
- Students use appropriate tools and techniques to gather, analyze, and interpret data.
- Students recognize and analyze alternative explanations and predictions.
- Students communicate scientific procedures and explanations.
- Students recognize that women and men of social and ethnic backgrounds engage in the activities of science, engineering, and related fields.
- Students recognize that science requires different abilities.
- Students recognize that it is normal for scientists to differ with one another about the interpretation of the evidence or theory being considered.

Mathematics Standards:
- Students pose questions and collect, organize, and represent data to answer those questions.
- Students interpret data using methods of exploratory data analysis.
- Students develop and evaluate inferences, predictions, and arguments that are based on data.
- Students develop a disposition to formulate, represent, abstract, and generalize in situations within and outside mathematics.
- Students express mathematical ideas coherently and clearly to peers, teachers, and others.

Social Studies Standards:
- Students examine and describe the influence of culture on scientific and technological choices and advancement.
ACADEMIC STANDARDS:

Social Studies Standards: (continued)

• Students explain and give examples of how language, literature, the arts, architecture, other artifacts, traditions, beliefs, values, and behaviors contribute to the development and transmission of culture.

• Students describe the ways family, gender, ethnicity, nationality, and institutional affiliations contribute to personal identity.

• Students identify and interpret examples of stereotyping, conformity, and altruism.

• Students work independently and cooperatively to accomplish goals.

English Language Arts Standards:

• 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 to communicate their discoveries in ways that suit their purpose and audience.

• Students use a variety of technological and information resources to gather and synthesize information and to create and communicate knowledge.

• Students use spoken, written, and visual language to accomplish their own purposes.

Technology Standards:

• Students use technology tools to process data and report results.

• Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.

• Students use technology to locate, evaluate, and collect information from a variety of sources.