**COURSE DESCRIPTION**

**Course Title:** Applying Technology 8

**Course Number:** 00740

**Course Prerequisites:** N/A

**Course Description:** Applying Technology ​8 is a semester long activity-based course in which students will focus on the application of the tools, materials and processes of communication, manufacturing, construction and transportation, and biotechnologies. Students will study the ways materials, energy, and information are processed to transmit information, build structures, make products, and explore the areas of bio-related technologies.

**Suggested Grade Level**: Grade 8

**Length of Course:** One Semester

**Units of Credit:** .5

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG 65 Technology Education

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** Yes No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

F – Final Average MP – Marking Period EXM – Final Exam

**GPA Type**:  GPAEL-GPA Elementary  GPAML-GPA for Middle Level  NHS-National Honor Society

UGPA-Non-Weighted Grade Point Average  GPA-Weighted Grade Point Average

**State Course Code**: 21052

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  Introduction to Technology

**Publisher:** Glencoe/McGraw-Hill

**ISBN #:**  0-07-861219-5

**Copyright Date:** 2005

**WCSD Board Approval Date:** 2007

**Supplemental Materials:** CREO Parametrics, Jeep materials (wood, cutting guides, hand tools, drill presses, wooden pegs, nails, nail set, rulers, sandpaper, wheels), clock construction materials (wood, clock mechanism, glue), drafting materials (drafting paper, clear rulers, 3D rulers, drafting boards), wooden box materials (wood, nails, hinges, glue), TinkerCAD, Pro Desktop (where applicable), measuring apparati (rulers, tape measures, yard/meter sticks, protractors)

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 2/19/2025

**Date Approved:**  3/10/2025

**Implementation Year:** 2024-2025

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**SCOPE AND SEQUENCE OF CONTENT AND CONCEPTS**

**Marking Period 1**

* Introduction to Technology
* Design Engineering
* Production Engineering

**Marking Period 2**

* Production Engineering (continued)
* Manufacturing Products
* Enterprise Unit

**Marking Period 3**

* Introduction to Technology
* Design Engineering
* Production Engineering

**Marking Period 4**

* Production Engineering (continued)
* Manufacturing Products
* Enterprise Unit

**Standards/Eligible Content and Skills**

| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Marking Period Taught** |
| --- | --- | --- |
| Apply strategies to understand complex directions. | BCIT.15.3.8.C | MP1, MP2, MP3, MP4 |
| Explore pathways to becoming an entrepreneur. | BCIT.15.5.8.A | MP2, MP4 |
| Identify management and organizational skills needed for entrepreneurship. | BCIT.15.5.8.B | MP2, MP4 |
| Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly. | CC.1.4.8.A | MP2, MP4 |
| Develop and analyze the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples; include graphics and multimedia when useful to aiding comprehension. | CC.1.4.8.C | MP2, MP4 |
| Use precise language and domain-specific vocabulary to inform about or explain the topic. | CC.1.4.8.E.1 | MP1, MP2, MP3, MP4 |
| Write arguments to support claims. | CC.1.4.8.G | MP2, MP4 |
| Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others. | CC.1.4.8.U | MP2, MP4 |
| Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others’ ideas and expressing their own clearly. | CC.1.5.8.A | MP1,MP2, MP3, MP4 |
| Research information from various sources to use and maintain technological products or systems. | SCI.3.5.6-8.A | MP1, MP2, MP3, MP4 |
| Use instruments to gather data on the performance of everyday products. | SCI.3.5.6-8.B | MP1,MP2 , MP3, MP4 |
| Analyze how the creation and use of technologies consumes renewable, non-renewable, and inexhaustible resources; creates waste; and may contribute to environmental challenges. | SCI.3.5.6-8.D | MP1,MP2 , MP3, MP4 |
| Consider the impacts of a proposed or existing technology and devise strategies for reducing, reusing, and recycling waste caused by its creation. | SCI.3.5.6-8.E | MP1,MP2 , MP3, MP4 |
| Analyze examples of technologies that have changed the way people think, interact, live, and communicate. | SCI.3.5.6-8.F | MP1,MP2 , MP3, MP4 |
| Evaluate trade-offs based on various perspectives as part of a decision process that recognizes the need for careful compromises among competing factors. | SCI.3.5.6-8.H | MP1,MP2, MP3, MP4 |
| Examine the ways that technology can have both positive and negative effects at the same time. | SCI.3.5.6-8.I | MP1, MP3 |
| Use tools, materials, and machines to safely diagnose, adjust, and repair systems. | SCI.3.5.6-8.J | MP1,MP2 , MP3, MP4 |
| Use devices to control technological systems. | SCI.3.5.6-8.K | MP1,MP2 , MP3, MP4 |
| Design methods to gather data about technological systems. | SCI.3.5.6-8.L | MP1, MP2 MP3, MP4 |
| Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. | SCI.3.5.6-8.M | MP1, MP2 MP3, MP4 |
| Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. | SCI.3.5.6-8.N | MP2, MP4 |
| Interpret the accuracy of information collected. | SCI.3.5.6-8.O | MP1, MP3 |
| Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. | SCI.3.5.6-8.P | MP1, MP2 MP3, MP4 |
| Apply a technology and engineering design thinking process. | SCI.3.5.6-8.Q | MP1, MP2 MP3, MP4 |
| Develop innovative products and systems that solve problems and extend capabilities based on individual or collective needs and wants. | SCI.3.5.6-8.R | MP1, MP2 MP3, MP4 |
| Illustrate the benefits and opportunities associated with different approaches to design. | SCI.3.5.6-8.S | MP1, MP2 MP3, MP4 |
| Create solutions to problems by identifying and applying human factors in design. | SCI.3.5.6-8.T | MP1, MP2 MP3, MP4 |
| Evaluate and assess the strengths and weaknesses of various design solutions given established principles and elements of design. | SCI.3.5.6-8.U | MP1, MP2 MP3, MP4 |
| Refine design solutions to address criteria and constraints. | SCI.3.5.6-8.V | MP1, MP2 MP3, MP4 |
| Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. | SCI.3.5.6-8.W | MP1, MP2 MP3, MP4 |
| Defend decisions related to a design problem. | SCI.3.5.6-8.X | MP1, MP2 MP3, MP4 |
| Demonstrate how knowledge gained from other content areas affects the development of technological products and systems. | SCI.3.5.6-8.BB | MP2 , MP4 |
| Consider historical factors that have contributed to the development of technologies and human progress. | SCI.3.5.6-8.CC | MP1, MP2 MP3, MP4 |
| Engage in a research and development process to simulate how inventions and innovations have evolved through systematic tests and refinements. | SCI.3.5.6-8.DD | MP2, MP4 |
| Demonstrate how systems thinking involves considering relationships between every part, as well as how the systems interact with the environment in which it is used. | SCI.3.5.6-8.FF | MP1, MP2 MP3, MP4 |
| Predict outcomes of a future product or system at the beginning of the design process. | SCI.3.5.6-8.II | MP1, MP2 MP3, MP4 |
| Apply informed problem-solving strategies to the improvement of existing devices or processes or the development of new approaches. | SCI.3.5.6-8.JJ | MP1, MP2 MP3, MP4 |
| Compare how different technologies involve different sets of processes. | SCI.3.5.6-8.LL | MP1, MP2 MP3, MP4 |

**ASSESSMENTS**

**PDE Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:** (not limited to) Bell ringers, exit tickets, worksheets, quizzes, lab assignments, practice tests, writing prompts, teacher questioning, class discussions, individual and team-based projects, classroom polls, think-pair-share

**Summative Assessments: The** teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:** Essays, tests, projects, performance tasks, presentations, portfolios