

Overview:

In this activity students design and assemble a table using specific dimensions.

Objectives:

- ◆ Use spatial relationships to design a 3-D object from its 3-D component parts
- ◆ Specify the position of 3-D objects using Cartesian coordinates
- ◆ Calculate the volume of a cylinder and a prism
- ◆ Use multiple views to align geometric figures
- ◆ Combine basic 3-D figures to form a more complex figure
- ◆ Design a cylinder a prism
- ◆ Learn about dimensioning
- ◆ Learn the proper geometric terminology
- ◆ Go from the abstract of design to the concrete of building the three-dimensional model

Required Materials:

- Computer (Macintosh or PC) with printer
- aspeXTabsMST 3-D Design & Mathematics software
- Card stock (maximum 110 lbs)
- Ruler
- Scissors
- Glue stick or tape

Terms to Know:

Define the following vocabulary terms:

- Congruent: any two objects that are the same size and shape
- Primitive: any of several basic geometric shapes that can not be dismantled into components (spheres / cylinders / cubes / cones / and prisms)
- Cuboid: a rectangular prism with six rectangular faces
- Cylinder: a three-dimensional figure created by two circles of the same radius and parallel planes and the parallel lines connecting those two circles from every point on the circles.
- Prism: a three-dimensional figure bound by polygon bases and four rectangular sides
- Circle: a two-dimensional closed shape defined by all points in a plane a given distance from a center point
- Square: a quadrilateral with all sides equal and all angles equal
- Net: a two-dimensional pattern that can be folded into a three-dimensional figure