MUCH MORE THAN A SHEET OF PAPER!

TRADE LINK: SHEET METAL WORKER

TEACHER BACKGROUND

Duration: Two 45-minute classes
Group size: Groups of 4
Grade: Grades 7-9.
Setting: Indoors

RATIONALE:

Sheet metal is used to make a number of items that we use and rely on every day. It forms our air conditioning and heating systems, garbage cans, creative art pieces, tool and lunch boxes, and a variety of other items. Students at this level will learn what it is like to fabricate sheet metal items, using cardboard or Bristol board. Begin by brainstorming where sheet metal is seen – in the classroom, the school, in homes, outside etc.

METHOD:

In this activity, students will be asked to construct a tool box using Bristol board or card board. Using materials provided by the teacher, students will follow instructions to build a tool box, with handle, using instructions similar to work that would be done with sheet metal. Students will have a specifications sheet for their tool box.

The challenge in this exercise is that students must plan to use their "sheet metal" effectively. Students will have a stock piece of Bristol board (22" x 28"). They must create their entire tool box out of this piece, with as little material remaining as possible.

MATERIALS:

- Bristol board or cardboard (22" x 28")
- Scissors (pair for everyone)
- Metal fasteners

GETTING STARTED:

Sheet metal is used for to make a number of household items, one of which is a tool box. Using Bristol board, which is similar to sheet metal, you will explore the construction of a tool box.

THE ACTIVITY (SKILLS FOR SUCCESS):

Teachers: refer to http://www.auntannie.com/BoxesBags/ShirtBox/Pattern/ for a pattern to share with students to make their tool box. (Digital, Numeracy)

OR:

For older students, do not provide a pattern for the design of the toolbox, have students create their own blueprint first and then test their measurements out.

1. Students are given the following details to carry out this activity:
2. Print out the instructions found in the link above or have students access the link directly on their own computers. Have students read instruction or "manual" to building their tool box found on site above. (Digital, Reading)
3. Students will lay out their tool box plan on their piece of Bristol board. Students will make measurements, calculate the space needed and determine their process. (Numeracy – Calculation and Measurement)
4. Call students together after all have laid out their tool boxes, have them (in groups) discuss the specifications, show how they laid it out, discuss how they will make their cuts and whether efficiencies can be realized (i.e. cut one piece instead of 3 and fold). (Communication). IMPORTANT: Make sure all students leave room for fasteners to put box together.
5. Have students cut out their toolbox schematic and assemble it all together. (Collaboration)

BRANCHING OUT:

1. Try using actual sheet metal if high school has the proper tools that would allow for this activity to take place.
2. Modify the task depending on the grade level. Higher grades might make more complex sheet metal items, where lower grades might make something like a pinwheel.

INFORMATION BITE:

Workers in this field fabricate and install a wide variety of construction related items using sheet metal or plastic materials components. The heating, ventilation and air-conditioning systems (HVAC), that control the temperature, humidity and total air quality in residential, commercial, industrial and other buildings by precisely following blueprints, design specifications and manufacturers' instructions. A Sheet Metal worker requires highly specialized and up to date skills to accomplish the various tasks involved in the trade.

WHAT ABOUT SKILLS FOR SUCCESS:

For a successful career in Sheet Metal, you should have an aptitude for electronics and a curiosity about how things work – numeracy and adaptability. You must be courteous and tactful, and have good communication and listening skills for dealing with customers' needs. Good math, computer and problem-solving skills are important assets for working in this profession. Reading is another Skills for Success that is necessary in this trade area.