| Learning Targets	Help!	I'm getting there...	I'm almost there...	Yes! I totally got this! ☺
1. I can define point, space, line, collinear points, plane, and coplanar.				
2. I can identify and name a point, a line, collinear points, a plane, and coplanar points/lines.				
3. I can identify the intersection of two lines, a line and a plane, and two planes.				

Warm-Up: How Many Lines Can You Draw?
Many constellations are named for animals and mythological figures. It takes some imagination to join the points representing the stars to get a recognizable figure such as Leo the Lion. How many lines can you draw connecting the 10 points in Leo the Lion?

    *Make a table and look for a pattern to help you find out.
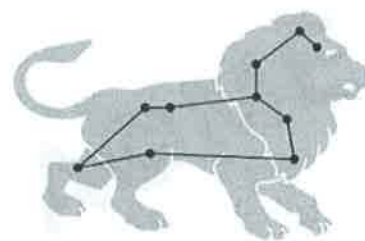
1. Mark 3 points on a circle. Now connect the 3 points with as many lines as possible. How many can you draw?

2. Repeat this procedure for 4, 5, and 6 points on a circle to complete the table.

3. Use inductive reasoning to tell how many lines you can draw to connect the 10 points of the constellation Leo the Lion.
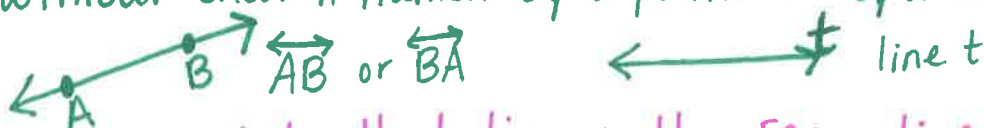
# of Points On the Circle	# of Lines Drawn
3	
4	
5	
6	
10	

**Point: _a location, has no shape or size_   ✗ named with a capital letter.
        •A

**Space: _an infinite # of points & lines that extend in all directions._

**Line: _an infinite # of points that extend in opposite directions without end. ✗ named by 2 points or by a cursive letter._
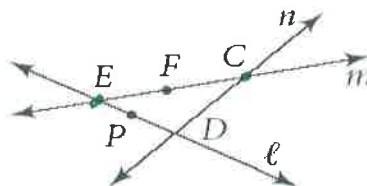
$\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$ ⟵ ─────── ⟶ ✗ line t

**Collinear Points: _points that lie on the same line._

                    C, D, and E are collinear.

Example A: Use the given diagram for #1 and 2.

1) Are points E, F, and C collinear? If so, name the line on which they lie.

$$\text{Yes, line } m \text{ or } \overleftrightarrow{EF}, \overleftrightarrow{EC}, \overleftrightarrow{FC}$$

2) Are points E, F, and D collinear? If so, name the line on which they lie.

No

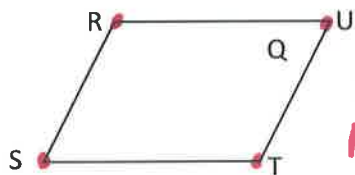**Plane:** flat, made up of points and lines extending in all directions.

* named by any 3 nonlinear points in the plane.
  Plane HIJ or Plane JIH
* named by a capital letter.
  Plane P

Coplanar: Points and lines that are in the same plane.

H, I, and J are coplanar. $\overleftrightarrow{HI}$ and J are coplanar.
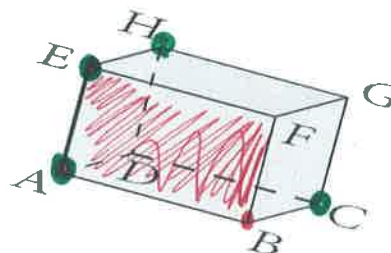
Example B:

1) Name the plane in two different ways.

Plane Q
Plane RST
Plane TSU

2) Name the plane on the front of the prism.

Plane ABE
Plane BAE

3) Using the diagram in 2, are H, E, A, and C coplanar?

No

Postulate/Axiom: a statement accepted as truth

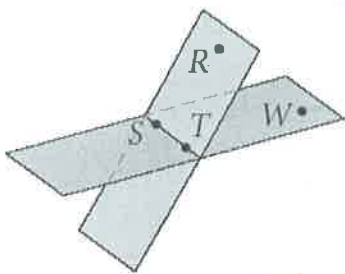**Postulate 1 – 1:** Through any two points there is exactly one line.

* Are R and T collinear?
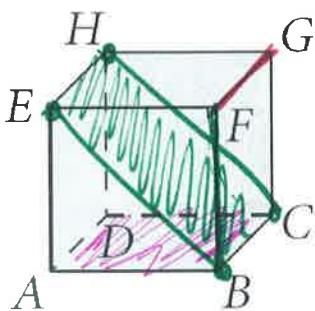 Yes!

Postulate 1 – 2: Two lines intersect at a point.

Postulate 1 – 3: _Any 3 non collinear points determine a plane._

Postulate 1 – 4: _Two planes intersect at a line._
Plane RST and STW intersect at $\overleftrightarrow{ST}$.

Example C:

1) What is the intersection of plane HGF and plane BCF?
   $\overleftrightarrow{GF}$

2) Name two planes that intersect in $\overleftrightarrow{BF}$
   Plane ABF and Plane BCG

3) Name the plane that contains points A, B, and C.
   Plane ABC

4) Name the plane that contains points E, H, and C.
   Plane EHC

Example D: Use always, sometimes or never to make a true statement.

1. Intersecting lines are _always_ coplanar.

2. Two planes _never_ intersect in exactly one point.

3. Three points are _sometimes_ coplanar.

4. A plane containing two points of a line _always_ contains the entire line.

5. Two lines _never_ meet in more than one point.

6. Four points are _sometimes_ coplanar.