Sept. Gr.8 unit 1: Applied Technology

Content Area: **Technology**
Course(s):
Time Period: **September**
Length: **4-6 Weeks**
Status: **Published**

Unit Overview

Students will review basics of CAD software.

Students will review basics of file structure.

Students will review CAD software and 3d printers.

Enduring Understandings

How do we use technology to better our lives.

How can we use technology to better the lives of others.

Essential Questions

Can you create a directory and subdirectory?

Can you navigate to a network drive and find your files?

How do you use CAD software to create products?

Instructional Strategies & Learning Activities

Objective: Intro to MS Technology

To review clearly defined applied tech lab rules and procedures with middle school students as well as ensuring that all students can log in to Computers, create directories, understand file extensions, copy and paste from one subdirectory to another.

Differentiation: N/A

Assessment: observation and demonstration

Objective: Intro to CAD software
The student will be able to use skills from last year to create objects.

Differentiation:
Group work, student choosen task.

Assessment:
Rubric

Objective: Review the software by creating a case.
The student will be able to take measurements, create an orthographic drawing, and create a case for a remote.

Differentiation:
Content for each group

Assessment:
Rubric

Integration of Career Readiness, Life Literacies and Key Skills

9.2.8.CAP	Career Awareness and Planning
9.4.8.CI	Creativity and Innovation
9.1.2.CR	Civic Responsibility
	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
	There are actions an individual can take to help make this world a better place.
	An individual's strengths, lifestyle goals, choices, and interests affect employment and income.
9.4.8.CI.1	Assess data gathered on varying perspectives on causes of climate change (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions (e.g., RI.7.9, 6.SP.B.5, 7.1.NH.IPERS.6, 8.2.8.ETW.4).
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.2.8.CAP.1	Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest.
9.4.8.CI.2	Repurpose an existing resource in an innovative way (e.g., 8.2.8.NT.3).
9.2.8.CAP.2	Develop a plan that includes information about career areas of interest.
9.2.8.CAP.3	Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.
9.4.8.CI.3	Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2).

9.2.8.CAP.4	Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
9.4.8.CT	Critical Thinking and Problem-solving
	Multiple solutions often exist to solve a problem.
9.4.8.CT.1	Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2).
9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
	An essential aspect of problem solving is being able to self-reflect on why possible solutions for solving problems were or were not successful.
9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
	Communication skills and responsible behavior in addition to education, experience, certifications, and skills are all factors that affect employment and income.
9.2.8.CAP.15	Present how the demand for certain skills, the job market, and credentials can determine an individual's earning power.
9.4.8.GCA	Global and Cultural Awareness
	Awareness of and appreciation for cultural differences is critical to avoid barriers to productive and positive interaction.
9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).
9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
9.4.8.TL	Technology Literacy
	Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).

Technology and Design Integration

See activities above and standards below.

Interdisciplinary Connections

LA.RI.7.1	Cite several pieces of textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text.
LA.RI.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
LA.RI.7.10	By the end of the year read and comprehend literary nonfiction at grade level text-

	complexity or above, with scaffolding as needed.
LA.W.7.1	Write arguments to support claims with clear reasons and relevant evidence.
LA.W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
LA.W.7.6	Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.
LA.W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
LA.SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
LA.SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
LA.L.7.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.7.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.L.7.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
LA.L.7.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.
- **Definitions of Differentiation Components**:
    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

Differentiation will be offered as listed in the above activities.

Modifications & Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

IEP and 504 Accommodations will be utilized.

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

Additional Benchmarks used in this unit

Teacher made assessments to measure growth.

Formative Assessments

Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Formative Assessments used in this unit:

Discussion

Teacher observation

projects

Summative Assessments

Summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

Projects

Assessments listed above

Instructional Materials

Materials as needed for projects

Standards

TECH.8.2.8.D.1	Design and create a product that addresses a real world problem using a design process under specific constraints.
TECH.8.2.8.D.2	Identify the design constraints and trade-offs involved in designing a prototype (e.g., how the prototype might fail and how it might be improved) by completing a design problem and reporting results in a multimedia presentation, design portfolio or engineering notebook.
TECH.8.2.8.D.3	Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.

TECH.8.2.8.D.5	Explain the impact of resource selection and the production process in the development of a common or technological product or system.
TECH.8.2.8.D.CS2	Use and maintain technological products and systems.
TECH.8.2.8.E.2	Demonstrate an understanding of the relationship between hardware and software.
TECH.8.2.8.E.4	Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).
TECH.8.2.8.E.CS1	Computational thinking and computer programming as tools used in design and engineering.