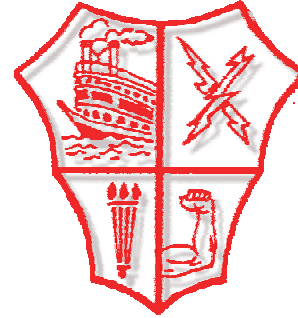


# OHIO ACADEMIC CONTENT STANDARDS TECHNOLOGY STANDARDS

Adopted from the Ohio Department of Education



## Grade 6

*New Richmond Exempted Village School District*

### Grade 6

Academic Correlation

#### Standard 1 ~ Nature of Technology

**Benchmark A: Analyze information relative to the characteristics of technology and apply in a practical setting.**

1. Recognize that there are multiple factors associated with developing products and systems.
2. Suggest alternative technological solutions for everyday problems that occur in the school or classroom.
3. Follow procedures for identifying and solving system and equipment problems that may occur.

**Benchmark B: Apply the core concepts of technology in a practical setting.**

1. Describe the relationship among input, process, output and feedback as components of a system.
2. Define requirements as the parameters placed on the development of a product or system.
3. Recognize that controls are mechanisms or particular steps that people perform when using information about the system that causes systems to change.

**Benchmark C: Analyze the relationships among technologies and explore the connections between technology and other fields of study.**

1. Identify technological systems that interrelate (e.g., the engine and transmission of an automobile).
2. Understand that products, systems and environments that have been developed for one setting may be applied to another setting.
3. Recognize that knowledge from other fields of study impacts the development of technological systems and products.

6-Sci-ST-4

## Standard 2 ~ Technology and Society Interaction

### Benchmark A: Analyze technologically responsible citizenship.

1. Describe how the use of technology affects humans in various ways, including their safety, comfort, choices and attitudes about technology's development and use. 6-Sci-ST-1, 6-Sci-ST-2, 6-SS-G-3

2. Discuss how new technologies have resulted from the demands, values and interests of individuals, businesses, industries, and societies. 6-Sci-ST-3

### Benchmark B: Describe and explain the impact of technology on the environment.

1. Describe and give examples of why and how the management of waste produced by technological systems is an important societal issue. 6-Sci-ST-2

2. Explain how technologies can be used to repair damage caused by natural disasters. 6-Sci-ST-2

### Benchmark C: Describe how design and invention have influenced technology throughout history.

1. Describe how some inventions have evolved by using a deliberate and methodical process of tests and refinements.

2. Describe how in the past an invention or innovation was not always developed with the knowledge of science.

### Benchmark D: Articulate intellectual property issues related to technology and demonstrate appropriate, ethical, and legal use of technology.

1. Understand the concept of intellectual property (e.g., author's ownership of work). LA-6-R-7

2. Compare key concepts of intellectual property including: ownership of technology, copyright, patent, trademark, trade name, and discuss consequences of violating others intellectual property rights.

3. Distinguish original work from work that is plagiarized.

4. Follow policies presented in the district Acceptable Usage Policy (AUP) and discuss consequences of inappropriate use of technology.

### Benchmark E: Assess impact of products and systems.

1. Employ the use of measuring instruments to collect data. 6-Sci-SI-2

2. Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology. 6-M-DAP-1, 6-M-DAP-6

## Standard 3 ~ Technology for Productivity Applications

### Benchmark A: Demonstrate an understanding of concepts underlying hardware, software and connectivity.

1. Use vocabulary related to computer and multimedia technology systems (e.g., network, local area network (LAN), wide area network (WAN), wireless, connectivity).

2. Describe how computers connect to the Internet (e.g., what is the information super highway/World WideWeb, how can you connect to it?).

### Benchmark B: Select appropriate technology resources to solve problems and support learning.

1. Explain how the various computer components interact and the purpose and different functions of software programs.

2. Demonstrate proper keyboarding techniques, assess keyboarding accuracy and develop speed.

3. Present independent research findings in a multimedia format. 6-LA-R-8, 6-LA-COV-8

4. Investigate technology tools used to organize and represent data collected in problem situations.	6-M-PFA-8, 6-Sci-SI-2, 6-LA-RPCP-5
<b>Benchmark C: Use productivity tools to produce creative works, to prepare publications and to construct technology-enhanced models.</b>	
1. Use content-specific tools, software and simulations to support learning and research (e.g., thermometers, graphing calculators).	6-Sci-SI-2, 6-M-PFA-8, 6-LA-AV-8
2. Apply technology resources to create an educational project (e.g., gather information from a CD-ROM encyclopedia).	6-LA-R-8, 6-LA-WP-10, 6-LA-WP-17, 6-Sci-ST-5
<b>Standard 4 ~ Technology and Communication Applications</b>	
<b>Benchmark A: Communicate information technologically and incorporate principles of design into the creation of messages and communication products.</b>	
1. Explain that information is communicated for specific purposes.	6-LA-COV-3, 6-LA-WP-4, 6-LA-RAIT-7
2. Define principles of design used to create print, multimedia and Web communications or products (e.g., color, contrast, repetition, alignment, proximity).	6-LA-WP-17
3. Produce information products that incorporate principles of design.	6-LA-WP-17
<b>Benchmark B: Develop, publish and present information in a format that is appropriate for content and audience.</b>	
1. Create and publish information in printed form (e.g., use software to produce homework assignments, reports, flyers, newsletters).	6-LA-R-8
2. Develop and publish information in electronic form (e.g., slide presentations, multimedia products, Web materials).	6-LA-R-8, 6-LA-COV-8
<b>Benchmark C: Select appropriate telecommunication tools and design collaborative interactive projects and activities to communicate with others.</b>	
1. Use e-mail functions including: a. sending; b. receiving; c. replying; d. adding hyperlinked address in message; e. organizing mail folders; f. adding attachments to message.	
2. Participate in discussion lists, message boards, chat and other means of appropriate electronic communication (e.g., ask-an-expert, pen pals).	
3. Investigate assigned topics using online learning resources (e.g., weblogs, Web cast, video-conferencing and other distance learning opportunities).	
<b>Standard 5 ~ Technology and Information Literacy</b>	
<b>Benchmark A: Evaluate the accuracy, authority, objectivity, currency, coverage and relevance of information and data sources.</b>	
1. Identify main ideas and supporting facts to select relevant information to answer questions.	6-LA-R-4, 6-LA-RPCP-6
2. Determine that information located can be used legally and choose appropriately (e.g., locate copyright information for print and graphic information and check for copyright restrictions).	6-LA-R-2
3. Check copyright and publication dates to determine currency of information.	6-LA-R-3

4. Investigate the authority of an online information source to determine the author's qualification to be an expert about a topic (e.g., famous scientist versus a sixth-grader's Web site, well-known organization versus personal Web site).	9-LA-R-3
<b>Benchmark B: Use technology to conduct research and follow a research process model which includes the following: develop essential question; identify resources; select, use and analyze information; synthesize and generate a product; and evaluate both process and product.</b>	
1. Generate questions to be answered or a position to be supported when given a topic.	6-LA-R-1
2. Recognize that finding and using more than one source can produce a better product.	6-LA-R-2, 6-LA-WA-4
3. Use a variety of technology resources for curriculum needs and personal information needs: library catalog, online encyclopedia, Web sites.	6-LA-R-2, 6-LA-RAIT-1
4. Examine information in different types of subscription resources (fee-based, pay-to-use) to locate information for a curricular need: magazine database, picture archive, online encyclopedia.	6-LA-R-2
5. Identify relevant facts, check facts for accuracy, record appropriate information and create an information product to share with others.	6-LA-R-3, 6-LA-R-4, 6-LA-R-5, 6-LA-COV-8
6. List information sources used in a district-adopted or teacher prescribed format (e.g., MLA, APA).	6-LA-R-7, 6-LA-COV-8
7. Review how the information found for the project was used and discuss the quality of the product.	
<b>Benchmark C: Develop search strategies, retrieve information in a variety of formats and evaluate the quality and appropriate use of Internet resources.</b>	
1. Explain the function of a Web browser (e.g., what is the difference between the browser software and a page on the Internet?).	
2. Recognize that some Web information requires special software for its use (e.g., discuss what plug-ins are and how they expand the use of the Internet).	
3. Incorporate place searching when searching for information using assigned directories and search engines.	6-LA-RAIT-1
4. Use phrase searching in appropriate search engines to improve results.	6-LA-RAIT-1
5. Evaluate Web information for: a. Author's expertise; b. Accuracy of information presented; c. Parameters of coverage; d. Currency of information.	6-LA-R-3
6. Explain the difference between a subscription (fee-based database) and the free Internet.	
7. Compare the range of information available from multiple information databases (e.g., examine the purpose and scope of each database and how it would be used for a particular assignment).	
<b>Benchmark D: Select, access and use appropriate electronic resources for a defined information need.</b>	
1. Demonstrate search techniques: author, title, subject for subscription (fee-based) databases.	6-LA-RAIT-1
2. Use online library catalog to choose and locate a variety of resources on a topic.	6-LA-R-2

## Standard 6 ~ Design

### Benchmark A: Evaluate the aesthetic and functional components of a design and identify creative influences.

1. Describe how design is a creative planning process that leads to useful products and systems.	
2. Recognize that any design can be improved (e.g., old style scissors work but new ones with plastic on the finger holes are more comfortable and give more surface area for leverage).	
3. Diagram how design is iterative and involves a set of steps, which can be performed in different sequences and repeated as needed (e.g., identify need, research problem, develop solutions, select best solution, build prototype, test and evaluate, communicate, redesign).	
4. Apply a design process to solve a problem in the classroom specifying criteria and constraints for the design (e.g., criteria include function, size, and materials). Constraints include costs, time, and user requirements.	6-Sci-SI-1
5. Identify appropriate materials (e.g., wood, paper, plastic, aggregates, ceramics, metals, solvents, adhesives) based on specific properties and characteristics (e.g., weight, strength, hardness, and flexibility) for the design.	6-Sci-ST-5
6. Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.	
7. Make the product or systems and document the design.	
8. Investigate how products are created and communicate findings (e.g., interview an architect, industrial designer, contractor).	
9. Identify inventors and designers around the world who contributed to the development of each of the technology systems.	

### Benchmark B: Recognize the role of engineering design and of testing in the design process.

1. Describe how engineering design is a subset of the overall design process concerned with the functional aspect of the design.	
2. Examine how modeling, testing, evaluating and modifying are used to transform ideas into practical solutions (e.g., making adjustments to a model race vehicle to improve performance).	
3. Describe what an engineer does.	

### Benchmark C: Understand and apply research, innovation and invention to problem solving.

1. Examine how troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system (e.g., if after installing a switch in a circuit the light does not come on, how would you determine the problem?).	
2. Modify an existing product or system to improve it (e.g., something to improve storage in your locker).	

3. Recognize the patterns of the technological evolution of an invention (e.g., steam engines were invented, went through a period of rapid improvement, then a period of fine tuning and eventually were replaced by diesel/electric technology).	
<b>Standard 7 ~ Designed World</b>	
<b>Benchmark A: Develop an understanding of, and be able to, select and use physical technologies.</b>	
1. Describe and use different energy storage devices.	
2. Describe how power systems are used to drive and provide propulsion to other technological products and systems.	
3. Describe how transporting people and goods involve an interdependence of individuals and vehicles (e.g., flying from Orlando to Cleveland involves transportation to the departure airport, transportation through the airport, the flight, and transportation from the destination airport).	
4. Identify and compare examples of transportation systems and devices that operate on each of the following: land, air, water and space.	
5. Produce a product using mechanical processes that change the form of materials through the processes of separating, forming, combining, and conditioning them (e.g., build a solar cooker).	6-Sci-PS-2, 6-Sci-PS-3, 6-Sci-PS-4
6. Classify manufactured goods at home as durable and non-durable (e.g., appliances, furniture, clothing, fabrics).	
7. Explain and give examples of the impacts of interchangeable parts, components of mass-produced products, and the use of automation (e.g., robotics).	6-Sci-ST-4, 6-SS-G-3
8. Describe why it is important that structures rest on a solid foundation.	
9. Build or model a temporary structure to shelter victims of a disaster and discuss how the structure is different from a permanent structure (e.g., an air supported structure).	
10. Describe and explain parts of a structure (e.g., foundation, flooring, decking, wall, roofing systems).	
<b>Benchmark B: Develop an understanding of, and be able to, select and use informational technologies.</b>	
1. Describe how information and communication systems allow information to be transferred from human to human, human to machine, machine to human, and machine to machine.	
2. Demonstrate the importance of a common language to express ideas through the use of symbols, measurements and drawings.	
<b>Benchmark C: Develop an understanding of how bio-related technologies have changed over time.</b>	
1. List advances and innovations in medical technologies that are used to improve health care (e.g., prevention, diagnosis, treatment, rehabilitation).	6-Sci-ST-1
2. Describe why it is important for medical personnel to constantly update their knowledge and skills.	
3. Explain that there are a variety of diagnostic methods and treatments for a medical problem.	

4. Describe how advances in a variety of technological systems influence the development of medical devices.	
5. Describe how technological advances in agriculture directly affect the time and number of people required to produce food for a large population.	6-Sci-ST-2, 6-SS-G-3
6. Describe how biotechnology applies the principles of biology to develop commercial products or processes.	