

# Warren County School District

## PLANNED INSTRUCTION

### COURSE DESCRIPTION

**Course Title:** Applying Technology

**Course Number:** 00741

**Course Description and Prerequisites:** \_\_\_\_\_

Applying Technology is an activity-based course that focuses 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, move passengers and freight, and explore the areas of bio-related technologies. No pre-requisite.

Final exam required.

**Suggested Grade Level:** 7<sup>th</sup>

**Length of Course:** X One Semester \_\_\_\_\_ Two Semesters \_\_\_\_\_ Other

**Units of Credit:** none

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certification(s)** Technology Education CPSG #65

**Certification verified by WCSD Human Resources Department:**

X Yes \_\_\_\_\_ No

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

Book Title:

Publisher:

ISBN #:

Copyright:

**Date of WCSD Board Approval:**

**BOARD APPROVAL:**

**Date Written:** October 9, 2006

**Date Approved:**\_\_\_\_\_

**Implementation Year:** 2007-2008

**Suggested Supplemental Materials:**

None

**Course Standards**

**PA Academic Standards:**

3.1.7 (A,B,C,D,E) Unifying Themes  
3.2.7 (A,B,D) Inquiry and Design  
3.4.7 (A,B,C) Physical Science, Chemistry and Physics  
3.5.7 (B) Earth Sciences  
3.6.7 (A,B,C) Technology Education  
3.7.7 (A,B,C,D,E) Technological Devices  
3.8.7 (A,B,C) Science, Technology and Human Endeavors

**WCSD Academic Standards:**

None

**Industry or Other Standards:**

None

**WCSD EXPECTATIONS**

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction

**SPECIAL EDUCATION AND GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (I.E.P.) or Gifted Individual Education Plan (G.I.E.P.).

**SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS  
AND ELIGIBLE CONTENT WHERE APPLICABLE**

**3.1.7 Unifying Themes**

x – performance assessed during that semester

	Performance Indicator	1	2	Assessment
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A.	Explain the parts of a simple system and their relationship to each other.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
B.	Describe the use of models as an application of scientific or technological concepts.			
C.	Identify patterns as repeated processes or recurring elements in science and technology.			
D.	Explain scale as a way of relating concepts and ideas to one another by some measure.			
E.	Identify change as a variable in describing natural and physical systems.			

### 3.2.7 Inquiry and design

	Performance Indicator	1	2	Assessment
A.	Explain and apply scientific and technological knowledge.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
B.	Apply process knowledge to make and interpret observations.			
D.	Know and use the Technological design process to solve problems.			

### 3.4.7 Physical Science, Chemistry and Physics

	Performance Indicator	1	2	Assessment
A.	Describe concepts about the structure and properties of matter.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> </ul>
B.	Relate energy sources and transfers to heat and temperature.			

C.	Identify and explain the principles of force and motion.			<ul style="list-style-type: none"> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
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### 3.5.7Earth Sciences

	Performance Indicator	1	2	Assessment
B.	Recognize earth resources and how they affect everyday life.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>

### 3.6.7Technology Education

	Performance Indicator	1	2	Assessment
A.	Explain biotechnologies that relate to related technologies of propagating, growing, maintaining, adapting, treating and converting.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
B.	Explain information technologies of encoding, transmitting, receiving, storing, retrieving and decoding.			
C.	Explain physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design.			

### 3.7.7 Technological Devices

	Performance Indicator	1	2	Assessment
A.	Describe the safe and appropriate use of tools, materials and techniques to answer questions and solve problems			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
B.	Use appropriate instruments and apparatus to study materials.			
C.	Explain and demonstrate basic computer operations and concepts.			
D.	Apply computer software to solve specific problems.			
E.	Explain basic computer communications systems.			

### 3.8.7 Science Technology and Human Endeavors

	Performance Indicator	1	2	Assessment
A.	Explain how science and technology are limited in their effects and influences on society.			Formative Assessments: <ul style="list-style-type: none"> <li>• Rubrics</li> <li>• Teacher Observation</li> <li>• Peer Evaluation</li> <li>• Quizzes</li> </ul> Summative Assessments: <ul style="list-style-type: none"> <li>• Completed Projects</li> <li>• Written Exams</li> </ul>
B.	Explain how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.			
C.	Identify the pros and cons of applying technological and scientific solutions to address problems and the effect upon society.			

## ASSESSMENTS

**PSSA Assessment Anchors Addressed:** The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at [pde@state.pa.us](mailto:pde@state.pa.us).

**Formative Assessments:** The teacher will develop and use standards-based assessments throughout the course.

**Portfolio Assessment:** \_\_\_\_ Yes        X   No

**District-wide Final Examination Required:**      X   Yes    \_\_\_\_ No

**Course Challenge Assessment:** None

### **REQUIRED COURSE SEQUENCE AND TIMELINE**

<u>Content Sequence</u>	<u>Dates</u>
<b>Unit 1 The Nature of Technology</b>	15 hours
Why Study Technology?	
Concepts of Technology	
Processes Tools and Materials of Technology	
Energy and Power for Technology	
Electricity to Electronics	
Technology Connections	
<b>Unit 2 Engineering Design</b>	7 hours
Design and Problem Solving	
From Drawings to Prototypes	
<b>Unit 3 Information and Communication Technologies</b>	10 hours
Communications Systems	
Computer Technologies	
Graphic Communication	
Photographic Technologies	
Multimedia Technologies	
<b>Unit 4 Biotechnologies</b>	5 hours
Medical Biotechnologies	
Agricultural Biotechnologies	
<b>Unit 5 Manufacturing Technologies</b>	19 hours
Manufacturing Systems	
Manufacturing in the 21 <sup>st</sup> Century	

**Unit 6 Construction Technologies**

9 hours

The World of Construction

Building a Bridge

Heavy Construction

**Unit 7 Transportation Technologies**

6 hours

Transportation Power

Transportation Systems

**WRITING TEAM:** John Victor, Arthur Anderson, Elizabeth Anderson, David Krack, Patrick Cronmiller, Andrew Perlstein

**WCSD STUDENT DATA SYSTEM INFORMATION**

1. Is there a required final examination? ☒ Yes ☐ No
2. Does this course issue a mark/grade for the report card?  
☒ Yes ☐ No
3. Does this course issue a Pass/Fail mark? ☐ Yes ☒ No
4. Is the course mark/grade part of the GPA calculation?  
☐ Yes ☒ No
5. Is the course eligible for Honor Roll calculation? ☒ Yes ☐ No
6. What is the academic weight of the course?  
☒ No weight/Non credit ☐ Standard weight  
☐ Enhanced weight (Describe)\_\_\_\_\_