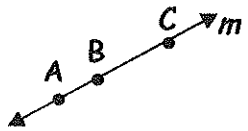
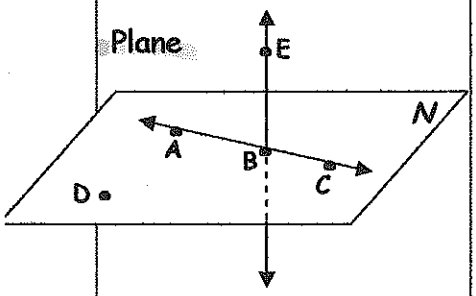
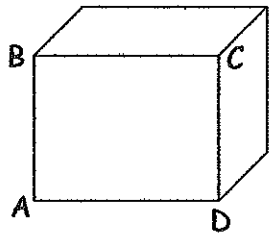
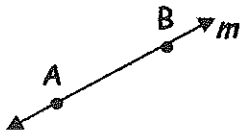
Geometry
Notes 1-3 Points Lines and Planes

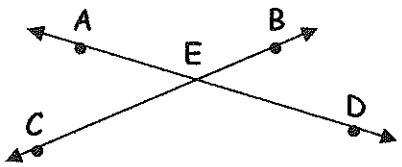
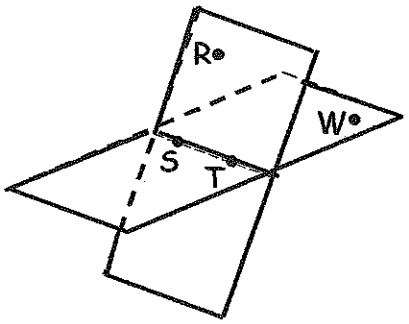
Name_____
Date_____Period_____

The three undefined terms in geometry are *point*, *line*, and *plane*.

Point 	A point is a location in space. A point has no size. Represented by a small dot and a capital letter Space is defined as the set of all points.
Line 	A series of points that extend in two opposite directions without end. You can name a line by any two points on the line such as $\overleftrightarrow{AB}$ (read "line *AB*"). Another way to name a line is by a single lower case letter. Points that lie on the same line are *collinear points.*
Plane 	A plane is a flat surface that has no thickness. A plane contains many lines extends without end in the directions of all its lines. You can name a plane either by a single capital letter or by at least three of its noncollinear points, plane *DAB*, or plane *N*. Points and lines that lie in the same plane are *coplanar.*
	Each surface of the rectangular prism is part of a plane. You can name the plane represented by the front of the prism by any three of the four letters: plane ABC, plane ABD, plane BCD, etc..

A postulate or axiom is an accepted statement of fact. We do not prove postulates. We have three postulates from this section that we need to remember:

Through any two points there is exactly one line.	 Line *m* is the only line that passes through A and B

If two lines intersect then they intersect in exactly one point.	 $\overleftrightarrow{AD}$ and $\overleftrightarrow{CB}$ intersect at *E*.
If two planes intersect, then they intersect in exactly one line.	 Plane *RST* and plane *STW* intersect in $\overleftrightarrow{ST}$.

Algebra Connection:

Does the point (4,8) lie on the line $y = 3x - 4$?

$8 = 3(4) - 4$ ✓

$8 = 8$

Does the point (2,1) lie on the line $4y + 3x = 7$

$4(1) + 3(2) = 7$ no

Space - set of all point

Collinear - points that lie on the same line

Coplanar - points and lines in the same plane

postulate or axiom - an accepted statement of fact