# Module 11: Constructions
## Topic 3 Content: Constructing a Regular Hexagon Inscribed in a Circle Transcript

Hi guys, welcome to Geometry. In this topic you're going to learn how to use a compass and a straight edge to construct a regular hexagon inscribed in a circle. Now your knowledge of circles is going to come in handy for you during this topic. You ready to get started? Let's go.

Okay. Here we have a circle and what we're going to do is use the compass and the straight edge to construct a regular hexagon inscribed in this circle. To start this out the first thing you want to do is make sure that your compass width is set to the radius of your circle. I've checked mine here and I see that it is set to the length of my radius so I'm good to go to start this construction.

I'm just going to mark a starting point. I'm going to start just right up here at the top. I'm going to line up the center of that clear circle at the end of my compass with my starting point. I'm going to hold the compass steady here and I'm going to arc. My arc intersected my circle right here, I'm going to darken that point. I'm going to line my compass up there and I'm going to arc. I'm going to continue to repeat this process, lining up my compass at the point of that intersection and then arcing until I make my way around the entire circumference of this circle.

I have another arc right here. Line my compass up with that point of intersection and I'll arc. Got my compass there, let's line, I got my point of intersection there, I line up my compass, and I'll arc.

See that we end up with six points that lie on the circle. They're all spaced equally around the circle because our compass width was set to the same measure as we made our way around the circumference of the circle. What I'm going to do now is I'm going to go ahead and get some chords down on this circle and they're going to make the sides of my regular hexagon. I'm essentially connecting the dots of the consecutive points so that I can form a regular hexagon inscribed in this circle.

As accurately as I can I'm going to line up that straight edge and I'm going to get that chord dropped down. I'm going to line up my straight edge right here and I'll get this one dropped down. Again here. Just as accurately as I can. Let's get that chord. Then again here. There we go. You can probably start to see the hexagon starting to take shape. Then again here. We've got that side. Then right here to close this hexagon up.

Like I said a minute ago because our compass was set to the same width as we made our way around the circle I know that each of the sides of my hexagon are congruent. All the sides are congruent, all its angles are congruent, I know that to be true because all the sides are congruent, so are all the angles. I know here that I have a regular hexagon inscribed in my circle. If I wanted to I could go ahead and name it, name these points A, B, C, D, E, F. It's a regular hexagon inscribed in this circle. Okay? All right good job working your way through that.

All right guys you've reached the conclusion of this topic on how to use your compass and your straight edge to construct a regular hexagon inscribed in a circle. We saw how your knowledge of circles came in handy for you during this topic. Bye.