Technology Skills and Concepts

Objectives for 7th and 8th Grade Modular Technology

(Key: "I"=Introduce, "C"=Continue, "M"=Mastery)

All 7th and 8th grade students have Modular Technology one trimester each year. Student rotate from one module to another every 2-3 weeks during the Modular Technology Class. A schedule is maintained so that students do not repeat modules during 7th and 8th grades. Students will not have each module each year.

Animation

Students will be able to:

- Describe the techniques for producing animated videos. (I)
- Demonstrate the basic drawing tools of computer animation software. (I)
- Demonstrate how to create a simple animated movie. (I)
- Discuss the history of animation. (I)

Biotechnology

Students will be able to:

- Describe the connection between biotechnology and energy solutions. (C)
- Define biotechnology. (I)
- Define DNA and describe how genetic traits are passed on. (C)
- Understand the concepts of ergonomics. (I)
- Describe biotechnology's impact on nutrition and food production. (C)
- Describe the influence of biotechnology on the environment. (C)
- Demonstrate a knowledge of advances in medical diagnostic methods, bionics and health enhancements. (I)

Computer Graphic Design

Students will be able to:

- Demonstrate how to add colors and patterns to graphics. (C)
- Demonstrate how to develop and add special effects to text. (C)
- Demonstrate the basic tools needed to create graphics. (C)
- Understand and explain computer graphics. (I)
- Demonstrate how to design a personal T-Shirt. (I)
- Discuss the early stages of graphics. (I)
- Demonstrate a basic understanding of using copyrighted materials. (C)

Computer Problem Solving

Students will be able to:

- Solve a problem by breaking it into parts. (C)
- Identify and discuss the steps used to solve problems. (C)
- Demonstrate how to use the proximity method to solve problems. (I)
- Relate the trial and error strategy to specific kinds of problems. (C)
- Understand strategies to solving problems. (C)
- Solve problems by using knowledge. (C)

Controls and Sensors

Students will be able to:

- Demonstrate a knowledge of automated machines and explain how controls and sensors interact to run them. (I)
- Explain how control program software is operated. (I)
- Describe how various input and output devises are used in their everyday life. (C)
- Define sequencing and its applications in computer programming. (I)
- Use flowcharting to describe a series of steps to complete. (C)

Electronic Music

Students will be able to:

- Explain the three basic elements of music. (C)
- Identify and explain techniques for composing and editing music using a computer interface. (I)
- Explain how musicians, technicians, and producers interact to create recordings. (I)
- Demonstrate a knowledge of the language of music. (C)
- Explain the features of the MIDI synthesizer and other digital musical instruments. (I)
- Identify procedures and equipment used in the recording of music. (I)

Flight Simulation

Students will be able to:

- Identify and describe aircraft controls. (I)

- Identify the forces that affect an aircraft in flight. (I)
- Discuss the landing of an aircraft. (I)
- Recognize, define, and discuss the effects on flight the major parts of an airplane. (I)
- Demonstrate an understanding of taxiing and takeoff. (I)

Introduction to Technology

Students will be able to:

- Explore the impact of technology on social and environmental concerns. (C)
- Gain an understanding of the nature of technology. (C)
- Explore the processes for the universals of technology. (I)
- Identify and explore the three categories of the technological contexts for the universals of technology. (I)
- Explore how technological problems are solved. (C)
- Gain an understanding of how technological processes are developed, applied, and used. (C)
- Explore the importance for people to obtain the ability to use, manage, and understand technology. (C)

Plastics

Students will be able to:

- Discuss the basic chemistry of plastics. (C)
- Discuss the early history of plastics and follow important developments up to modern times. (I)
- Operate an injection molding machine. (I)
- Explain the properties of plastics. (I)
- Operate a thermoplastic vacuum forming machine. (I)

Radio Broadcasting

Students will be able to:

- Demonstrate a knowledge of copywriting for radio broadcasting. (I)
- Describe some common radio deejay duties and practices. (I)
- Describe the equipment used in radio broadcasting. (I)
- Compare and contrast the functions performed in a production studio and in an on-the-air studio. (I)
- Identify types of commercials and explain how they are created and broadcast. (I)

- Demonstrate a knowledge of the history of radio. (C)

Satellite Communications

Students will be able to:

- Identify the components of an earth station and explain how they work. (I)
- Describe the fundamental principles of satellite communications. (I)
- Demonstrate a knowledge of satellite launch vehicle design. (I)
- Explain spacecraft functions during launch and how satellites achieve and maintain orbit. (I)
- Demonstrate a knowledge of installation and alignment procedures for a TVRO point-and-lock Ku band satellite receiver. (I)
- Identify satellite communications applications. (I)
- Define terminology relating to satellite communications. (I)

Video Production

Students will be able to:

- Demonstrate a knowledge of camera and video equipment operation and proper care. (I)
- Demonstrate an understanding of camera movements and composition. (I)
- Identify the functions of lighting, and discuss lighting techniques and the operation of lighting equipment. (I)
- Identify and explain pre-production functions such as scripting and the use of storyboards. (I)
- Explain how sound is recorded and used in video production. (I)
- Describe the functions of the various members of a video production crew and identify career opportunities. (I)
- Describe the basic concepts of video production. (I)

Virtual Reality

Students will be able to:

- Identify a variety of uses for VR. (I)
- Explain what virtual reality is. (I)
- Describe the equipment used to display and manipulate images in virtual space. (I)
- Demonstrate an understanding of the principles behind seeing in 3D. (I)
- Define the terms related to virtual reality. (I)
- Describe the five different types of virtual reality. (I)

- Demonstrate tools needed to navigate in and construct an environment using virtual reality software. (I)

Web Design

Students will be able to:

- Learn about good web design. (I)
- Understand what makes a good web design. (I)
- Explain good web design principles. (I)
- Describe techniques used in good web design. (I)
- Demonstrate good web design including font, color, style, backgrounds, links and graphics. (I)
- Develop writing skills for web page creation. (I)