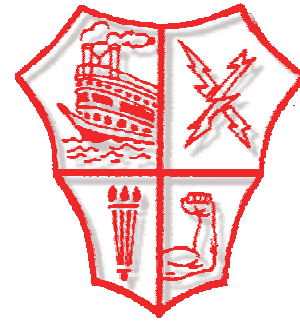


# OHIO ACADEMIC CONTENT STANDARDS TECHNOLOGY STANDARDS

Adopted from the Ohio Department of Education



## Grade 4

*New Richmond Exempted Village School District*

### Grade 4

Academic Correlation

#### Standard 1 ~ Nature of Technology

**Benchmark A: Compare and discuss the characteristics of technology in our community.**

1. Describe how the processing of things found in nature result in human-made artifacts (e.g., furniture may be made from lumber, which comes from trees).
2. Demonstrate how tools, materials and skills are used to perform tasks (e.g., pencil sharpeners, computers and cell phones are used to communicate).
3. Describe ways creative thinking, economic and cultural influences shape technological development (e.g., Wright Brothers, powered flight, air commerce).
4. Cite examples where the use of technology in daily life has advantages and disadvantages.

**Benchmark B: Identify, describe and discuss the core concepts of technology.**

1. Select and use tools to design, make, and modify technology.
2. Classify materials by property.
3. Cite examples of how tools and machines extend human capabilities (e.g., automobiles are more efficient than walking great distances).
4. Describe how technologies are, or can be, combined (e.g., a computer-controlled surgical laser scalpel represents the combination of physical, information and bio-related technology).

4-SCI-PS -3

**Benchmark C: Compare and discuss the relationships among technologies, and the connections between technology and other fields of study.**

1. Discuss some of the relationships that exist between technology and other fields of study.

## Standard 2 ~ Technology and Society Interaction

### Benchmark A: Define responsible citizenship relative to technology.

1. Explore and compare common uses of technology in daily life, and the advantages and disadvantages those uses provide.

2. Discuss basic issues related to responsible use of technology and information, and describe personal consequences of inappropriate use.

3. Describe why it is important for everyone to have access to information sources and information technology.

### Benchmark B: Investigate and explain the interrelationships between technology and the environment.

1. Describe how appropriate management of resources and waste can prevent harm to the environment.

### Benchmark C: Explain and demonstrate the influence of technology throughout history.

1. Describe the advantages that resulted from people making and using tools.

2. Explain the role of Ohio's inventors, such as Thomas Edison and the Wright Brothers, in the social and economic development of society.

3-Sci-H-6

### Benchmark D: Practice responsible use of technology, understand school district guidelines for technology use, and explore technology ownership.

1. Practice respect for intellectual property rights (e.g., another student's ideas and acknowledge all contributions to group work).

2. Discuss technology ownership rights, including the concept that the creator of the technology may be the owner, and that users must purchase the right to use the technology.

3. Discuss policies presented in the district Acceptable Usage Policy (AUP) and understand that the AUP describes the rules for using school-based technology.

### Benchmark E: Identify development patterns and examine the influence of technology on the world.

1. Classify collected information in order to identify technology development patterns.

2. Investigate and assess the influence of a specific technology on families and the community.

3. Develop rules for evaluating the trade-offs when selecting or using a product or system.

## Standard 3 ~ Technology for Productivity Applications

### Benchmark A: Understand computer and multimedia technology concepts and communicate using the correct terminology.

1. Learn and use new technology terminology based on the computer and multimedia technology resources being used.

2. Define technological terms as discovered.

### Benchmark B: Use appropriate tools and technology resources to complete tasks and solve problems.

1. Explain how input and output devices operate and interact with computers and multimedia technology resources.

2. Demonstrate ability to login and use basic network services.

3. Discuss different software programs and what they do.

4. Collect/create digital images and sounds related to a particular topic.	4-LA-WP-16
5. Discuss image formats (JPG, GIF, tiff).	
6. Save, transport and access stored information from portable devices (e.g., zip, universal serial bus (USB) devices, memory sticks).	
7. Demonstrate how technology productivity tools can be used to help understand data.	
8. Demonstrate appropriate keyboarding skills.	
<b>Benchmark C: Use productivity tools to produce creative works and prepare publications.</b>	
1. Use productivity tools and peripherals to increase skills and facilitate learning throughout the curriculum.	
2. Use technology resources for collaborating and brainstorming ideas (e.g., using concept-mapping programs in groups).	4-LA-WP-4
3. Use media and technology resources for presenting information (e.g., projectors, video cameras).	4-LA-WP-16
<b>Standard 4 ~ Technology and Communication Applications</b>	
<b>Benchmark A: Identify the concepts and operations of communication systems.</b>	
1. Collect and evaluate examples of good design (contrast, size, arrangement) in print and electronic media.	
2. Investigate online learning environments (e.g., online courses, distance learning, video-conferencing and productions).	
3. Contribute to real-time classroom telecommunication sessions.	
<b>Benchmark B: Develop, publish and present information in print and digital formats.</b>	
1. Organize presentations by using storyboarding techniques.	4-LA-WP-4
2. Construct information by using a variety of software applications.	4-LA-WP-16
3. Edit digital images (e.g., crop, enhance brightness/contrast, adjust color, resize).	
4. Generate document that includes graphics from more than one source (e.g., find images that match assignment needs and insert them into a document).	
5. Develop a slide show using graphics, text and audio from more than one source (e.g., create a presentation about Ohio government with text, pictures and music or narration).	
6. Present information in a class video project.	
7. Identify the proper structure and components of e-mail: a. address structure; b. signature line; c. body of message; d. subject line.	
8. Use e-mail to share information.	
<b>Benchmark C: Use telecommunications to participate in group online collaborative interactive projects and activities.</b>	
1. Compose, send, receive and reply to e-mail.	

2. Present and receive information in teacher/student directed online learning/video-conferencing activities (e.g., government agencies, historical society or museum).	
<b>Standard 5 ~ Technology and Information Literacy</b>	
<b>Benchmark A: Describe types of information: facts, opinions, primary/secondary sources; and formats of information: number, text, sound, visual, multimedia. Use information for a purpose.</b>	
1. Collect information (organized data and facts) and data (raw facts and figures) and identify answers to questions(e.g., locate data in a newspaper article, identify information on a sign).	4-LA-R-2
2. Discuss and define the difference between fact and opinion (e.g., the cafeteria served pizza today (fact), the pizza was good (opinion).	4-LA-RA-7
3. Identify ways information can be presented (e.g., text, visual information on a map, information displayed in pictures or as graphics).	
4. Use primary source material to describe a person, place, thing or event (e.g., oral history, diary entries, photos, video files, etc.).	4-SS-Methods-3
<b>Benchmark B: Use technology to find information, applying a research process to decide what information is needed, find sources, use information and check work.</b>	
1. Determine questions to be answered by research.	4-SS-Methods-8
2. Identify search terms for identified questions: author, title, subject, keyword.	
3. Select needed information from a defined group of resources: library catalog, online encyclopedia, children's Internet directory (subject list of Web sites).	4-SS-Methods-1
4. Record and organize information gathered from selected resources to generate a product.	
5. Construct a list of the sources used in creating the project: author, title of source, and date.	
6. Evaluate the product to determine if the research questions were answered.	
<b>Benchmark C: Use the Internet to find, use and evaluate information.</b>	
1. Label Internet browser elements and explain their function (e.g., toolbar and buttons, favorites/bookmarks, history).	
2. Choose a search engine or directory specifically designed for students to locate information on the Internet.	
3. Type a simple search term in the search engine or directory to find facts and answer questions.	
4. Read the list of results from the search engine or directory to locate potential Web sites relevant to the search topic.	
5. Choose a Web site and examine the information for facts.	
6. Identify information on the Web site: a. Author; b. Title; c. Date produced; d. Special features (images, puzzles, activities); e. Available products, services, or resources.	

<b>Benchmark D: Identify access and use electronic resources from both free and fee-based Internet sources.</b>	
1. Demonstrate use of online fee-based (subscription or pay per use) electronic resources (e.g., state and/or district provided resources such as magazine databases, encyclopedias, dictionaries, etc.).	
2. Use a subscription resource or database (fee-based or pay-for-use) to locate information for a curricular need (e.g., select the subscription resource based on the curricular need).	
<b>Standard 6 ~ Design</b>	
<b>Benchmark A: Describe and apply a design process to solve a problem.</b>	
1. Apply the design process to purposefully solve a problem (e.g., how to improve recycling at school and home).	4-Sci-ST-3
2. Generate solutions for solving a problem using the design process, using information collected about everyday technological problems.	
3. Make sketches and paper models to visualize possible solutions to a technological problem.	
4. Survey potential users to evaluate a solution to a technical problem (e.g., survey other students about which type of model plane they like).	
5. Recognize where changes to a solution are needed to meet the requirements.	
6. Identify Ohio inventors and designers who contributed to the development of each of the technology systems.	4-Sci-H-6
<b>Benchmark B: Describe how engineers and designers define a problem, creatively solve it and evaluate the solution.</b>	
1. Describe how models are used to communicate and test design ideas and processes (e.g., model truss designs are tested for weight loads).	
2. Describe the structural needs to be met when designing an object (e.g., in designing a bridge, the maximum weight to be supported must be decided).	
3. Identify different types of engineers (e.g., manufacturing, architects, automotive).	
4. Describe how models are used to communicate and test design ideas and processes (e.g., car models, building models, human model cardiopulmonary resuscitation (CPR) trainer).	
<b>Benchmark C: Understand the role of troubleshooting in problem-solving.</b>	
1. Identify different types of engineers and the types of problems they troubleshoot (e.g., manufacturing—part the wrong size, architects—lack of structural support, automotive—exhaust pollution).	
2. Apply the process of experimentation to solve a technological problem (e.g., test which glue works best for a given material).	
3. Describe how scientific principles can be used in solving technological problems (e.g., will a stain look the same on different species of wood?).	4-Sci-SI-1-6

## Standard 7 ~ Designed World

### Benchmark A: Develop an understanding of how physical technologies enhance our lives.

1. Describe how energy is converted to produce light, heat and motion in machines and products.	
2. Describe how different devices consume different amounts of energy.	
3. Understand that transportation systems may lose efficiency or fail if one part is missing or malfunctioning, or if a subsystem is not working.	
4. Discuss how modes of transportation have changed over the years in Ohio.	Social Studies
5. Explore, physically or virtually, manufacturing facilities and describe how products are designed, resources gathered, and tools used to separate, form and combine materials in order to produce products.	
6. Identify types of manufacturing done in Ohio (e.g., pottery, steel, glass, automobiles).	Social Studies
7. Describe ways in which structures need to be maintained (e.g., floors waxed, walls painted, roofs replaced, drains cleaned).	

### Benchmark B: Recognize appropriate modes of technical communication across technological systems.

1. Describe how information can be acquired and sent through a variety of technological sources, including print and electronic media.	
2. Use letters, characters, icons, symbols and signs to represent ideas, quantities, elements and operations.	

### Benchmark C: Develop an understanding of how bio-related technologies improve our lives.

1. Describe technological advances that have made it possible to create new devices, repair or replace certain parts of the body, and provide a means for mobility.	
2. Identify agricultural waste and ways that it can be recycled or safely processed.	
3. Describe how and explain why food is processed.	
4. List foods grown or produced in Ohio.	Social Studies
5. Identify machinery used in the production of Ohio agricultural products.	Social Studies