COURSE: 6th GRADE EXPLORING TECHNOLOGY

GOAL STATEMENTS:

Upon Completion of this course students will be able to:

- Discuss how technology effects our lives and how technology is accepted and valued by different cultures.
  Unit 1 Standard C.4.6, A.8.2, A.8.4, A.8.5, A.8.6

- Discuss how technological knowledge can be distributed throughout the world.
  Unit 1. A Standard C.4.6, A.8.2, A.8.4, A.8.5, A.8.6

- Explain the importance of making thoughtful decisions when using technology because of the possible effect on our lives, the lives of others and the environment.
  Unit 1 Standard C.4.6, A.8.2, A.8.4, A.8.5, A.8.6

- Use the problem solving process to solve a problem through technological design, the use of limited resources and testing.
  Unit 2 Standard C.8.1, C.8.2, C.8.3

- Demonstrate safe machine tool operations and discuss how using tools can process resources into valuable products.
  Unit 3 Standard B.4.6, B.4.7, D.8.2

- Understand the importance of technological knowledge in the development of a product.
  Unit 2, 3, 4 Standard C.8.1, C.8.2, C.8.3, C.8.5

- Explain how changing the physical characteristics of a material can increase its value and usefulness.
  Unit 5, 6 Standard A.8.1, A.8.3, A.8.4 B.8.1, B.8.2, C.8.3, C.8.5, C.8.6,

Course: 6th Grade Technology Education – Exploration

Unit 1: Understanding Technology

Technology Education State Standards addressed:
A.8.2, A.8.4, A.8.5, A.8.6, C.4.6

CONTENT:

1. What is Technology - Definition
    - Use
    - Knowledge
    - Resources
    - Needs
    - Wants

2. Technology vs. Technological product
    - Technology is a verb – action, a process
    - Technological products are the outcome of technology
    - Inputs – Processes - Outcomes

3. Affects of technology
    - What is affected by technology

4. Distribution of technology
    - Political Systems
    - Beliefs
    - Resources

5. Decision to use technology
    - Impacts on humans
    - Impacts on the environment
    - Ethical considerations

POSSIBLE ACTIVITIES
Video
Discussions

Course: 6th Grade Technology Education – Exploration

Unit 1 A: Intro to Technology Education

Technology Education State Standards addressed:
A.4.8, A.8.2, B.4.6, C.8.1, C.8.2, C.8.3, C.8.5, D.8.2

CONTENT:

1. Terms:
    - Compression
    - Tension
    - Goals
    - Limitations
    - Lamination

2. Introduction to problem solving

    - Identify the problem
    - Set goals/consider limitations
    - Brainstorm ideas
    - Choose best

POSSIBLE ACTIVITIES

Chain link
Paper tower

Course: 6th Grade Technology Education – Exploration

Unit 2: Problem Solving

Technology Education State Standards addressed:
C.8.1, C.8.2, C.8.3

CONTENT:

1. Problem solving process
    - Define problem
    - Set Goals / Consider limitations
    - Gather information
    - Brainstorm ideas
    - Choose best solution
    - Carry out
    - Evaluate / Modify

2. Terms
    - Aerodynamic
    - Friction
    - Momentum

3. Scale drawings
    - To scale vs. any other type of scale

POSSIBLE ACTIVITY
Balloon pop cars

Course: 6th Grade Technology Education – Exploration

Unit 3: Machine use and Tool Safety

Technology Education State Standards addressed:
B.4.6, B.4.7, C.8.1, C.8.2, C.8.3, C.8.5, D.8.2

CONTENT:

1. Safety
    - Personal Safety
    - General Machine safety
    - Disk Sanders
    - Band Saw
    - Drill Press
    - Material Preparation
2. Sanding
    - Sand Paper
    - Grit size
    - Cross Grain vs. With grain
3. Branding
    - Why
        - Ownership
        - Identification
        - Decoration
        - How
        - Heat
        - Cold
        - Ink
        - Scarification
4. Staining
    - What it is
    - Why
    - How
5. Varnishing
    - Why
        - Seal
        - Protect
        - Water soluble vs. Oil base
    - How

POSSIBLE ACTIVITIES

Discussion, demonstrations, Manufacture a small item. Game, Bug barn….

Course: 6th Grade Technology Education – Exploration

Unit 4: Measurement review

Technology Education State Standards addressed:
C.8.1, C.8.2, C.8.3, C.8.5, D.8.2

CONTENT:

1. Kinds of measurement
    - Metric vs. Standard English
2. Measurement tools
    - Architect ruler
3. Measurement Practice
    - Measuring to 1/16th inch
4. Working drawings
    - Visible lines
    - Invisible lines
    - Extension lines
    - Dimension lines

POSSIBLE ACTIVITIES:

Manufacture a product to a specific size

Course: 6th Grade Technology Education – Exploration

Unit 5: Material Processing

Technology Education State Standards addressed:
A.8.2, A.8.3, C.8.3, C.8.6,

CONTENT:

1. Input – Process – Output
   - Plastics
     - Source
     - Properties
     - Induced Fracture

2. Hand tool use
   - File

3. Power tool use
   - Strip heater
   - Buffer

4. Added value

POSSIBLE ACTIVITIES

Manufacture plexi-glass picture frame / key chain

Course: 6th Grade Technology Education – Exploration

Unit 6: Energy (if time in rotation allows)

Technology Education State Standards addressed:
A.8.1, A.8.4, B.8.1, B.8.2, C.8.2, C.8.5, D.8.2, D.8.4

CONTENT:

1. What is electricity
   - Watts
   - Volts
   - Amps

2. Sources of electricity
   - Nuclear
   - Hydroelectric
   - Coal
   - Wind
   - Solar

3. Advantages / Disadvantages of each source

4. Photoelectric cells
   - Electrons / Photons

POSSIBLE ACTIVITIES

Use photoelectric cells to run motors and fans