

**Course Title:** Land Surveying  
**Board Approval Date:** 11/18/13  
**Credit / Hours:** .5 credit

**Course Description:**

This course focuses on mastery of the PA Academic Standards for Science and Technology as well as Career Education and Work. As students progress through this course they will participate in a systematic study of understanding that within our local community, there are many independent land surveyors as well as surveying agencies/companies. Individuals who take this course will develop the basic skills needed to conduct land measurements, complete surveying activities and gain knowledge on how to use a global positioning system. Students will apply the course material to real world situations. Property ownership, property taxes, deeds, and other information crucial to future landowners will also be addressed. This course will offer additional skills related to the agriculture/natural resources articulation agreement with the Pennsylvania College of Technology.

**Learning Activities / Modes of Assessment:**

Large group instruction	Tests and Quizzes
Teacher Demonstrations/Activities	Checklists / Teacher Observation
Small group work	Activities with Rubrics
Career Pathway Explorations	Lesson Worksheets
LFS Worksheets	

**Instructional Resources:**

Surveying Equipment  
GPS Equipment  
Topographic and Zoning maps  
Sample Deeds and Wills

## Course Pacing Guide

Course: **Land Surveying**

**Course Unit (Topic)**

**Length of Instruction (Days/Periods)**

1. Land Surveying

30 days

2. Global Positioning System

10 days

3. Purchasing Land

10 days

4. Landowner Rights

10 days

5. Subdivision and Zoning

10 days

DAYS TOTAL

70 Days

Topic: 1-Land Surveying

Days: 30

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

<p><b>13.1.C – Compact</b> Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.</p> <p>Transit set up</p> <p>Reading, calculating, and recording land measurements</p> <p>13.1.C - Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.</p>	<p>Students should understand the necessary skills to conduct and record basic land surveying measurements.</p>	<p><b>3.4.12.B1. – Essential</b> EFFECTS OF TECHNOLOGY - Analyze ethical, social, economic, and cultural considerations as related to the development, selection, and use of technologies.</p> <p><b>13.1.A – Essential</b> Relate careers to individual interests, abilities, and aptitudes.</p> <p>Read and analyze different types of surveying rods</p> <p>Record and calculate all surveying measurements</p> <p>Apply surveying skills to land measuring activities</p> <p>Participate in a career activity</p> <p>3.4.12.B1. - EFFECTS OF TECHNOLOGY - Analyze ethical, social, economic, and cultural considerations as related to the development, selection, and use of technologies.</p> <p>13.1.A - Relate careers to individual interests, abilities, and aptitudes.</p>
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Topic: 2-Global Positioning System

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

<p><b>3.4.12.A1. – Important</b> CHARACTERISTICS OF TECHNOLOGY - Compare and contrast the rate of technological development over time.</p> <p><b>3.4.12.A3. – Essential</b> TECHNOLOGY CONNECTIONS - Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).</p> <p><b>3.4.12.C3. – Essential</b> RESEARCH &amp; DEVELOPMENT, INVENTION &amp; INNOVATION, EXPERIMENTATION/PROBLEM SOLVING AND TROUBLESHOOTING - Apply the concept that many technological problems require a multi-disciplinary approach.</p> <p><b>3.4.12.E4. – Compact</b> INFORMATION AND COMMUNICATION TECHNOLOGIES - Synthesize the effects of information and communication systems and subsystems as an integral part of the development of the Information Age.</p>	<p>Students should understand basic knowledge and skills necessary to operate a global positioning system.</p>	<p><b>3.4.12.A1. – Important</b> CHARACTERISTICS OF TECHNOLOGY - Compare and contrast the rate of technological development over time.</p> <p><b>3.4.12.A3. – Essential</b> TECHNOLOGY CONNECTIONS - Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).</p> <p><b>3.4.12.C3. – Essential</b> RESEARCH &amp; DEVELOPMENT, INVENTION &amp; INNOVATION, EXPERIMENTATION/PROBLEM SOLVING AND TROUBLESHOOTING - Apply the concept that many technological problems require a multi-disciplinary approach.</p> <p><b>3.4.12.E5. – Important</b> TRANSPORTATION TECHNOLOGIES - Explain how the design of intelligent and non-intelligent transportation systems depends on many processes and innovative techniques.</p> <p>Operate a gps</p> <p>Mark and store waypoints</p> <p>"Go To" previously stored waypoints</p> <p>Complete a local farm safety map</p> <p>3.4.12.A1. - CHARACTERISTICS OF TECHNOLOGY - Compare and contrast the rate of technological development over time.</p> <p>3.4.12.A3. - TECHNOLOGY CONNECTIONS - Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).</p> <p>3.4.12.C3. - RESEARCH &amp; DEVELOPMENT, INVENTION &amp; INNOVATION, EXPERIMENTATION/PROBLEM SOLVING AND TROUBLESHOOTING - Apply the concept</p>
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## Topic: 2-Global Positioning System

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

**3.4.12.E5. – Important TRANSPORTATION TECHNOLOGIES -**  
Explain how the design of intelligent and non-intelligent transportation systems depends on many processes and innovative techniques.

3.4.12.A1. -  
CHARACTERISTICS OF TECHNOLOGY -  
Compare and contrast the rate of technological development over time.

3.4.12.A3. -  
TECHNOLOGY CONNECTIONS -  
Demonstrate how technological progress promotes the advancement of science, technology, engineering and mathematics (STEM).

3.4.12.C3. -  
RESEARCH & DEVELOPMENT,  
INVENTION & INNOVATION,  
EXPERIMENTATION/  
PROBLEM SOLVING AND  
TROUBLESHOOTING  
- Apply the concept that many technological problems require a multi-disciplinary approach.

that many technological problems require a multi-disciplinary approach.

3.4.12.E5. - TRANSPORTATION TECHNOLOGIES - Explain how the design of intelligent and non-intelligent transportation systems depends on many processes and innovative techniques.

Topic: 2-Global Positioning System

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

3.4.12.E4. -  
INFORMATION AND  
COMMUNICATION  
TECHNOLOGIES -  
Synthesize the effects of  
information and  
communication systems  
and subsystems as an  
integral part of the  
development of the  
Information Age.

3.4.12.E5. -  
TRANSPORTATION  
TECHNOLOGIES -  
Explain how the design  
of intelligent and non-  
intelligent transportation  
systems depends on  
many processes and  
innovative techniques.

Topic: 3-Purchasing Land

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

<p><b>3.4.12.E4. – Compact INFORMATION AND COMMUNICATION TECHNOLOGIES -</b> Synthesize the effects of information and communication systems and subsystems as an integral part of the development of the Information Age.</p> <p>Land Considerations</p> <p>Deeds</p> <p>Wills</p> <p>Mortgages</p> <p>3.4.12.E4. - INFORMATION AND COMMUNICATION TECHNOLOGIES - Synthesize the effects of information and communication systems and subsystems as an integral part of the development of the Information Age.</p>	<p>Students should understand how to identify and discuss various aspects involved with purchasing land.</p>	<p><b>13.1.A – Essential</b> Relate careers to individual interests, abilities, and aptitudes.</p> <p>Identify land purchasing considerations</p> <p>Analyze and example deed</p> <p>Discuss different types of wills</p> <p>Discuss different types of loans</p> <p>13.1.A - Relate careers to individual interests, abilities, and aptitudes.</p>
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Topic: 4-Landowner Rights

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

<p><b>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</b></p> <p>Basic landowner rights</p> <p>Homestead Act</p> <p>Eminent Domain</p> <p>Government Programs</p>	<p>Students should understand the proper procedures to identify and discuss landowner rights.</p>	<p><b>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</b></p> <p><b>13.1.A – Essential</b> Relate careers to individual interests, abilities, and aptitudes.</p> <p>Identify landowner rights when owning land</p> <p>Discuss and explain the Homestead Act</p> <p>Discuss the Law of Eminent Domain</p> <p>Compare different government programs that landowners can enroll in</p> <p>3.4.12.A2. - CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p> <p>13.1.A - Relate careers to individual interests, abilities, and aptitudes.</p>
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Topic: 5-Subdivision and Zoning

Days: 10

Subject(s): Vocations

Grade(s): 10th, 11th, 12th

Know:

Understand:

Do:

<p><b>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</b></p> <p>Subdivision</p> <p>Zoning Laws</p> <p>Agricultural Security Areas</p>	<p>Students should understand the use of subdivision and zoning laws as they relate to land ownership.</p>	<p><b>3.4.12.A2. – Essential CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</b></p> <p>Discuss permit fees and zoning laws that relate to building and land ownership</p> <p>Analyze a local zoning map</p> <p>3.4.12.A2. - CORE CONCEPTS OF TECHNOLOGY - Describe how management is the process of planning, organizing, and controlling work.</p>
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