

Geometry CC – Mr. Valentino

Name: _____

Unit 2 Lesson 3: Angles and Angle Bisectors

Date: _____ Period: _____

Guess what!? It's time for more CONSTRUCTIONS!

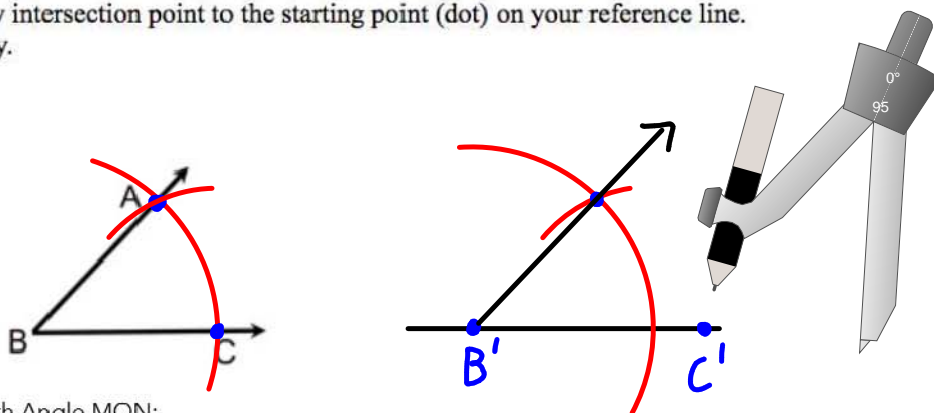
Today, you will learn how to COPY AN ANGLE and create an ANGLE BISECTOR. Let's do this!

First, we will copy an angle. Here are the steps:

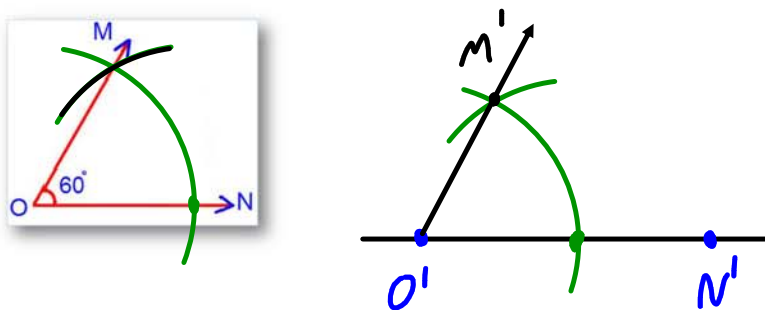
STEPS:

1. Using a straightedge, draw a reference line, if one is not provided.
2. Place a dot (starting point) on the reference line.
3. Place the point of the compass on the vertex of the given angle, $\angle ABC$ (vertex at point B).
4. Stretch the compass to any length that will stay "on" the angle.
5. Swing an arc so the pencil will cross BOTH sides (rays) of the angle.
6. **Without changing the size of the compass**, place the compass point on the starting point (dot) on the reference line and swing an arc that will intersect the reference line and go above the reference line.
7. Go back to the given angle $\angle ABC$ and measure the span (width) of the arc from where it crosses one side of the angle to where it crosses the other side of the angle. (Place a small arc to show you measured this distance.)
8. Using this width, place the compass point on the reference line where the previous arc crosses the reference line and mark off this new width on your new arc.
9. Connect this new intersection point to the starting point (dot) on your reference line.
10. Label your copy.

Watch me.



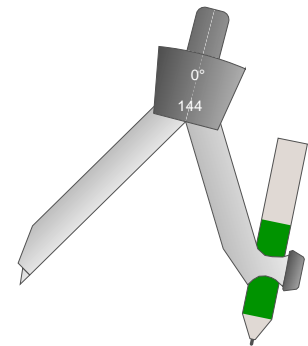
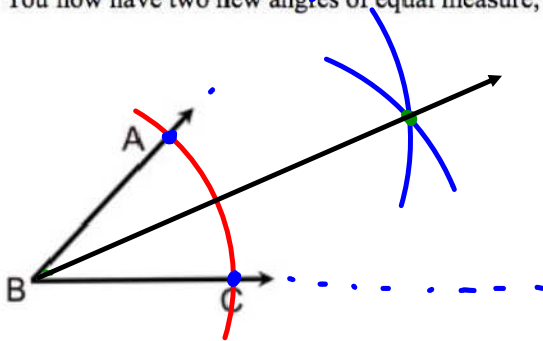
Now you practice with Angle MON:



Now we will BISECT AN ANGLE. Yes!

STEPS:

1. Place compass point on the vertex of the angle (point B).
2. Stretch the compass to any length that will stay ON the angle.
3. Swing an arc so the pencil crosses both sides (rays) of the given angle. You should now have two intersection points with the sides (rays) of the angle.
4. Place the compass point on one of these new intersection points on the sides of the angle. If needed, stretch the compass to a sufficient length to place your pencil well into the interior of the angle. Stay between the sides (rays) of the angle. Place an arc in this interior (it is not necessary to cross the sides of the angle).
5. **Without changing the span on the compass**, place the point of the compass on the other intersection point on the side of the angle and make a similar arc. The two small arcs in the interior of the angle should be intersecting.
6. Connect the vertex of the angle (point B) to this intersection of the two small arcs. You now have two new angles of equal measure, with each being half of the original given angle.



Now you try. Bisect this angle. Have no fear that it has no name. You can give it a name if you would like:

