



RADNOR TOWNSHIP SCHOOL DISTRICT  
Course Overview



Introduction to Technology -7<sup>th</sup> Grade  
Course #

**General Information**

Credits: RHS Only  
Weighted: N/A  
Prerequisite: N/A

Length: Semester  
Format: 3 days per cycle  
Grade: 7th

**Course Description**

Introduction to Technology is the first chance for middle school students to formally explore the technological world around them. Besides learning about technology and the use of basic and hi-tech tools and materials processes, students will also have the opportunity to learn and apply the design process to their projects/challenges. This 7<sup>th</sup> grade course will focus on the areas of manufacturing and construction technologies while also developing technical communications skills. Projects and activities use the design process and are based on creating, testing and modifying solutions for challenges. Designs will be created using technical sketching and computer aided drafting and design (CADD) as well as advanced prototyping tools like the 3-D Printer and Laser Engraver.

**Course Objectives:**

**Students will:**

- apply the design process to design challenges and projects
- apply and document the brainstorming process
- use a design process to work from a problem to a solution
- identify and use criteria and constraints in a design process
- apply advanced tools and processes to create solutions to problems
- measure with an accuracy of 1/8" using a ruler
- create an original design using CADD software
- apply structural load concepts to design challenges
- apply the fundamentals of buoyancy

**Common Assessments:**

**Required Assessments:**

Common Course Assessments:

**Technology and Design Process Quiz** – Define and identify terminology.

**Measurement Quiz** – Measure and draw lines.

**Boat Hull Design Project** – Students are given a base set of materials and must design and build a boat hull that will not only float but will hold as much weight as possible before sinking or capsizing.

**Key Chain Project**- Through the design process and using Autodesk Inventor student design a keychain that will be printed out using the 3-D printer.

**Ear Bud Storage Wrap Project**- Student will design build and test a prototype and final version of a devise to store ear buds tangle free when they are not in use. Autodesk Inventor is used to complete the design that will be cut out using the laser engraver.

**Bridge and Truss Elements Quiz** – Terminology and Concepts.

**Truss Design Project**- Students will design and build a truss design that will stably hold as much weight as possible.

**Architectural Design**- Students will create to scale floor plan of a small house/apartment.

## **Major Units of Study:**

### **Introduction to Technology & Design**

Defining technology  
Areas of Technology  
Design Process  
Design Challenge  
Measurement Review Inches down to 1/16"  
**Boat Hull Design Challenge**

### **Technical Sketching and CADD**

Multiview Sketches  
Isometric Sketches  
Autodesk Inventor Introduction  
**Keychain Design Project (3-D Printer)**

### **Manufacturing Technology**

Materials Processes  
Prototyping Design  
Design for a Purpose  
**Ear Bud Storage Wrap Design (Laser Engraver)**

### **Construction Technology**

Load Transfer  
**Truss Design Challenge**  
Architectural Design Intro  
**Floor Plan Design**

### ***Major Projects in Bold Italics***

*(Classroom Equipment in Parentheses)*

## **Materials & Texts**

### **Required Texts and Resources:**

Common Texts and Resources:

Common Course Texts and Resources:

### **Supplemental Texts and Resources (use may vary):**

- Other teacher created or teacher selected texts and resources needed in order to differentiate instruction and meet the needs of all students.