

Lesson 1.8: Space Geometry

In this lesson you will:

- learn the mathematical definition of space
- learn the names of common 3-dimensional objects and how to draw them
- solve problems that require you to visualize objects in space

*Add “space” to your dictionary.

In an “edge view,” you see the front edge of a building as a vertical line, and the other edges as diagonal lines. Isometric dot paper helps you draw these lines, as you can see in the steps below.



Below are the steps for making a 2-dimensional drawing of a rectangular prism. This type of drawing is called an isometric drawing. It shows three sides of an object in one view (an edge view). This method works best with isometric dot paper.



Step 1



Step 2



Step 3



Step 4

The three-dimensional objects you will study include the 6 types of geometric solids shown below.



Cylinder



Prism



Sphere



Cone



Pyramid



Hemisphere

Investigation 1.8: “Space Geometry”

Work with your group to determine whether each statement is true or false. Make a sketch with an example or counterexample.

1. For any two points, there is exactly one line that can be drawn through them.
2. For any line and a point not on the line, there is exactly one plane that can contain them.
3. For any two lines, there is exactly one plane that contains them.
4. If two coplanar lines are both perpendicular to a third line in the same plane, then the two lines are parallel.
5. If two planes do not intersect, then they are parallel.
6. If two lines do not intersect, then they are parallel.
7. If a line is perpendicular to two lines in a plane, and the line is not contained in the plane, then the line is perpendicular to the plane.

⇒ASSIGNMENT: _____