

Grade 7 Technology Education

3/05/2011

Unit Title	Core Concepts of Technology
Time Frame	3 weeks
21st Century Themes	Nature of Technology: Creativity and Innovation
Interdisciplinary Focus	Language Arts

Big Idea

Technology products and systems impact every aspect of the world in which we live. The use of digital tools and media-rich resources enhances creativity and the construction of knowledge.

Essential Questions

What are input/output devices?

What are manufacturing technologies?

What are construction technologies?

Learning Targets- SWBAT:

Define the characteristics and scope of technology as they relate to manufacturing and construction.

Content Standards

8.2.8.A.1

8.1.8.B.1

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

Computer practice

Tech now structure

Manufacturing and construction technology report

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

Word, poster board, colored pencils, internet

Unit Title	Invention and Innovation
Time Frame	2 weeks
21st Century Themes	Design: Critical Thinking, Problem Solving, and Decision-Making
Interdisciplinary Focus	Engineering and Design

Big Idea

The design process is a systematic approach to solving problems. The use of technology and digital tools requires knowledge and appropriate use of operations and related applications.

Essential Questions

What and how do we design?
How can we build towers?

Learning Targets- SWBAT:

Apply the design process to construct a tower demonstrating problem-solving, critical thinking, and creativity.

Content Standards

8.2.8.B.1-3
8.1.8.A.1-5

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

Technology concepts
Tech now 2
Design loop
Reach for the sky challenge

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

Word, design loop activity sheet, recycled paper, newspapers, tape

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Unit Title	World of Opportunities
Time Frame	3 weeks
21st Century Themes	Citizenship: Technological Smarts, Ethics, and Society
Interdisciplinary Focus	Visual and Performing Arts

Big Idea

Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society. Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors.

Essential Questions

What is my role as a digital citizen?
How was proper netiquette derived?

Learning Targets- SWBAT:

Demonstrate and apply proper netiquette and distinguish the social effects of technology on our society.

Content Standards

8.2.8.C.1-2
8.1.8.D.1-5

Learning Experiences

Digital citizenship
Tech now 3
Cyber bullying
Inventor websites

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

Word, internet, cyber bullying activity

Unit Title	Information Management
Time Frame	3 weeks
21st Century Themes	Systems: Research and Information Fluency
Interdisciplinary Focus	Mathematics

Big Idea

Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems. Effective use of digital tools assists in gathering and managing information.

Essential Questions

What is the impact of simple machines?
What defines a global issue?
What is mechanical advantage?

Learning Targets- SWBAT

Describe the role of technological products and systems as they relate to global issues and innovation.

Content Standards

8.2.8.D.1
8.1.8.E.1

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

6 simple machines
Tech now 4
Global issues
Operation
Spreadsheets

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

Excel, Word, internet, simple machine worksheets, operation examples

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Unit Title	Cyber Realm
Time Frame	3 weeks
21st Century Themes	Culture: Communication and Collaboration
Interdisciplinary Focus	Social Studies and Global Languages

Big Idea

Digital tools facilitate local and global communication and collaboration in designing products and systems. Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems.

Essential Questions

What effects of technology in global communities affect me personally?

Learning Targets- SWBAT:

Identify and evaluate the societal role technology plays in the local community.

Content Standards

8.2.8.E.1
8.1.8.C.1

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

Popular digital culture cooperation

Tech now 5

Zip line challenge

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

PowerPoint, Word, internet, chipboard, 3 oz. cups, ping pong balls, straws, tape, washers, skewers, single hole punch, dental floss

Unit Title	The Impact of Innovation Fosters Renovation
Time Frame	2 weeks
21st Century Themes	Green: Resources for a Technological World
Interdisciplinary Focus	Comprehensive Health & Physical Education

Big Idea

Technological products and systems are created through the application and appropriate use of technological resources.

Essential Questions

What is green technology?
What is renewable power?

Learning Targets- SWBAT:

Define green technology and predict possible outcomes resulting in the application of technological resources.

Content Standards

8.2.8.F.1-2

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

“Green Environment” news letter
Tech now 6
Related professional publications

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

Publisher, Word, internet

Unit Title	Flying Forward
Time Frame	3 weeks
21st Century Themes	Renovation: The Designed World
Interdisciplinary Focus	Science

Big Idea

The designed world is the product of a design process that provides the means to convert resources into products and systems. Effective use of digital tools assists in gathering and managing information.

Essential Questions

What is renovation?

What is the history of aviation and where will it take us?

Learning Targets- SWBAT:

Apply the design process using computer aided design to renovate.

Content Standards

8.2.8.G.1-2
8.1.8.E.1

Differentiation

- Process (Reading, writing, listening, discussing)
- Product (Speech, portfolio, essay, project, test, group work)
- Content (Assign/evaluate different skills)
- Interest (provide a choice of activities)
- Readiness (Assess for prior knowledge)
- Modality (Satisfy the multiple intelligences)

Learning Experiences

Redesign project

Tech now 7

Take flight challenge

Computer aided design

Assessments

- Electronic journals
- Oral tests
- Oral participation
- Computerized tests
- Individual/group performance

Resources

PowerPoint, Word, internet, recycled paper, Envisioneer