Ohio Standards Connection

Technology

Technology and Society Interaction

Benchmark C
Describe and demonstrate how technology has had an influence on our world.

Indicator 1
Describe or list ways technology has changed the way people lived and worked throughout history (e.g., grandparents’ era to today)

Designed World

Benchmark C
Develop an understanding of the goals of bio-related technologies.

Indicator 1
Know that vaccinations protect people from getting certain diseases.

Lesson Summary:
Students will become aware of how technology has changed the way people lived and worked throughout history. They will draw on personal observations and the life experiences of people they know to learn about the daily tasks performed and types of technology used by men, women and children today and in the past. Student research efforts will use this oral history, as well as visual, print and electronic sources, to collect information about each decade studied. They will sort, classify and organize their findings in a variety of ways using appropriate graphs and charts.

This lesson integrates technology, social studies and mathematics and is designed for the elementary school classroom. It can be taught individually by the classroom teacher or in collaboration with the science or technology specialist and media specialist.

Estimated Duration:
Ten, 30-minute class periods. Additional time may be needed for independent student work and homework.

Commentary:
This study of the history of technology is focused on people students may know who are familiar with local historical events or on the content in children's literature and history books. The time period studied may be the student’s own, their older siblings’ or teenagers they or their siblings know. If the records are available, students could study about the founding of their town or the pioneers and American Indians who inhabited the area prior to its establishment as a town.

Pre-Assessment:
The pre-assessment includes class discussion and teacher observation. The completion of the worksheets can be done using class time and in each student’s conversation with family members at home. In the pre-assessment activity, students list or identify a variety of things or tasks they do daily and the technology used in those tasks. Student
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Social Studies

History

Benchmark C
Compare daily life in the past and present demonstrating an understanding that basic human needs remain the same, they are met in different ways in different times and places.

Indicator 5
Compare past and present, near and far, with emphasis on daily life including:
  a. The roles of men, women and children;
  b. The identification of basic human needs;
  c. Various ways people meet human needs

Social Studies Skills and Methods

Benchmark A
Obtain information from oral, visual, print and electronic sources.

Indicator 1
Obtain information about a topic using a variety of oral and visual resources.

responses in words and or pictures are entered on the T-chart, Attachment A, Pre-Assessment: Things I Do; Technology I Use. The emphasis is on students’ ability to identify how technology is applied or used in their daily lives and to organize what they identify into meaningful categories. Students will use Attachment B, Technology I Use Now Organizer to complete this organizational step.

Class discussion and poster charts can be used to report and summarize student observations about the uses of technology in their daily lives. The discussion and charts can be used when looking at the technology information organized into graphs to illustrate the technology in selected categories.

Scoring Guide:
Use Attachment B, Pre-Assessment and Post-Assessment Rubric.

Post-Assessment:
Give students several copies of the homework assignment sheet Attachment C, Survey T-Chart. Students question other persons about the kinds and uses of technology available when they were children and compare them to what is used now.

Have students determine which technology topics they want to collect information about. Information can be reported in words or pictures.

Scoring Guidelines:
See Attachment D, Pre-Assessment and Post-Assessment Rubric.

Instructional Procedures:
Day One
1. Explain to students that technology helps us in many ways in our daily lives. Discuss with students the idea that technology is anything that people have made to help us live, work and play.
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Mathematics

Data Analysis and Probability

Benchmark B
Sort and classify objects by attributes, and organize data into categories in a simple table or chart.

Indicator 4
Read and interpret charts, picture graphs and bar graphs as sources of information to identify main ideas, draw conclusions, and make predictions.

Indicator 7
Answer questions about the number of objects represented in a picture graph, bar graph or table graph; e.g., category with most, how many more in a category compared to another, how many altogether in two categories.

2. Have students identify the variety of technology devices or tools in the classroom or visible from classroom windows.

3. Ask students if they can group the examples of technology they identify based on patterns, types or uses.

4. Begin pre-assessment by having each student complete the “Things I Do” column of Attachment A, Pre-Assessment: Things I Do; Technology I Use. Next have students list in the “Technology I Use” column the types of technology devices and tools that match their list of “Things I Do.”

5. Prepare students to take their chart home to review it with family members and make additions to it.

6. Explain to students they will use the results of their homework to begin a study of how technology changes over time.

7. Discuss how this homework may involve an older brother, sister or other teen, a parent, grandparent or other elderly person. Also discuss the option of collecting information about their town history, pioneers or American Indians.

Day Two

8. Have students show and discuss the information they included on their lists of “Things I Do” and “Technology I Use.”

9. Help students use the Attachment B, Technology I Use Now Organizer, to sort their examples of technology according to its different categories.

10. Engage in class discussion about major changes in technology over time.

11. Show a video of a story about pioneer life. Ask students if the video itself is technology. Review the definition of technology.

12. Have students compare watching a video about pioneer life to reading a book about pioneer life. Some student comments might be: videos can give us a lot of information; videos allow us to see and hear; videos make things more clear than just reading books; books can be taken anywhere; special equipment is not needed when reading a book during the day or books often have pictures to help visualize the topic.
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13. The library may have some additional reference materials of pioneer life or recordings with pioneer songs and stories. Point out the advancements of technology. Have the School Library media Specialist (SLMS) share the Audio/Video section of the library with the students.

14. Review the discussion from Day One about technology in the past. Ask questions like:
   - How did the pioneers heat their homes in the winter?
   - What technology did they have for travel?
   - What technology did they have for light?
   - What technology did they have for getting water?

Day Three

15. Expand technology use to include a discussion about the technology that was available to their older friends and family members when they were in the first grade.

16. Show students several pictures of devices such as a car or telephone from different years and ask the students which group of people listed below would have used or seen the devices like that when they were in first grade:
   - Older brother, sister, teen
   - Parents
   - Grandparents, elderly persons
   - Great grandparents

17. Make a time line on the board. This activity may help students make a clearer comparison between technology “then” and “now.” Begin by describing how pioneers could only talk directly to each other, grandparents had the no dial and rotary dial phones, parents had the push button and cordless phones and now, we have cell phones and Internet video conferencing. Pictures of the different styles of phones could be placed on the time line.

Day Four

18. Use classroom and school library media resources to research the history of technology. Ask the School Library Media Specialist (SLMS) to suggest books and make them available for students to check out from the library to view or read on their own. Ask the SLMS to share information during story time, to guide students to an understanding of fiction versus non-fiction and to explain, how books are arranged in the library. Introduce Attachment E, Ohio Research Model Skills, (Grades K-2).

19. Students may conduct additional technology research that relies on archival photos, documents and artifacts, local historians and references in books and children’s literature. Use the Ohio Historical Society Web site for pictures (www.ohiohistory.org/).

Day Five

20. Introduce the concept that new, better and more efficient things are created every day. For example, each year automobiles receive technological improvements. New sports shoes are designed. Video games change with each version. Students will have suggestions of new technology such as toys, games, clothes and food. Ask them if the
new products were better than the previous ones. Students may decide the older version of a product was better. Orient students to Attachment F, *History of Technology Survey.*

21. Remind students that today doctors have better equipment to help us stay well. New medicine is created to help us feel better. Invite a school nurse or community health professional to talk to students about vaccinations and medical examinations students receive before entering school.

22. Help students plan questions to use when they interview family members and older friends about their memories of childhood illnesses. Encourage students to find out if those illnesses can be prevented today.

**Instructional Tip:**
Be aware that this issue may breach privacy concerns with some families. If concerned, focus on pets or a celebrity who has disclosed information.

**Day Six**
23. Ask students to share their information from their family interviews or childhood diseases.

24. Provide students with history of technology survey forms for their homework assignment.

25. Go over with students what kind of information they will collect on Attachment F, *History of Technology Survey.*

26. Have students interview others about the types of technology and use during the time they were children. Ask students to select one source for which they will obtain their information.

**Instructional Tip:**
This can be adapted to include school staff and visitors, or have students determine the interview groups they will collect information from.

**Day Seven**
27. Ask students to share the results of their interviews. Start with the responses from the oldest source group and progress to the future.

28. Use this information to complete the “Technology Used Then” side of Attachment C, *Survey T-Charts.* For example, cell phones could be in the “Technology Used Now” column across from push button phones or cordless phones that may appear in the “Technology Used Then” column.

29. Discuss the differences between the two columns. For example, the cell phone is carried on your person and you can stay in touch with others at any time. The traditional telephone was stationary. People used pay phones if they were away from their home phone or if they had no home phone. People could not stay in touch as often as they can today. Complete the chart for each item from the homework sheet.

30. Select one of the technology categories that contain a substantial amount of information collected by students across the different age ranges of people surveyed. The objective is to help students visualize how one form of technology has changes or develops over time. Make a timeline on the board.
31. Have students sort the information and make graphs to illustrate their findings.Attachment G, *My Technology Graph*, can be used as provided or adapted. Based on the success students have collecting history of technology information, the charts and graphs can be developed using individual student or total class data. There is great variety to the topics and types of graphs that can be prepared by students. This variety creates choices that support students’ interests and students’ need for practice. Some of these choices are:

- **Topics for reporting technology observed or used:**
  - Technology boys used then
  - Technology girls used then
  - Technology both boys and girls used then
  - Technology not available then

- **Places where technology is observed or used:**
  - At home
  - At play, entertainment
  - At school
  - At work
  - In transportation
  - In health, medical services

- **Persons of different ages providing information about technology:**
  - Each student
  - Older brother, sister, or teen
  - Parents
  - Grandparents, elderly persons
  - Town history
  - Pioneers or American Indians

32. Begin analyzing survey findings by sorting information into appropriate categories. Provide direction in determining the different types of data sorts to be done.

33. Present to the class different types of graphs they could use based on their survey data and initial sorting.

34. Show students how to make and read a graph.

- Begin by making a large graph on the floor.
- Use masking tape to make a horizontal line on the classroom floor.
- By looking at the students’ shoes, print the colors of their shoes on five by seven index cards, such as brown, black, blue or white.
- Place the color cards below the line (the X-axis) at even intervals.
- Prepare a set of five by seven index cards with each students name on a card.
- Ask students to place their name card above the correct color card on the line. For example, all name cards of students with brown shoes will be in one vertical column above brown color card.
- Show students how to begin.
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- Allow all students to stand or walk around the graph and look at it. Ask students to count the name cards that represent the number of black shoes, the number of brown shoes and so on.
- Ask students to compare one column of shoes with another. Ask how many more, how many less, how many in total if two columns of colors are combined.
- Discuss how the graph is a way to show how many shoes there are of each color. The same information can be re-sorted with the boys and girls making different graphs of boys only and girls only information.
- Point out when the cards are stacked one on top of the other they form a single column or bar. In this way, the pictograph of shoe color cards becomes a bar graph.

**Instructional Tip:**
If students need more graphing practice, make a picture graph on the overhead projector. Use the colors of transparent bingo chips to represent different technologies. Make a horizontal line on a blank transparency (X-axis). Label the line with names of technology topics. Have students place their chips on the overhead in the correct column. Like the shoe activity, ask students to count the chips by color and make comparisons.

**Day Eight**
35. Design and help students prepare their technology graphs.
36. Students can use pictures, words, symbols or stickers to represent the types and amounts of different technologies collected during their research. Students’ graph designs focus on their ability to sort and classify objects by attributes and organize data into categories in a simple table or chart. As a result students should be able to:
- Read and interpret charts, picture graphs and bar graphs as sources of information to identify main ideas, draw conclusions and make predictions.
- Answer questions about the number of objects represented in a picture graph, bar graph or table graph.

**Day Nine**
37. Show, present and discuss each student’s developed “My Technology Graph.”
38. Engage class in discussion of what are some of the common ideas or results they see in the graphs developed by class members.
- Describe and demonstrate how technology has had an influence on our world.
- Describe or list the ways technology has changed the way people live and work.
- Compare daily life in the past and to the present with emphasis on the roles of men, women and children and how technology continues to meet people’s needs.

**Day Ten**
40. Display and discuss new graphs.
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41. Review with the class the types of information and experiences outlined during a comparison of technology past and present.
42. Have students complete Attachment C, Survey T-Chart.

Instructional Tips:
• Distribute copies of Attachment B, Technology I Use Now Organizer. Students will keep track of the items they have by making their own personal picture graph.
• Picture graphs are part of the mathematics standards for first grade. Mathematics graphing lessons could be taught when the pictographs are introduced.

Differentiated Instructional Support:
Instruction is differentiated according to learner needs, to help all learners either meet the intent of the specified indicator(s) or, if the indicator is already met, to advance beyond the specified indicator(s).
• Have students work in pairs. This will give students a chance to discover together and discuss their findings. Students can help each other and learn from each other.
• The T-charts allow all students to contribute. The teacher assesses student progress by noting student participation and contribution to the discussion. Students with limited reading and writing skills will have the opportunity to share their knowledge verbally.
• Students who have limited skills in coloring, cutting and pasting may find it easy to just peel a sticker and place it on their chart when they have added an item to their graph.
• If students have a difficult time understanding the picture graph, try the following as an intervention step.
  o Make the first graph by having each student place one of his or her shoes in the proper color column. Then demonstrate how the actual objects counted on the floor can be represented symbolically. To do this, give students a picture of a shoe to color. Have them color the paper shoe to match their own shoe color, and then cut it out.
  o Draw a horizontal line on a chalk board or a chart. Label the line with the same shoe colors featured in the lesson. Have students go up to the board or chart and attach their shoe drawing to the correct place on the picture graph.
  o Show that the picture graph is the same as the one on the floor but, instead of actual shoes, there is a picture that represents the real shoe. One picture represents one shoe.
  o Give students time to compare the graphs and make sure they understand that one picture represents one shoe.
• Challenge students to present the information obtained to their class or other classes in the school.

Homework and/or Home Connections:
Have parents discuss how their roles have changed from their own parents and the role that inventions and innovations have played.
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Materials and Resources:
The inclusion of a specific resource in any lesson formulated by the Ohio Department of Education should not be interpreted as an endorsement of that particular resource, or any of its contents, by the Ohio Department of Education. The Ohio Department of Education does not endorse any particular resource. The Web addresses listed are for a given site’s main page; therefore, it may be necessary to search within that site to find the specific information required for a given lesson. Please note that information published on the Internet changes over time; therefore, the links provided may no longer contain the specific information related to a given lesson. Teachers are advised to preview all sites before using them with students.

Note: Some Web sites contain material that is protected by copyright. Teachers should ensure that any use of material from the Web does not infringe upon the content owner's copyright.

INFOhio electronic databases, Elementary Resources for pictures:
- www.infohio.org
- www.ohiohistory.org
  look at: Ohio Pix, Ohio Memory, Ohio History Channel

For the teacher:    Index cards, magazines, scissors, local history picture files

For the student:    Copies of worksheets, access to library resources

The Instructional Management System (IMS) offers a valuable pool of standards-based resources. Listed below are lessons that can support Technology ACS implementation.

Consider the following related lessons also available in ODE’s Instructional Management System site:
- “The Basics” (Kindergarten)
- “What was it like back then?” (First grade)

Vocabulary:
- bar graph
- communication
- picture graph or pictograph
- pioneer
- technology
- transportation
- vaccination
Library Connections:
In 2003, the State Board of Education and the Ohio Department of Education established library guidelines that represent a standards-based education approach to school library programs. Entitled Academic Content Standards K-12 Guidelines Library, Ohio’s library guidelines provide a variety of content-specific, grade-level indicators describing information literacy, literacy linked to library-based technologies, and media literacy experiences for students. Featured on pages 204-219 are sample activities for making library connections across academic content standards and disciplines. Also included are grade-band models for student research and specific information concerning copyright and fair use of materials laws. K-12 teachers are encouraged to utilize the library guidelines and collaborate with the school library media specialist whenever possible. Ohio’s library guidelines can be found under the heading of Library at www.ode.state.oh.us, keyword search Library.

Information Literacy
Benchmark C
Understand that library books and materials are housed in specific areas of the library media center.
Indicator 1
Know that books are placed in order on the bookshelves.
Indicator 2
Know that some books are true and others are make-believe (e.g., nonfiction and fiction).
Indicator 3
Use the library catalog to find books, with teacher or librarian assistance.

Media Literacy
Benchmark A
Explore the intended effect of media communications and messages when delivered and received for personal and various other purposes.
Indicator 1
Ask and answer questions about why people communicate through media (e.g., recognize the reason for the message).

Library books about technology can be provided by the School Library Media Specialist (SLMS). The SLMS is a good resource for information for age appropriate media. This may also be an opportunity to further discuss fiction versus non-fiction. SLMS can act as an intervention specialist for struggling or gifted students.

The city or county office may also have a lending library as part of their educational services. There may be videos, books, or other media that can be borrowed for use in a classroom.
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**Attachments:**
Attachment A, *Pre-Assessment: Things I Do; Technology I Use*
Attachment B, *Technology I Use Now Organizer*
Attachment C, *Survey T Chart*
Attachment D, *Pre-Assessment and Post-Assessment Scoring Guide*
Attachment E, *Ohio Research Model Skills (Grades K – 2)*
Attachment F, *History of Technology Survey*
Attachment G, *My Technology Graph*
Attachment H, *Sample Survey T-Charts*
Attachment A
Pre-Assessment: Things I Do; Technology I Use

Using words or pictures, show a list of...  

<table>
<thead>
<tr>
<th>Things I Do</th>
<th>Technology I Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Technology I Use Now Organizer

### Technology at Home

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>

### Technology at Play or in Entertainment

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>

### Technology at School

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
</table>
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Attachment B
Technology I Use Now Organizer, Continued

Technology at Work

Technology in Transportation

Technology in Health, Medical Services
**Now and Then – Grade One**  
Interdisciplinary Lesson

**Attachment C**  
Survey T Chart

<table>
<thead>
<tr>
<th>Older Brother, Sister or Teen</th>
<th>Town History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Pioneers or American Indians</td>
</tr>
<tr>
<td>Grandparents, Elderly Persons</td>
<td></td>
</tr>
</tbody>
</table>

Using words or pictures, show a list of . . .

<table>
<thead>
<tr>
<th>Technology Used Now</th>
<th>Technology Used Then</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Now and Then – Grade One
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### Attachment D

**Pre-Assessment and Post-Assessment Scoring Guide**

<table>
<thead>
<tr>
<th></th>
<th>Distinguished</th>
<th>Proficient</th>
<th>Improving</th>
<th>Lacking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition of technology</strong></td>
<td>Gives a definition of technology and identifies examples that indicates understanding of concept</td>
<td>Definition of technology may not be clear, but identifies examples that indicates understanding of concept</td>
<td>Cannot define technology, but named at least one way technology has changed the way we live</td>
<td>Cannot define technology, and even with teacher prompting, has difficulty describing how technology has changed</td>
</tr>
<tr>
<td><strong>Life past and present</strong></td>
<td>Gives accurate information about technology in life now and then</td>
<td>Gives accurate information about technology in life now and then, with a little prompting from the teacher</td>
<td>Gives mostly accurate information about technology in life now and then, with some prompting from the teacher</td>
<td>Gives little information about technology in life now and then, even with some prompting from the teacher</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>Completes technology research using a variety of oral, visual, print and electronic sources</td>
<td>Completes technology research using several oral, visual, print and electronic sources</td>
<td>Completes technology research using at least one form of oral, visual, print and electronic sources</td>
<td>Cannot complete technology research using a variety of oral, visual, print and electronic sources</td>
</tr>
<tr>
<td><strong>Technology Graph</strong></td>
<td>Completes a technology graph based on complex sorting of data and can fully explain it</td>
<td>Completes a technology graph and could answer most of the question the teacher asked about the graph and data sorted</td>
<td>Cannot fully explain technology graph, but did accurately sort information under proper headings</td>
<td>Cannot complete technology graph and survey data not sorted accurately</td>
</tr>
</tbody>
</table>
Understanding Information: Talk about the difference between factual information and fiction (e.g., what is real and what is pretend or make-believe).

Decide: Decide what information is needed (e.g., brainstorm needs by deciding what you already know, what you need to know, and what you want to learn).

Find: Find information about the topic by using library materials.

Use: Use the information and communicate findings orally, visually or in writing.

Check: Check work by discussing the process used to find the information.

Adapted from Ohio K-12 Library Guidelines, 2004 pg. 197
Source: Office of Curriculum and Instruction. Ohio K-12 Library Guidelines Columbus, OH: Ohio Department of Education; 2004
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Attachment F
History of Technology Survey

Our class is learning about technology. Students are learning about the technology today and the technology available when their parents and grandparents were young. Your student will ask about technology available when you where a child. Please discuss the changes with him/her so they can bring information to share with the class.

☐ Older Brother, Sister, or Teen
☐ Parents
☐ Grandparents, elderly persons
☐ Town History
☐ Pioneers or American Indians

Note: Examples of earlier technologies can be identified in words or pictures.

Technology at Home

Technology at Play or in Entertainment
Attachment F
History of Technology Survey, Continued

Technology at School

Technology at Work

Technology in Transportation
Name ______________________________________________________________

My Technology Graph

Categories or Topics

Numbers
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Attachment H
Sample Survey T-Charts

- Older Brother, Sister or Teen
- Parents
- Grandparents, Elderly Persons
- Town History
- Pioneers or American Indians

Using words or pictures, show a list of technology used by...

<table>
<thead>
<tr>
<th>Boys in the Past</th>
<th>Girls in the Past</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Now and Then – Grade One  
Interdisciplinary Lesson  

Attachment H  
Sample Survey T Charts, Continued  

- Older Brother, Sister or Teen  
- Parents  
- Grandparents, Elderly Persons  
- Town History  
- Pioneers or American Indians  

Using words or pictures, show a list of technology used by. . .

<table>
<thead>
<tr>
<th>Both Boys and Girls in the Past</th>
<th>No One Because It was Not Available in the Past</th>
</tr>
</thead>
</table>