

DOWNEY UNIFIED SCHOOL DISTRICT
Middle School Course Outline

Course Title: Technology Education (One Semester)

Grade Level: 7, 8

Prerequisites: None

Course Description:

Technology Education provides students with opportunities to experience many of the new technologies that affect their daily lives. Learning modules are utilized to give students hands-on interaction with such things as robots, lasers, computer-controlled machines, construction and woodworking, electronics, air and space transportation, audio-video, and other areas of technology. Student activities are designed to provide students with hands-on experiences with technology while reinforcing the academic core areas of language arts, math, science, history-social studies, graphic design engineering, and the visual and performing arts. Upon completion of this course, the student will have information to make decisions regarding career and educational choices as related to technology.

Student Performance

Objectives for this
Course:

BIOTECHNOLOGY

Students will

1. demonstrate the relationship between biology and technology.
2. explain methods of biotechnology in the investigation of living systems (agriculture, health, medicine, DNA, cloning, etc.)

COMMUNICATION

Students will

3. survey a variety of communication processes (audio, CAD, Electronic, lasers, visual) and their importance in communications technology.
4. use different processes of communication and media to communicate a message.

Technology Education - continued

CONSTRUCTION

Students will

5. survey a variety of construction processes (planning, framing, plumbing, wiring) and their importance in construction technology.
6. build models/projects incorporating these processes.

MACHINE AND TOOL SAFETY

Students will

7. demonstrate safe and appropriate use of tools and machines, including the correct operation of tools and machines to form, separate, combine, and condition materials.

MANUFACTURING

Students will

8. survey a variety of manufacturing processes (research, tooling, casting, forming, combining, conditioning) and their importance in manufacturing technology.
9. create models/products incorporating different manufacturing processes.

MATERIALS

Students will

10. demonstrate an understanding of how raw materials (animal, mineral, vegetable) are collected and processed to produce industrial materials (composites, metals, wood products.)
11. explain processes and testing used to produce and recycle common industrial materials.

POWER AND ENERGY

Students will

12. describe sources and systems of power and energy (electrical, simple machines, solar, thermal, water, wind).
13. build models/projects incorporating different processes.

TRANSPORTATION

Students will

14. explain the applications of transportation technology to land, water, air, and space.
15. incorporate transportation technology into the design and construction of a model/functional vehicle.

CAREER

Students will

16. develop an understanding of the following career standards and their relationship to future employment and high school curriculum clusters: Personal Skills; Interpersonal Skills; thinking and Problem Solving Skills; Communication Skills; Occupational Safety; Employment Literacy; Technology Literacy.
17. survey the Career Paths Model and discuss how it relates to future high school and career studies courses.

Instructional Units

Students will work in pairs for 5 to 8 days in at least 8 of the 16 self-directed learning stations or modules. Students will rotate partners and modules at the end of the 5 to 8 days. Student will keep a portfolio of their work which will include for each module: daily journals, vocabulary words, study questions, attendance points, work habits points, worksheets and projects. Students will complete at least 2 take-home problem-solving projects each semester.

Instructional Units *(continued)*

The modules may be assigned from the following list. Students will be assigned at least 8 of these unit areas during the semester:

- Introduction to Technology
- Safety
- CADD (Computer Aided Drafting and Design)
- Visual Communications
- Simple Machines
- Research and Development (R&D)
- Manufacturing
- Telecommunications
- Graphic Design
- Energy
- Audio Communication
- Air and Space Transportation
- Career Education
- Electronics
- Robotics
- Structural Engineering
- Biotechnology
- Engine Technology
- Video Production
- Laser Technology
- Satellite Technology
- Multimedia
- Music Technology
- Wood Technology
- Computer Animation
- Land Transportation
- Digital Photography

Evaluation

Student progress will be evaluated by:

- Tests
- Projects
- Portfolio Assessment
- Teacher Observation

Materials and Resources

Student textbook:

Technology-Shaping Our World; Goodheart and Wilcox