# Warren County School District

## PLANNED INSTRUCTION

## COURSE DESCRIPTION

**Course Title:** Exploring Technology

**Course Number:** 00730

**Course Description and Prerequisites:** No prerequisites~~; course requires a final exam.~~

Exploring Technology is an activity-based course that introduces students to technology by examining the basic systems of communication, manufacturing, construction, transportation and bio-related technologies. Students will study the evolution of technology, invention and innovation, impacts of technology, the systems approach and various problem-solving methods. This course provides a foundation for future studies in technology.

**Suggested Grade Level:** Sixth

**Length of Course:** ____One Semester _____Two Semesters __**X**__Other
The class cycles as one class of 40 minutes per week for the whole year. Each class is assigned a letter day.

**Units of Credit:** .2

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

**Certification verified by WCSD Human Resources Department:**
__**X**__ Yes ____No

**Board Approved Textbooks, Software, Materials:**
**Title:**
**Publisher:**
**ISBN #:**

**Copyright Date:**
**Date of WCSD Board Approval:**

**BOARD APPROVAL:**

**Date Written:** 10/06/06

**Date Approved:** 12/4/06 , Revision approved 8/8/11

**Implementation Year:** 2007-2008

**Suggested Supplemental Materials:** None

## Course Standards

**PA Academic Standards:**
3.1.7(A,D) Unifying Themes, 3.2.7(C,D) Inquiry and Design
3.6.7(A,B) 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:**

Common Core Standards for Literacy in History/Social Studies, Science and Technical Subjects

Beginning the 2010-2011 school year, we will begin implementing the Common Core Standards. This is a three-year implementation plan. By 2012-2013 we should be using the common core standards exclusively.

# Reading Standards for Literacy in Social Studies, Science and Technical Subjects Grades 6-8

## Key Ideas and Details

1. Cite specific textual evidence to support analysis of science and technical texts.

2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

## Craft and Structure

4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

## Integration of Knowledge and Ideas

7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

## Range of Reading and Level of Text Complexity

10. By the end of grade 8, read and comprehend science/ technical texts in the grades 6-8 text complexity band independently and proficiently.

# Common Core Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects Grades 6 - 8

## Text Types and Purposes

1. Write arguments focused on *discipline-specific* content.

   a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

   b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrates an understanding of the topic or text, using credible sources.

   c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

   d. Establish and maintain a formal style.

   e. Provide a concluding statement or section that follows from and supports the argument presented.

2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

   a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

   b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

   c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.

   d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

   f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

3. The standards require that students be able to incorporate narrative elements effectively into arguments and informative/ explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step

| |
|---|
| procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. |
| **Production and Distribution of Writing** |
| 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |
| 5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. |
| 6. Use technology, including the internet, to produce and publish writing and present the relationships between information ad ideas clearly and efficiently. |
| **Research to Build and Present Knowledge** |
| 7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. |
| 8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. |
| 9. Draw evidence from informational texts to support analysis, reflection, and research. |
| **Range of Writing** |
| 10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. |

## 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(A,D) Unifying Themes** x – performance assessed during that semester

| | Performance Indicator | 1 | 2 | Assessment |
|---|---|---|---|---|
| A. | Explain the parts of a simple system and their relationship to each other. | | | Formative Assessments:<br>• Rubrics<br>• Teacher Observation<br>• Peer Evaluation<br>• Quizzes<br>Summative Assessments:<br>• Completed Projects<br>• Written Exams |
| D. | Explain scale as a way of relating concepts and ideas to one another by some measure. | | | |

**3.2.7(C,D) Inquiry and Design**

| | Performance Indicator | 1 | 2 | Assessment |
|---|---|---|---|---|
| C. | Identify and use the elements of scientific inquiry to solve problems. | | | Formative Assessments:<br>• Rubrics<br>• Teacher Observation<br>• Peer Evaluation<br>• Quizzes<br>Summative Assessments:<br>• Completed Projects<br>• Written Exams |
| D. | Know and use the technological design process to solve problems. | | | |

**3.6.7(A,B) Technology Education**

| | Performance Indicator | 1 | 2 | Assessment |
|---|---|---|---|---|
| A. | Explain biotechnologies that relate to related technologies of propagating, growing, maintaining, adapting, treating and converting. | | | Formative Assessments:<br>• Rubrics<br>• Teacher Observation<br>• Peer Evaluation<br>• Quizzes<br>Summative Assessments:<br>• Completed Projects<br>• Written Exams |
| B. | Explain information technologies of encoding, transmitting, receiving, storing,<br>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:<br>• Rubrics<br>• Teacher Observation<br>• Peer Evaluation<br>• Quizzes<br>Summative Assessments:<br>• Completed Projects<br>• Written Exams |
| 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(A,B,C) Science, Technology and Human Endeavors**

| | Performance Indicator | 1 | 2 | Assessment |
|---|---|---|---|---|
| A. | Explain how sciences and technologies are limited in their effects and influences on society. | | | Formative Assessments:<br>• Rubrics<br>• Teacher Observation<br>• Peer Evaluation<br>• Quizzes<br>Summative Assessments:<br>• Completed Projects<br>• Written Exams |
| 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 solution~ 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.

**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 _**X**__ No

**Course Challenge Assessment:** None

## REQUIRED COURSE SEQUENCE AND TIMELINE

| Content Sequence | Dates |
|---|---|
| Introduction to Technology | 2 days |
| Classroom/Lab Safety | 2 days |
| Systems of Technology | 1-2 days |
| Systems Approach | 3 days |
| Impacts and Trade Offs | 2-3 days |
| Evolution of Technology | 2-3days |
| Invention and Innovation | 3-4days |
| Problem Solving Methods | 4-5days |
| Technology/Mathematics/ Science | 1-2days |
| Communication Technology | 4-5 days |
| Production Technology | 4-5 days |
| Transportation Technology | 4-5days |
| Bio-Related Technology | 4-5days |

Course Objectives:

1. Develop knowledge in technology and its basic systems of bio-related, communication, manufacturing, and transportation.
2. Identify the systems approach and how it is applied to the study of technology.
3. Identify the relationship between technology, mathematics, and science.
4. Apply problem-solving skills as an individual and in-group situations.
5. Apply knowledge of safety and proper and efficient use of various tools, machines, and equipment.
6. Identify with the evolutions of technology; analyze its impacts on people, society and the environment; and research possible future developments.
7. Explore communication, construction, manufacturing, transportation, and bio-related technologies by performing basic processes.

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

## WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? __**X**__ Yes __X__ No
2. Does this course issue a mark/grade for the report card?

   __**X**__ Yes___ No
3. Does this course issue a Pass/Fail mark? ____ Yes __**X**__ No
4. Is the course mark/grade part of the GPA calculation?

   __**X**__ Yes __ _ No
5. Is the course eligible for Honor Roll calculation? __**X**__ Yes ____ No
6. What is the academic weight of the course?

   ____ No weight/Non credit __.2 @__ Standard weight

   ____ Enhanced weight (Describe)_____