

Unit 4 Nature of Technology: Creativity and Innovation

Content Area: **Technology**
Course(s): **Computers 6**
Time Period: **October**
Length: **10 Sessions, Grade 6**
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Title Section

Department of Curriculum and Instruction



Belleville Public Schools

Curriculum Guide

Computer Applications Grade 6

Belleville Board of Education

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Unit Overview

Unit 4- Nature of Technology: Creativity and Innovation (10 Sessions) This unit prepares students to begin to understand how research is conducted; starting with a hypothesis, listing problems, identifying key technologies and creating/explaining the timeline.

NJSLS

TECH.8.1.8	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.8.A.2	Create a document (e.g., newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.
TECH.8.2.8	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.8.A	The Nature of Technology: Creativity and Innovation: Technology systems impact every aspect of the world in which we live.

Exit Skills

What are the skills that the students should have obtained by the end of this unit?

- List two problems inherent in the use of for example :(vacuum tubes, or other item, in the construction of a digital computer.)
- Identify the key technology that enabled the first, second, third and fourth generation of computers.
- Explain that a timeline is used to show the relationship between events over a specific time period.

Enduring Understanding

All students can benefit from a basic to moderate understanding of keyboarding skills to allow for their proper and effective use of technology.

It is essential that students be exposed to the proper use of Technology so that they may possess the skills necessary to excel in both their academic and long-term careers.

Essential Questions

- How does creative thinking improve problem solving?
- How does the design process vary to address different problems?
- How do innovators get their ideas noticed to the public?

Learning Objectives

- Students will research a product that was designed for a specific demand and identify how the product has changed to meet new demands.

By completing the following skills by unit of instructions as described by the objectives above:

One-Page Reports, Proofreading, Correcting:

- proofread to find and correct typing, punctuation, spacing, and format errors

Interdisciplinary Connections

Please list all and any cross-curricular content standards that link to this Unit.

LA.RI.6.5	Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
LA.RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
LA.W.6.4	Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.W.6.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
LA.W.6.6	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.
LA.W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
LA.SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
LA.SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
LA.L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Alignment to 21st Century Skills & Technology

Key SUBJECTS AND 21st CENTURY THEMES

Mastery of key subjects and 21st century themes is essential for all students in the 21st century.

Key subjects include:

- English, reading or language arts
- Government and Civics

21st Century/Interdisciplinary Themes

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

21st Century Skills

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

Technology Infusion

What technology can be used in this unit to enhance learning?

The basis of good differentiation in a lesson lies in differentiating by content, process, and/or product.

Resources:

- NJDOE: Instructional Supports and Scaffolds for Success in Implementing the Common Core State Standards <http://www.state.nj.us/education/modelcurriculum/success/math/k2/>

Special Education

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

ELL

- teaching key aspects of a topic. Eliminate nonessential information

- using videos, illustrations, pictures, and drawings to explain or clarify
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Evidence of Student Learning-CFU's

Please list ways educators may effectively check for understanding in this section.

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

Primary Resources

- Microsoft Word
- Teacher-made handouts
- Office 365
- Digttools, textbook
- Code.org <https://code.org/>

Worksheets/Online Typing Websites:

- Dance Mat Typing: <http://bbc.co.uk/schools/typing/>
- Keyboard Puzzle: http://www.abcya.com/standard_keyboard.htm
- More Typing Lesson: http://www.typing-lessons.org/lesson_1.html
- Spider Typing Game: <http://resources.kaboose.com/games/super-hyper-spider-typer.html>
- Touch Typing Practice: <http://sense-lang.org/typing/>
- Typing Lessons/Test: <http://typeonline.co.uk/lesson1.html>
- Typing.com: <https://www.typing.com/>
- Typing club: <https://www.typingclub.com/>

Please list all resources available to you that are located either within the district or that can be obtained by district resources.

Ancillary Resources

Please list ALL other resources available to strengthen your lesson.

Sample Lesson

One Lesson per Curriculum must bein this lesson plan template. I.e. one lesson in one unit

Unit Name:

NJSLS:

Interdisciplinary Connection:

Statement of Objective:

Anticipatory Set/Do Now:

Learning Activity:

Student Assessment/CFU's:

Materials:

21st Century Themes and Skills:

Differentiation/Modifications:

Integration of Technology: