

Activity name: Design a Container

This activity is meant to provide a real-world application of the ATEEC Recommended Core Curriculum's math, science, technical, communications, or critical thinking knowledge and skill concepts identified by ATEEC Fellows as necessary preparation for environmental technology occupations.

Appropriate for which course(s)? High School Math, Geometry, Integrated Math I or II

Instructional method: Experiment

Math skills:

1. Translating real-world problems into math forms.
2. Using formulas
3. Calculating perimeter, circumference, surface area.
4. Calculating cross sectional areas.
5. Finding volume of three dimensional figures.

Resources: (needed)

Assessment recommendations: Successfully enclose object using the smallest amount of material. End products could include a model or a diagram.

SCAN skills:

1. Basic math skills
2. Decision making
3. Mental visualization
4. Reasoning

Science skills:

1. Demonstrate safe practices and the use of safety equipment.

Technology education:

1. Use basic hand tools

Cognitive level:

1. Knowledge
2. Application
3. Synthesis

4. Evaluation

Concept/skill learned (i.e. from K/S Tables): Translate real world problems into mathematical form. Use formulas to calculate perimeter, circumference, surface area, cross sectional areas, and volumes of three dimensional analysis.

Approximate time to complete activity: 1 period to introduce the project, work time for partial periods for 1-2 weeks

Source of idea or activity (for published source, please include author, title, publisher, date): Oregon CIM tasks/project workshops in math and science, 1994-1995

Materials/resources needed: Costs of various materials (sheet metal, plastic, styrofoam, wood) that can be used as a container or package. Materials to build a model if desired.

Description of activity:

Students will design a container to enclose an object of given dimensions. (Exs: wood cube, apple, etc.) They will need to find the container size and shape that will enclose the standard object for the least cost. They will need a knowledge of the surface area calculations for various three dimensional shapes.

Related activities:

- Look at materials used for recycling capability.
- Analyze energy costs.

Activity submitted by: Robin Ritter

Return to <http://www.ateec.org/> > Learning Resources > Instructors > Environmental Tech Activities