

**Course Title:** 5<sup>th</sup> Grade Agricultural Science/Industrial Technology

**Board Approval Date:** 4/11/16

**Credits:** NA

**Course Description:**

This course focuses on mastery of the PA Academic Standards for Science and Technology, Engineering Education, as well as Environment and Ecology. As students progress through this course, they will participate in a systematic study of the water cycle, wetlands, pollution, plant/animal growth, the design process, and the importance of hand tools. Students will identify common hand tools and practice using them, visit the high school greenhouse to plant seeds as part of a plant growth study, and design a wind-powered boat and construct it using various materials in the shop.

**Learning Activities / Modes of Assessment:**

Large group instruction  
Student-driven learning activities  
Checklists / Teacher Observation  
Small group work  
Sketch designs for wind-powered boat  
iPads for class assignments and group projects  
Projects with Rubrics  
Construction of projects in the wood shop  
Shop safety quizzes  
Digital Lessons  
Race against classmates using wind-powered boats  
Hand tool identification

**Instructional Resources:**

Discovery Education  
Various informational resources from [www.agednet.com](http://www.agednet.com)  
Technology. Thode, Bradley R. and Terry. Delmar Publishers Inc. 1994.  
Technology: Today and Tomorrow. Brusica, Sharon A., Fales, James F., Kuetemeyer, Vincent F. McGraw Hill – Glencoe. 2004.  
Technology Interactions. Harms, Henry R., Swernofsky, Neal R. McGraw Hill – Glencoe. 2003.  
Agricultural Mechanics: Fundamentals and Applications, 4<sup>th</sup> edition (Herren and Cooper, 2002)

## Course Pacing Guide

Course: **5<sup>th</sup> Grade Agricultural Science/Industrial Technology**

<b>Course Unit (Topic)</b>	<b>Length of Instruction (Days/Periods)</b>
1. Hand Tools	6 days
2. Ag Science	8 days
3. Boat Project	<u>6 days</u>
DAYS TOTAL	20 Days

## 5th - Hand Tools KUD

<b>KNOW</b>	<b>UNDERSTAND</b>	<b>DO</b>
3.4.5.A1: Explain how people use tools and techniques to help them do things.	Hand tools allow people to perform a wide variety of tasks in various locations and serve as an extension of the human hand.	3.4.5.A1: Explain how people use tools and techniques to help them do things.
Identify names of common hand tools		Demonstrate proper use of common hand tools
Know safety rules for working in the shop		Follow safety rules while working in the shop

5th Grade - Ag. Science - KUD

<b>KNOW</b>	<b>UNDERSTAND</b>	<b>DO</b>
4.2.5.A - Explain the water cycle	Plants and animals rely on good water quality to grow successfully.	4.4.5.C - Investigate the factors influencing plant and animal growth (e.g., soil, water, nutrients, and
4.2.5.B - Identify important wetlands in the United States.		4.4.5.A - Explain why animal production is dependent upon plant production.
4.2.5.C - Identify physical, chemical, and biological factors that affect water quality.		Plant Growth Study
Vocabulary: water cycle, precipitation, evaporation, condensation, coastal wetland, inland wetland, point source pollution, non-point source pollution, physical pollution, chemical pollution, biological pollution, root, stem, leaf, flower, photosynthesis, pollinators		

5th Grade - Boat Project - KUD

<b>KNOW</b>	<b>UNDERSTAND</b>	<b>DO</b>
3.4.5.C1 - Explain how the design process is a purposeful method of planning practical solutions to problems	Design helps give a clear picture of what a project will look like when it is finished and provides the builder with a plan of how to build the project.	3.4.5.D1 - Identify ways to improve a design solution
How to create sketches		Create two different sketches of a boat that will be powered by wind.
How to label parts of a boat and dimensions on a sketch		Build the boat using the sketches, recycled materials, and various hand tools in the shop.
Vocabulary: hull, mast, sail, ballast		Test boat to determine improvements.
		Race boat against other classmates.