

# Exploring Technology

<b>Levels:</b>	<b>Grades 7-9</b>
<b>Units of Credit:</b>	<b>0.50</b>
<b>CIP Code:</b>	<b>21.0102</b>
<b>Core Code:</b>	<b>30-01-00-00-010</b>
<b>Prerequisite:</b>	<b>None</b>
<b>Skill Test:</b>	<b>None</b>

## **COURSE DESCRIPTION**

Exploring technology is a comprehensive action-based educational course that introduces students to the technological systems of four of the following technology areas: medical technologies, agriculture/biotechnology technologies, energy-power technologies, information and communications technologies, transportation technologies, manufacturing technologies, and construction technologies. The curriculum is designed around exploration of these systems and their impacts on society. Students will also develop problem-solving skills, improving career awareness for the Student Educational Occupational Plan (SEOP) development, and relate technology to math and science. Emphasis is placed on broad exploration in cooperative and individualized activities rather than project and skill development.

## **CORE STANDARDS, OBJECTIVES, AND INDICATORS**

### **STANDARD 1**

**Students will learn and use safe practices, learn basic design skills, and be introduced to related careers through activity-based education.**

**Objective 1:** Learn and use basic safety rules for the tools, the equipment, and the facilities that will be used in the course.

**Objective 2:** Learn and use measuring skills.

**Objective 3:** Learn basic design skills: i.e. sketching orthographic drawings, sketching pictorial drawings, creating a materials list.

**Objective 4:** Explore related careers.

### **STANDARD 2**

**Students will explore medical technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of medical technologies.

**Objective 2:** Explore how medical technologies affect our society.

**Objective 3:** Use basic design concepts in a medical technologies activity.

**Objective 4:** Participate in activity based learning activity to explore medical technologies. Some examples are:

- a. Participate in a basic first aid activity.
- b. Participate in a MSDS activity.
- c. Participate in a sterile versus nonsterile activity.

### **STANDARD 3**

**Students will explore agricultural and related biotechnologies technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of agricultural and related biotechnologies.

**Objective 2:** Explore how agricultural and related biotechnologies affect our society.

**Objective 3:** Use basic design concepts in an agricultural and related biotechnologies activity.

**Objective 4:** Participate in activity based learning activity to explore agricultural and related biotechnologies. Some examples are:

- a. Participate in a biotechnology activity.
- b. Participate in an environmental/water purification activity.
- c. Participate in a GPS/GIS activity.
- d. Participate in a greenhouse activity.
- e. Participate in a hydroponics activity.
- f. Participate in a recycling activity.
- g. Participate in a sim farm activity.

#### **STANDARD 4**

**Students will explore energy and power technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of energy and power technologies.

**Objective 2:** Explore how energy and power technologies affect our society.

**Objective 3:** Use basic design concepts in an energy and power technologies activity.

**Objective 4:** Participate in activity based learning activity to explore energy and power technologies. Some examples are:

- a. Participate in an electronics/electricity activity.
- b. Participate in an energy conversion and storage activity.
- c. Participate in a fluid power activity.
- d. Participate in an internal combustions engines activity.
- e. Participate in a solar power activity.
- f. Participate in a steam power activity.
- g. Participate in a water power activity.
- h. Participate in a wind power activity.

#### **STANDARD 5**

**Students will explore information and communication technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of information and communication technologies.

**Objective 2:** Explore how information and communication technologies affect our society.

**Objective 3:** Use basic design concepts in an information and communication technologies activity.

**Objective 4:** Participate in activity based learning activity to explore information and communication technologies. Some examples are:

- a. Participate in an animation activity.
- b. Participate in an architecture design activity.
- c. Participate in a CAD/drafting activity.
- d. Participate in a Desk Top Publishing activity.
- e. Participate in a digital activity.
  - Audio
  - Still photography
  - Video

- f. Participate in a film photography activity.
- g. Participate in a printing activity.
- h. Participate in a silk screening activity.
- i. Participate in a telecommunication activity.
- j. Participate in a web design and exploration activity.
- k. Participate in a 3D modeling activity.

## **STANDARD 6**

**Students will explore transportation technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of transportation technologies.

**Objective 2:** Explore how transportation technologies affect our society.

**Objective 3:** Use basic design concepts in a transportation technologies activity.

**Objective 4:** Participate in activity based learning activity to explore transportation technologies. Some examples are:

- a. Participate in an aviation/aerospace activity.
- b. Participate in a boat hull (hydroplane or hydrofoil) activity.
- c. Participate in a CO<sup>2</sup> cars activity.
- d. Participate in a hover craft activity.
- e. Participate in a mouse trap cars activity.
- f. Participate in a restraint systems (crash) activity.
- g. Participate in a rockery activity.
- h. Participate in a wind tunnel activity.

## **STANDARD 7**

**Students will explore manufacturing technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of manufacturing technologies.

**Objective 2:** Explore how manufacturing technologies affect our society.

**Objective 3:** Use basic design concepts in a manufacturing technologies activity.

**Objective 4:** Participate in activity based learning activity to explore manufacturing technologies. Some examples are:

- a. Participate in a copyright and patent activity.
- b. Participate in a CNC activity.
- c. Participate in a custom production activity.
- d. Participate in a material processes activity.
- e. Participate in a mass production/sheet metal car/quality control activity.
- f. Participate in a robotics/work cell activity.

## **STANDARD 8**

**Students will explore construction technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of construction technologies.

**Objective 2:** Explore how construction technologies affect our society.

**Objective 3:** Use basic design concepts in a construction technologies activity.

**Objective 4:** Participate in activity based learning activity to explore construction technologies. Some examples are:

- a. Participate in an architectural modeling activity.

- b. Participate in a basic interior design activity.
- c. Participate in a bridge design and construction/truss design and construction activity.
- d. Participate in a materials testing activity.
- e. Participate in a tower design activity.
- f. Participate in an urban planning activity.

## **STANDARD 9**

**Students will explore how math and science are used in engineering and engineering technologies in our world through activity-based education.**

**Objective 1:** Explore the nature of engineering technologies.

**Objective 2:** Explore how engineering technologies affect our society.

**Objective 3:** Use basic design concepts in an engineering activity to explore engineering technologies.

**Objective 4:** Participate in activity based learning activity to explore engineering technologies. Some examples are listed below. (Note: All activities must have strong math and science applications.)

- a. Participate in a 3D modeling activity.
- b. Participate in an architectural modeling activity.
- c. Participate in an aviation/aerospace activity.
- d. Participate in a biotechnology activity.
- e. Participate in a boat hull (hydroplane or hydrofoil) activity.
- f. Participate in a bridge design and construction activity.
- g. Participate in an energy conversion and storage activity.
- h. Participate in an environmental/water purification activity.
- i. Participate in a materials testing activity.
- j. Participate in a mouse trap cars activity.
- k. Participate in a power systems activity.
- l. Participate in a restraint systems (crash) activity.
- m. Participate in a rocketry activity.
- n. Participate in a tower design activity.
- o. Participate in a truss design and construction activity.
- p. Participate in a wind tunnel activity.