LEARNING TARGETS

- I can name and sketch geometric figures. (CC.9-12.G.CO.1)

In geometry, the words *point, line,* and *plane* are *undefined terms.* These terms do not have formal definitions, but there is agreement about what they mean and represent.

Term	Characteristics	Diagram	Words and Symbols
Point	Has no size. It is named using a capital letter.	.K	Point K
Line	0 endpoints. Extends forever in two directions. **never stops** Use two points on the line to name or a single lower case letter.	*no point associated* *m* B A	$\overleftrightarrow{AB}$, $\overleftrightarrow{BA}$, Line AB, Line BA or simply just *m* *order of letters doesn't matter*
Line segment or segment	2 endpoints. Has a finite length. **stops & starts at certain points** Named using endpoints.	Y X	Segment XY Or $\overline{XY}$ or $\overline{YX}$ *order of letters doesn't matter*
Ray	1 endpoint. Extends forever in one direction. Named using the initial point first and then any point on the ray in the direction its headed ☺	R Q	Ray RQ Or $\overrightarrow{RQ}$ ↑ *order of letters matters*
Opposite Rays	Have same endpoint and go in opposite directions to form a line (are collinear)	C B A A B B C	$\overrightarrow{BA}$ and $\overrightarrow{BC}$ are opposite rays
Plane	Extends forever in all directions. Named using at least three noncollinear points or by a single letter that is not a point on the plane.	*no point associated* V E F G	Plane V Or Plane EFG

Draw and label a diagram for each figure.

1. Point W

    • W

2. Line MN

    ←•————•→
     M   N

    OR

    ←•————•→
     N   M

3. $\overline{JK}$

    •————•
    J   K

    OR

    •————•
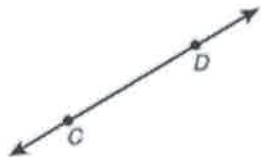   K   J

4. $\overrightarrow{EF}$

    •————•→
    E   F

Name each figure using words and symbols.

5.

Words: Line CD
        Line DC

Symbols: $\overleftrightarrow{CD}$, $\overleftrightarrow{DC}$
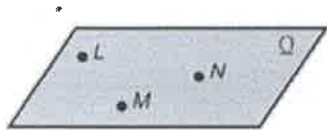
6.

Ray ST

$\overrightarrow{ST}$

7.

Segment WX
Segment XW

$\overline{WX}$
$\overline{XW}$

8. Name the plane in two different ways.

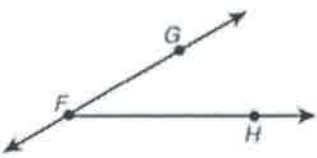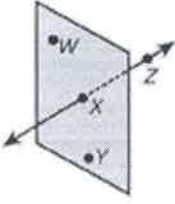Plane Q

Plane LMN
    OR
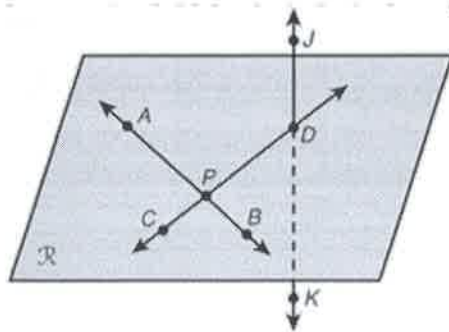Plane LNM
    OR
Plane MNL
    OR
Plane MLN
    OR
Plane NML
    OR
Plane NLM

Term	Meaning	Model
collinear	points that lie on the same line	
noncollinear	points that do not lie on the same line	*F* and *G* are collinear. *F, G,* and *H* are noncollinear. ↑*H is on a different line*
coplanar	points or lines that lie in the same plane	
noncoplanar	points or lines that do not lie in the same plane	*W, X,* and *Y* are coplanar. *W, X, Y,* and *Z* are noncoplanar. ↑*z is on a different* plane

Figures that intersect share a common set of points. In the first model above, $\overline{FH}$ intersects $\overline{FG}$ at point *F*. In the second model, $\overline{XZ}$ intersects plane *WXY* at point *X*.

Use the figure for Exercises 9 – 14. Name each of the following.

9. three collinear points

A,P,B   or   C,P,D   or   J,D,K

10. Three noncollinear points

D,P,B   A,P,D   GP,K

A,P,C   A,P,J   C,P,J

11. four coplanar points

A,P,C,B   D,P,B,C

A,P,B,D   D,P,A,C

12. Four noncoplanar points

A,P,B,J   D,P,B,J

A,P,B,K   C,P,D,K

13. two lines that intersect $\overleftrightarrow{CD}$

$\overleftrightarrow{AB}$ or $\overleftrightarrow{JK}$

14. The intersection of $\overleftrightarrow{JK}$ and plane $\mathcal{R}$

Point D