

2nd grade, Tech, Unit #1, The Designed World

Content Area: **Technology**
Course(s): **ELA, Mathematics, Technology**
Time Period: **September**
Length: **6 weeks**
Status: **Published**

Enduring Understanding

The design process is a systematic approach to solving problems.

Essential Questions

- Can a system continue to operate without its missing component?
- Is it always beneficial to use the most economical materials for production of a technological product?

Standards

TECH.8.2.2.C.6	Investigate a product that has stopped working and brainstorm ideas to correct the problem.
TECH.8.2.2.D.4	Identify the resources needed to create technological products or systems.
TECH.8.2.2.A.1	Define products produced as a result of technology or of nature.
TECH.8.1.2.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.2.2.C.5	Describe how the parts of a common toy or tool interact and work as part of a system.
TECH.8.1.2.A	Students demonstrate a sound understanding of technology concepts, systems and operations
TECH.8.1.2.F	Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.2.2.C	The design process is a systematic approach to solving problems.
TECH.8.2.2.D.CS3	Assess the impact of products and systems.
TECH.8.2.2.B.CS4	The influence of technology on history.
TECH.8.1.2.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.2.2.C.CS3	The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving
TECH.8.2.2.A.2	Describe how designed products and systems are useful at school, home and work.
TECH.8.2.2.A.4	Choose a product to make and plan the tools and materials needed.
TECH.8.1.2.F.CS2	Plan and manage activities to develop a solution or complete a project.
TECH.8.2.2.C.CS1	The attributes of design.
TECH.8.2.2.D.5	Identify how using a tool (such as a bucket or wagon) aids in reducing work.
TECH.8.2.2.D.3	Identify designed products and brainstorm how to improve one used in the classroom.
TECH.8.2.2.D.1	Collaborate and apply a design process to solve a simple problem from everyday experiences.
TECH.8.2.2.C.CS2	The application of engineering design.
TECH.8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
TECH.8.2.2.D.CS2	Use and maintain technological products and systems.
TECH.8.2.2.A.3	Identify a system and the components that work together to accomplish its purpose.
TECH.8.1.2.F.CS1	Identify and define authentic problems and significant questions for investigation.
TECH.8.1.2.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.2.2.D.3	Identify the strengths and weaknesses in a product or system.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.
TECH.8.1.2.A.CS1	Understand and use technology systems.
TECH.8.2.2.C.3	Explain why we need to make new products.
TECH.8.2.2.C.2	Create a drawing of a product or device that communicates its function to peers and discuss.
TECH.8.2.2.D.2	Discover how a product works by taking it apart, sketching how parts fit, and putting it back together.
TECH.8.2.2.D.CS1	Apply the design process.

Student Learning Objectives

Repair a broken toy/tool using the design process and explain the process.

Instructional Activities

Identify the steps of the design process.

- Define the problem
- Brainstorm
- Design
- Build
- Test and re-design
- Communicate

Examine a broken toy. Identify the parts and their interactions with each other. Discuss how the toy could be fixed or improved. Working in groups, create a set of instructions to reassemble a toy that has been examined.

Use recycled paper to construct a free-standing tower. Create the tower to stand as tall as possible while demonstrating the safe use of scissors, stapler, and tape dispenser.

Create a graphic organizer that illustrates the ways that technologies found in the home and school impact the environment (pollution during production, landfills, etc) and the trade offs for these devices.

Interdisciplinary Connections

Language Arts

- Expository writing

Texts and Resources

Assortment of broken toys

Computers

Word processor

Printer

Assessment

A set of instructions typed in a Word document.

2nd grade, Tech, Unit #2, Nature of Technology: Creativity and Innovation

Content Area: **Technology**
Course(s): **Technology**
Time Period: **October**
Length: **5 weeks**
Status: **Published**

Enduring Understanding

Technology evolves at an ever accelerating pace based on the needs/wants of society and is influenced by cultural, political and environmental values and constraints.

Essential Questions

Can we control the pace at which technology is created? Should we even if we can?

How do people use technology to make work easier?

Standards

TECH.8.2.2.A.2

Describe how designed products and systems are useful at school, home and work.

Student Learning Objectives

Explain how technology systems impact our world.

Describe how technology products are useful at home, school and work.

Instructional Activities

Identify a favorite technological advancement and create a photo gallery to explain its impact.

Describe how daily life would be different without a specific technological advancement.

Interdisciplinary Connections

Science- Identify technological advancement

Language Arts- Write an essay explaining the impact of a specific technological advancement, Research a technological advancement

Texts and Resources

Computers with internet access

PowerPoint

Assessment

- Discussion
- PowerPoint

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Texts and Resources

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PowerPoint

Assessment

- Discussion
- PowerPoint

2nd grade, Tech, Unit #3, Design and Decision Making

Content Area: **Technology**
Course(s): **Technology**
Time Period: **November**
Length: **6 weeks**
Status: **Published**

Enduring Understanding

Digital tools allow for communication and collaboration anytime/anyplace worldwide.

Essential Questions

How can I use digital tools and skills in new situations?

How do I choose the right digital tools and when do I use them?

Standards

TECH.8.2.2.A.CS2 TECH.8.1.2.C	The core concepts of technology. Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.2.A.CS2	Select and use applications effectively and productively.
TECH.8.2.2.A.5	Collaborate to design a solution to a problem affecting the community.
TECH.8.1.2.A.5	Enter information into a spreadsheet and sort the information.
TECH.8.2.2.A.CS3	The relationships among technologies and the connections between technology and other fields of study.
TECH.8.1.2.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.2.A.1	Identify the basic features of a digital device and explain its purpose.
TECH.8.1.2.A.7	Enter information into a database or spreadsheet and filter the information.
TECH.8.1.2.A.CS1	Understand and use technology systems.
TECH.8.2.2.C.2	Create a drawing of a product or device that communicates its function to peers and discuss.
TECH.8.1.2.C.CS1	Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environment and media.
TECH.8.1.2.B.1	Illustrate and communicate original ideas and stories using multiple digital tools and resources.

Student Learning Objectives

Collect and post the results of a digital classroom survey about a problem or issue and use data to suggest solutions.

Utilize digital tools and collaboration with with students in the US or other countries to gather information about a specific topic and share results.

Identify the resources needed to create technological products and systems.

Instructional Activities

Collect and post the results of a digital survey about the classroom desks (shape, function, height). Draw conclusions about possible modifications to improve the desk. Provide results to the principal.

Electronically contact students in another school to discuss favorite books. If there are books you like in common, discuss your favorite characters.

Identify the parts of a chair in the classroom. As an inventor, sketch a picture of a chair you would like and post it on the class bulletin board. After looking at all the sketches, choose the chair you think would be most comfortable and tell the inventor why you like it.

Interdisciplinary Connections

Language Arts- Type conclusions about possible invention modifications and present them to the inventor. Book talks

Math- Measurement of items in sketches and modifications

Texts and Resources

Computers with internet access

MS Word

esurveypro

Excel

Facetime

Skype

Paper/pencil

Assessment

- Observation
- Word processing document

2nd grade, Unit #4, Technology, All About Me Book

Content Area: **Technology**
Course(s): **Technology**

Time Period: **December**

Length: **14 weeks**

Status: **Published**

Enduring Understanding

The various features of word processing software can be utilized to create a large project over a period time.

Essential Questions

How does proficiency in technology skills enable us to get work done faster?

What are the essential word processing skills that are necessary to produce quality work?

What makes quality non-fiction and fiction writing?

Why is it important to pay attention to detail?

Standards

WORK.K-4.9.1.4.D.2

WORK.K-4.9.1.4.D.3

TECH.8.1.2.A.2

TECH.8.1.2.B.CS2

TECH.8.1.2.C.CS1

TECH.8.1.2.B.1

Express needs, wants, and feelings appropriately in various situations.

Demonstrate an awareness of one's own culture and other cultures during interactions within and outside of the classroom.

Create a document using a word processing application.

Create original works as a means of personal or group expression.

Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environment and media.

Illustrate and communicate original ideas and stories using multiple digital tools and resources.

Student Learning Objectives

Create word processing documents for a variety of content/topics.

Utilize correct grammar and spelling.

Include pictures in a document.

Save work in a specific folder.

Utilize text formatting and alignment features.

Utilize page borders.

Make corrections to work based on teacher and peer feedback.

Instructional Activities

About Me Books: Students will create a variety of pages about themselves and various other content. Some examples are:

- Basic information
- My Favorites
- My Birthday
- Movies and TV
- Sports and Recreation
- Things I've Learned in School
- Holidays
- My Friends
- Something I'm Interested In (Non-fiction/research)
- Fictional story
- Pictures created in paint software

Interdisciplinary Connections

Language Arts - Creation of About Me Book

Art - Use of graphics and paint software in books

Texts and Resources

Computers

Word processing software

Painting software

Internet

Assessment

- Observation
- Participation
- Printouts of book pages.

2nd grade, Unit #5, Technology, Communication and Collaboration

Content Area: **Technology**
Course(s): **Technology**
Time Period: **April**
Length: **9 weeks**
Status: **Published**

Enduring Understanding

Digital tools allow for communication and collaboration anytime/anyplace worldwide.

Essential Questions

How has the use of digital tools improved opportunities for communication and collaboration?

Standards

TECH.8.1.2.C.CS2	Communicate information and ideas to multiple audiences using a variety of media and formats.
TECH.8.1.2.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.2.E	Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.2.A.CS2	Select and use applications effectively and productively.
TECH.8.1.2.D.1	Develop an understanding of ownership of print and nonprint information.
TECH.8.1.2.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.1.2.E.CS1	Plan strategies to guide inquiry
TECH.8.1.2.E.CS3	Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.
TECH.8.1.2.A.6	Identify the structure and components of a database.
TECH.8.1.2.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.

Student Learning Objectives

Utilize digital tools to collaborate with others to learn about issues/problems affecting children.

Discuss solutions to issues affecting children with adults and peers.

Instructional Activities

Square of Life Project

- Students will visit their square and spend about a half hour observing the animals, plants and non-living objects that are in their square. They will draw a sketch of their square based on their observations.
- Students will record observations and compare predictions to known facts

Monster Exchange Project

- Use drawing tools to create a monster

- Type description of monster
- Share with partnering class to re-create

Interdisciplinary Connections

Science- observation of animals and plants

Language Arts- recording of observations

Texts and Resources

Drawing tools (pencils, markers, etc.)

Clipboards or cardboard

Plant and animal reference books and materials

Several meter or yard sticks (at least 2)

String or Yarn (for 8 squares you will need a minimum of 100 feet)

Wooden stakes or wire clothes hangers

Assessment

- Compare/contract activities
- Report, oral or written, on a current issue
- Venn Diagram

2nd grade, Unit #6, Technology, Mapping Tools

Content Area: **Technology**

Course(s): **Technology**

Time Period: **June**

Length: **2 weeks**

Status: **Published**

Enduring Understanding

Digital tools assist in problem solving and finding solutions.

Essential Questions

How do different programs help me solve problems and find solutions?

Standards

TECH.8.1.2.A.4

Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

TECH.8.1.2.F.1

Use geographic mapping tools to plan and solve problems.

Student Learning Objectives

Students will be able to use mapping tools to find alternate routes from home to school.

Instructional Activities

Use Google maps to map route from home to school including at least one alternate.

Interdisciplinary Connections

Social studies- Reading a map, Geography

Language Arts- Written directions

Math- Measurement of routes

Texts and Resources

Computers with internet access

Google maps

Assessment

Create a Word document which includes typed directions to and from home and school including alternate routes.

