

**Pleasant Hills Middle School
Technology Education Curriculum**

7th Grade
Manufacturing Technology

January 2004

Overview

In 7th grade students expand on the learning and experiences they had the previous year. The main focus of this 4-week experience is to understand the world of manufacturing by participating in a manufacturing operation and understanding the impacts and consequences that manufacturing has had on our society and the world. Emphasis is placed on safety as it relates to using tools and machines. The concepts of process thinking related to the systems of a manufacturing enterprise are as important as the operation. Lastly, students will further explore how design and problem solving are related to manufacturing and the engineering design process by designing their own product idea and a package for it.

Standards:

- 1.5.8.B: Write using well-developed content appropriate for the topic.
- 1.6.8.E: Participate in small and large group discussions and presentations.
- 3.1.7.A: Explain the parts of a simple system and their relationship to each other.
- 3.2.7.D: Know and use the technological design process to solve problems.
- 3.6.7.A: Explain information technologies of encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.6.7.C: Explain physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design.
- 3.7.7.A: Describe the safe and appropriate use of tools, materials and techniques to answer questions and solve problems.
- 3.7.7.D: Apply computer software to solve specific problems.
- 3.8.7.A: Explain how sciences and technologies are limited in their effects and influences on society.
- 3.8.7.B: Explain how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.

Course Outline

Day 1: Systems of Manufacturing

- ✓ What is manufacturing?
- ✓ Engineering Design Process & Manufacturing

Day 2: Push vs. Pull Manufacturing

- ✓ Push Production Example
- ✓ Pull Production Example
- ✓ Real-world example

Day 3: Company Organization

- ✓ History of Manufacturing
- ✓ Company Structure
- ✓ Job Descriptions

Day 4: Designing a Flow Chart

- ✓ Types of flow chart symbols
- ✓ Importance of planning and organization

Day 5-7: Machine Demonstrations & Safety Tests

- ✓ Drill Press, Router, Miter Saw

Day 8: Elections and Company Name

- ✓ From Company (Elect Pres and VP's)
- ✓ Select company name
- ✓ Organize manufacturing

Days 9-16:

Logo Design

- ✓ Design company logo
- ✓ Create company slogan

Computer Numerically Controlled Machining

- ✓ Using CNC Programming

Product Manufacturing

- ✓ Elect Management (President and 3 Vice Presidents)

Finance/Marketing	Manufacturing		Quality Control
✓ Design Logo	Frame	Base	✓ Monitor Safety of workers
✓ Select Logo	✓ Sand Edges	✓ Sand Base	✓ Check Plastic
✓ Produce Logo	✓ Buff Edges	✓ Shape Base Edges	✓ Check Wood
✓ Marketing Plan	✓ Drill Holes	✓ Route Pencil Holder	✓ Check Packaging
✓ Create Ads (Radio, TV, Posters)	✓ Peel Paper	✓ Drill Frame Holes	
✓ Affix Logo to bag	✓ Bend	✓ Drill Pen Holder (optional)	
✓ Take Orders		✓ CNC Logo	
✓ Deliver Product	✓ Assemble base and plastic Frame		
	✓ Package		

Days 17-20

- ✓ CAD drawing wooden base

Day 21: Final Exam and Product Distribution

Day 22: Catch-up Day

Teacher Print/Video Resources:

Technology Industry Entrepreneurship

Complete Teacher Academy LLC

9 Fleetwood Drive

Rockaway, New Jersey 07866

Phone: (973) 627-3159 • Fax: (973) 983-8151

Web Site: <http://www.completeteacher.com/tie.htm>

Price: \$16.95 + \$3.00 S/H

What's Up in Factories (Video Series)

Thirteen/WNET

356 West 58th Street

New York, NY 10019

Phone: (800) 228-4630

Fax: (212) 560-6992

Website: <http://www.thirteen.org/factories/factories4/other4.html>

Price \$59.95

Resources:

See attachment for approximately 300 students.

Company Contact Information:

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