Ohio Technology
Academic Content Standards

Kg - 2

Standards, Benchmarks and Indicators by Grade	Comments
Standard 1 **Nature of Technology** **Students develop an understanding of technology, its scope, core concepts*, characteristics and relationships between technologies and other fields.**	
Benchmark A: Recognize the characteristics and scope of technology.	
Kindergarten 1. Identify objects created within the human-made world (e.g., books, chairs, houses, buses) and objects that occur in nature (e.g., trees, flowers, rocks and rivers).	
2. Describe how people use tools to help them do things.	
Grade One 1. Distinguish between the natural and human-made world (e.g., a forest vs. a city skyline).	
2. Cite examples of how people use tools and processes to perform tasks.	
Grade Two 1. Contrast between characteristics that separate natural processes and human-made designed world (e.g., appearance, structure, material).	
2. Describe and give examples of how people use tools and processes to solve problems (e.g., using a knife to make a peanut butter sandwich, or using a measuring cup while following a recipe to make a cake).	
3. Recall common terms, facts and basic concepts relative to technology (e.g., types of computer equipment, devices by purpose).	
Benchmark B: Describe and give examples of technology's core concepts: systems, resources and processes.	
Kindergarten 1. Identify common systems in the school or home (e.g., the plumbing system delivers water to and from your bathtub).	
2. Recall that planning is necessary to successfully complete a task.	
Grade One 1. Identify and describe a technological system.	
2. Identify and demonstrate processes necessary to complete a task.	

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Grade Two 1. Identify and explain that systems have parts or components such as processes and controls that work together to accomplish a goal (e.g., to heat food in a microwave oven, electricity is generated and transmitted, temperature and cook time is controlled).	
2. Identify the various component parts of familiar systems and articulate the goals that are accomplished with them (e.g., in a plumbing system, pipes deliver water, the faucet controls the flow).	
3. Describe, identify and demonstrate appropriate systematic planning strategies in order to complete a task (e.g., steps required to bake cookies, how to complete a class project).	
Benchmark C: Describe the relationships among technologies, and the connections between technology and other fields of study.	
Kindergarten 1. Identify technology devices in the classroom (e.g., bells, computer, fire alarm, pencil sharpener).	
Grade One 1. Recognize the connection between technology and other fields of study (e.g., technology can be used to make or create music or musical instruments).	
2. Identify school-wide technology devices (e.g., office public address system, library automated book check-out, auditorium audio-visual system, electronic lunch purchase).	
3. Describe the connections between technology and other fields of study (e.g., teachers use computers, scientists use microscopes, farmers use tractors).	
Grade Two 1. Describe how problems lead to invention and innovation (e.g., the invention and development of earmuffs).	
2. Explore the use of technology in different fields of study (e.g., school subjects, careers and technologies common to them).	

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Standard 2 **Technology and Society Interaction** **Students recognize interactions among society, the environment and technology, and understand technology's relationship with history. Consideration of these concepts forms a foundation for engaging in responsible and ethical use of technology.**	
Benchmark A: Identify responsible citizenship relative to technology and its use.	
Kindergarten 1. Describe how the use of tools and machines can be helpful or harmful.	
Grade One 1. Identify tools and machines that can be helpful and/or harmful.	
2. Describe the reasons for making products (e.g., to meet needs and wants).	
Grade Two 1. Discuss how making products meets our needs and wants.	
2. Give examples of how the use of tools and machines can be helpful and/or harmful.	
Benchmark B: Recognize that technology has an interrelationship with the environment.	
Kindergarten 1. Explain how waste results from making and using things, and/or discarding them.	
2. Identify materials that can be reused and/or recycled.	
Grade One 1. Explain how various materials can be reused or recycled.	
2. Describe the reasons for doing things or behaving in ways that protect the environment.	
Grade Two 1. Explain ways communities can manage waste to keep people safe.	
2. Classify and differentiate among materials that can be reused and/or recycled (e.g., paper can be recycled to make new products).	
Benchmark C: Describe and demonstrate how technology has had an influence on our world.	
Kindergarten 1. Recognize that technology changes the way people live and work.	
Grade One 1. Describe or list ways technology has changed the way people lived and worked throughout history (e.g., grandparents' era to today).	
Grade Two 1. Demonstrate and give examples of how technology has changed the way people lived and worked throughout history.	

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Benchmark D: Collect information about products and discuss whether solutions create positive or negative results.	
Kindergarten 1. Collect information about products and systems used at home by asking questions (e.g., electronic toothbrush, toaster, TV).	
2. Describe how a product or system can be used the right way and the wrong way (e.g., using scissors as a knife, a screwdriver as a can opener).	
Grade One 1. Collect information about products and systems used at school by asking questions (e.g., books, computers, piano).	
2. Describe how the use of a product or system might cause something bad to happen (e.g., running a car causes pollution).	
Grade Two 1. Identify businesses and industries in the community and describe the products or services provided.	
2. Determine if the human use of a product or system creates positive or negative results (e.g., large parking lots for cars may cause water run-off problems).	

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Standard 3 **Technology for Productivity Applications** **Students learn the operations of technology through the usage of technology and productivity tools.**	
Benchmark A: Understand basic computer and multimedia technology concepts and terminology.	
Kindergarten 1. Locate computer and multimedia technology in the classroom and identify it by name (e.g., computer, VCR, listening station).	
2. Name the basic parts of a computer (e.g., monitor, keyboard, mouse, printer).	
3. Use computer and multimedia technology with teacher assistance (e.g., computer, VCR, listening station).	
Grade One 1. Identify and use computer and multimedia technology and know the terms used to describe it (e.g., computer, printer, VCR, DVD player, audio players).	
2. Identify various parts of a computer by name (e.g., monitor, mouse, keyboard, power button, disk drive, CD/DVD drive).	

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Grade Two 1. Identify and describe the purpose of various types of computer and multimedia technology (e.g., what is it and what does it do?).	
2. Use correct terminology when talking about computers and multimedia technology.	
3. Know that software is necessary to operate computer technology.	
4. Use a variety of computer and multimedia technology resources for directed learning activities (e.g., computer, VCR/DVD player, audio player, camera).	
Benchmark B: Demonstrate operation of basic computer and multimedia technology tools.	
Kindergarten 1. Listen to directions and use proper care when handling computer and multimedia technology.	
2. Follow the correct order for turning computers and multimedia technology resources on and off with teacher assistance.	
3. Identify and use input (keyboard, mouse) and output (printer) devices to operate computer and multimedia technology tools with teacher assistance.	
4. Use software programs with teacher assistance.	
5. Discover that technology tools can help solve problems.	
6. View multimedia presentations and discuss motion and sound.	
Grade One 1. Discuss and demonstrate proper care when using computer and multimedia technology resources (e.g., describe rules, list directions).	
2. Turn computer and multimedia technology resources on and off.	
3. Discuss software and why it is necessary to operate computer and multimedia technology.	
4. Start, use and exit software programs with teacher assistance.	
5. Use input (keyboard, mouse) and output (printer) devices to operate computer and multimedia technology tools with teacher assistance.	
6. Use software programs designed to develop problem-solving skills.	
7. Begin to locate letters and special keys on the keyboard with teacher assistance (e.g., enter key, escape key, space bar).	
Grade Two 1. Demonstrate proper care of computer and multimedia technology resources.	
2. Identify and use input and output devices to operate and interact with computers and multimedia technology resources (e.g., scanner, digital camera, video camera).	
3. Demonstrate problem-solving skills within a software application.	
4. Develop a slide show presentation with teacher assistance (e.g., small groups work together to create slides or hypermedia products).	
5. Use proper keyboarding techniques (e.g., placing their fingers on home row keys).	

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Benchmark C: Use productivity tools to produce creative works.	
Kindergarten 1. Recognize productivity tools (e.g., presentations, drawing programs).	
2. Identify/recognize technology resources (e.g., pre-selected Web sites, educational software).	
Grade One 1. Describe how productivity tools are used to create documents, presentations and drawings.	
2. Use technology resources with teacher assistance (e.g., pre-selected Web sites, launching applications, educational software).	
Grade Two 1. Use productivity tools with teacher assistance (e.g., word processing, presentations, drawing programs).	
2. Use technology resources with teacher assistance for communication and illustration of thoughts and ideas (e.g., creative stories, drawings, presentations, publication software).	

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Standard 4 **Technology and Communication Applications** **Students use an array of technologies and apply design concepts to communicate with multiple audiences, acquire and disseminate information, and enhance learning.**	
Benchmark A: Investigate the nature and operations of communication systems.	
Kindergarten 1. Explore different types of media formats used to communicate information (e.g., e-mail, TV, newspapers, film, phones, Web pages).	
Grade One 1. Explain media formats used to communicate information (e.g., e-mail, newsletters, TV, phones, newspapers, Web pages).	
2. Show, within a group, various types of communication formats used in everyday life.	
Grade Two 1. Use media to view information.	
2. Participate in the creation of media products (e.g., use appropriate communication tools with teacher assistance).	
Benchmark B: Explore how information can be published and presented in different formats.	
Kindergarten 1. Examine digital images in learning (e.g., students select pictures of community helpers from teacher-identified materials).	

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Grade One 1. Create documents with teacher assistance (e.g., students observe the teacher making a document, they add ideas, and select images for the teacher to import).	
2. Identify and explore different forms of electronic communication (e.g., written documents in electronic form, e-mail, Web pages, video, multimedia).	
Grade Two 1. Use graphic organizers to plan a presentation (e.g., graphic organizing, charting or mapping software).	
2. Compare digital graphic images used to portray a topic (e.g., students are given images on the same topic from two different sources and explain why one may be better for the assignment than another).	
3. Present information in an electronic format, including text, graphics or multimedia (e.g., write and illustrate a story based on writing prompt, slide show or photo album).	
4. Compose class e-mail (e.g., each student has an opportunity to contribute ideas for e-mail messages related to their studies).	
Benchmark C: Participate in group projects and learning activities using technology communications.	
Kindergarten 1. Engage in teacher-directed online learning activities (e.g., 100th day of kindergarten activities, online field trips).	
Grade One 1. Contribute to teacher-directed online projects (e.g., collecting weather data, listing of bird counts)	
Grade Two 1. Use e-mail to share information in a teacher-directed group e-mail activity (e.g., comparing class information with another class at a remote location).	
2. Participate in communication sessions (e.g., e-mail, video conferencing, phones, interact with other classes in teacher-directed online project).	

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Standard 5 **Technology and Information Literacy** **Students engage in information literacy strategies, use the Internet, technology tools and resources, and apply information-management skills to answer questions and expand knowledge.**	
Benchmark A: State what information is, and show where it can be found.	
Kindergarten 1. Identify what information is, and recognize that it can be represented in a variety of ways (e.g., numbers, words, pictures, sounds).	
2. Identify places where information can be found and retrieve information from a specified location (e.g., classroom, school library, public library, the Internet, computer folder, hard drive, Web site, book).	
Grade One 1. Talk about the difference between factual information and fiction (e.g., what is real and what is pretend or make-believe).	
2. Use a graphic organizer to sort information.	
Grade Two 1. Tell about the purposes for information use (e.g., information is helpful to solve problems, find answers, learn).	
2. Distinguish between fact and fiction (e.g., discuss and compare a fact-based document about a topic with a story about the same topic).	
Benchmark B: Use a simple research process model which includes deciding what to use, finding resources, using information and checking work to generate a product.	
Kindergarten 1. Ask questions about an identified topic.	
2. View information in an information source selected by the teacher or librarian.	
3. Tell what was learned using technology tools (e.g., use a computer drawing/paint program to draw a picture that explains what was learned).	
Grade One 1. Ask questions about an identified topic and list facts already known about the topic (e.g., graphic organizers for brainstorming, charting, webbing).	
2. Find information in a technology-based resource (e.g., Web site, database, DVD, software program, video).	
3. Use technology to tell what was learned from information gathered (e.g., use simple presentation tools to create a poster, book, slide show).	
4. Tell where information came from (e.g., name of Web sites, software, databases).	

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Grade Two 1. Discuss the question assigned by the teacher and where the information might be found.	
2. Use the online library catalog to locate information sources by title, author or subject.	
3. Select needed information from teacher-selected Web sites, electronic encyclopedias and other electronic collections.	
4. Record and organize information to generate a product.	
5. Give credit to the sources used for work by listing the author and the name of the source.	
6. Tell how information was found.	
Benchmark C: Apply basic browser and navigation skills to find information from the Internet.	
Kindergarten 1. Talk about the Internet as an information source.	
2. Use Web page functions: a Scroll up and down page; b Click on links; and c Use back button.	
Grade One 1. List types of information available on the Internet (e.g., school Web site, local information, animals, maps).	
2. Use teacher or librarian selected Web site to find information or learn new things.	
3. Use browser tools and buttons: a Forward and back button; b Home button; and c Choose a link from the bookmarks or favorites list.	
Grade Two 1. Demonstrate the use of browser elements including the toolbar, buttons, favorites or bookmarks, and tell their function.	
2. Search for information in an online encyclopedia using a topical search (e.g., choose from a list of topics, moving from broad—animals, to more specific—panda).	
3. Read information from a Web site assigned by teacher and identify the name and topic of the Web site.	

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Standard 6 **Design** **Students will apply a number of problem-solving strategies demonstrating the nature of design, the role of engineering, and the role of assessment.**	
Benchmark A: Identify problems and potential technological solutions.	
Kindergarten 1. Identify problems solved by tools (e.g., list tools and describe the problem that they solve such as crayons—communication, coats—protection from elements, clocks—time, toothbrush—cavities).	
Grade One 1. Identify possible solutions to a problem.	
2. Distinguish the difference between people's needs and wants and how this can influence potential solutions.	
3. Identify and describe characteristics of different materials used to create technological products that provide solutions (e.g., wood, metal, glass, plastic).	
Grade Two 1. Describe how experience has helped in solving a new problem (e.g., painting skills can be applied to different materials and similarities in software program operation).	
2. Brainstorm multiple solutions to problems to be solved by the design process (e.g., how to transport a piece of paper in order to turn in an assignment across the classroom).	
3. Plan, construct and evaluate a model to test a problem's solution (e.g., to harness wind energy, build a model windmill).	
4. Demonstrate how design is a creative process (e.g., each student brings in an old, pre-owned toothbrush and looks at the differences).	
Benchmark B: Understand that changes in design can be used to strengthen or improve an object.	
Kindergarten 1. Make observations of how things are made strong (e.g., using more of the same material).	
Grade One 1. Recognize that designs have limited strength (e.g., a toy bridge made of craft sticks can support only so much weight).	
2. List the materials used in common items (e.g., house, car, toys).	
3. Describe how things are built by thinking of an idea, trying out a design and sharing it with others.	
4. Understand we can draw things and then have someone else build them.	
Grade Two 1. Describe a situation where a technology failed because it was not strong enough (e.g., a bike, wagon or swing that was broken when too much weight was on it).	
2. Recognize that when weaker materials are combined together they become stronger (e.g., one thread is easy to break, but combined into a rope they are strong).	

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3. Distinguish the engineering design process elements of identifying a problem, looking for ideas, developing solutions and sharing solutions with others.	
4. Describe why expressing ideas to others verbally and through sketches and models is an important part of the design process (e.g., provides opportunity to test ideas, better plan the work, and organize needed tools and materials).	
Benchmark C: Explore how products are invented and repaired.	
Kindergarten 1. Ask questions and make observations about how things work (e.g., take a mystery device and ask questions to determine what it does).	
2. Communicate information about a product (e.g., describe a favorite toy and how to use it).	
Grade One 1. Understand that things break but often they can be fixed (e.g., have students share their experiences).	
2. Describe how to repair a broken toy (e.g., make sure the switch is on, the batteries are charged and nothing is blocking the toy's operation).	
Grade Two 1. List steps to follow to test something that has malfunctioned (e.g., steps followed to check a computer, radio or game player that is not working properly).	
2. Describe something that you think should be invented (e.g., an airplane kids can pilot, a doll that can jump rope).	
3. Identify famous inventors and products available today based on their inventions.	

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Standard 7 **Designed World** **Students understand how the physical, informational and bio-related technological systems* of the designed world are brought about by the design process. Critical to this will be students' understanding of their role in the designed world: its processes, products, standards, services, history, future, impact, issues and career connections.**	
Benchmark A: Develop an understanding of the goals importance of physical technologies.	
Kindergarten 1. List the things around the home that use energy (e.g., TV, stove, washing machine, computer).	
2. List different energy sources we use (e.g., electricity, coal, gasoline).	
3. Know that a transportation system has many parts that work together to help people travel (e.g., driver, mechanic, police, road repair crews).	
4. Name products that are manufactured (e.g., toys, cars, furniture).	

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5. Describe different types of buildings (e.g., houses, apartments, office buildings and schools).	
Grade One 1. List the various forms of energy that are used in the community (e.g., electrical, mechanical, thermal).	
2. List the kinds of energy we can purchase (e.g., batteries, gas, electricity).	
3. Understand that vehicles move people or goods from one place to another in water, air, or space and on land (e.g., boats, airplanes, rockets, trucks).	
4. Name products that are produced in large quantities (e.g., candy, baseballs, cars).	
5. Name things that are constructed where they are used (e.g., roads, buildings, bridges).	
Grade Two 1. Describe various ways energy can be conserved (e.g., limiting the number of times the refrigerator/freezer doors are opened; not leaving the water running while brushing your teeth).	
2. List job titles that are in the technological system of energy and power technologies (e.g., auto mechanic, electric, lineperson, coal miner).	
3. Understand that transportation vehicles need to be cared for to prolong their use (e.g., scheduled maintenance on cars).	
4. List job titles that are in the technological system of transportation technology (e.g., driver, pilot, captain, attendant, reservations agent).	
5. Explain that manufactured products are designed.	
6. List job titles that are in the technological system of manufacturing technology (e.g., engineer, machinist, repair person, marketer, industrial designer).	
7. Explain how the type of a structure determines how parts are put together (e.g., bricks, lumber, concrete).	
8. List job titles that are in the technological system of construction technology (e.g., carpenter, architect, building inspector, bulldozer operator, plumber).	
Benchmark B: Develop an understanding of the goals of informational technologies.	
Kindergarten 1. Explore ways to share ideas (e.g., speaking, drawing, modeling).	
Grade One 1. Use symbols to communicate (e.g., write a sentence using pictures).	
2. Describe how technology enables communication by sending and receiving information (e.g., telephone, TV, magazines, e-mail).	
Grade Two 1. Understand that information is data that has been organized (e.g., make a table of data that has been collected).	
2. List job titles that are in the technological system of information and communication technologies (e.g., reporter, camera person, printer, newscaster).	

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Benchmark C: Develop an understanding of the goals of bio-related technologies.	
Kindergarten 1. Recognize how medicine helps people who are sick to get better.	
2. Describe different tools and equipment you might see on a farm.	
Grade One 1. Know that vaccinations protect people from getting certain diseases.	
2. Explain how the use of technologies in agriculture makes it possible for food to be available year round.	
Grade Two 1. List products designed specifically to help people take care of themselves (e.g., toothbrush, soap, clothing).	
2. List job titles that are in the technological system of medical technology (e.g., nurse, doctor, emergency medical technician).	
3. Describe how the use of technologies in agriculture makes it possible to conserve resources (e.g., computer controlled machinery, equipment and facilities).	
4. List job titles that are in the technological system of agricultural and related biotechnologies (e.g., farmer, picker, bottler, scientist and grocer).	