Williamsville C.U.S.D. #15
Industrial Technology

Program Title: Metalworking

Program Description: This course focuses on the different types of metal working principles and processes that are used today's workplace. The areas of focus include: foundry basics, forging, welding, cutting, soldering, sheet-metal fabrication, cold forming, and machining. This class is shop oriented.

Prerequisite: Manufacturing (One semester class)

Program Content: To learn about shop procedure and project planning using hands on metalworking projects.

Program Guide

I. Safety Rules

A. General Safety Rules
B. Machine Safety Rules
C. Review Safety Rules and each machine

II. Hands-on projects may include

A. Paper weight (Milling machine)
B. Center punch (Lathe)
C. Tool Box (Sheet metal fabrication)
D. Welding (MIG, TIG, Oxyacetylene)
E. 1" Pipe (Threading/reaming)
F. Forging project (Cold Chisel)
G. Cutting activity (Metal band saw)
H. Scribe (Lathe/Heat treating furnace)
I. Clamp (Milling machine/Tap/Die/Drill Press)

III. Textbook review

UNIT	TITLE
1	Careers in Metalworking Technology
2	Metals We Use
3	Planning Your Project
4	Designing a Project
5	Metalworking Safety

6	Measurement & Layout
7	Basic Metalworking Tools & Equipment
8	Wrought Iron
9	Fasteners
10	Sheet Metal
13	Hand Forging
12	Metal Finishes 14
14	Casting Metals
15	Welding & Brazing
16	Heat-Treating Metals
17	Machining Technology

Textbook: Exploring Metalworking

Readings: Exploring Metalworking

Films & Video Tapes: Various clips from the Discovery Channel.

Equipment: Drill press, various power hand tools (drill, sanders, etc), various hand tools, marking board, overhead projector, TV/VCR, milling machine, metal lathe, heat treating furnace, forging kiln, metal band saw, grinder, buffer.

Field Trips: None at this time

Assessments: Homework, quizzes, tests, projects