Waldorf Essentials

A Journey through Waldorf Geometry

SAMPLE

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Lesson 2 (Grade 5)

Ancient Egyptians constructed near perfect circles using ropes. Records show that they had knowledge of circles as early as 2630 BCE! Working some of these lessons in with your grade five ancient cultures block would be very appropriate. Before you take this lesson to paper, take it to the park! Gather a few materials: a rope, some chalk and a child or two. You'll want to find a spot that has an area of at least ten feet so you have plenty of room to move. Mark the center of the space with an "X" – this is where your child stands with one end of the rope. Decide how big your circle will be and extend your rope to half that size. With your child holding one end, you will draw a chalk circle as your child rotates in the center of the circle. This is the same basic exercise you will do on paper for many of the geometry forms in the following lessons.

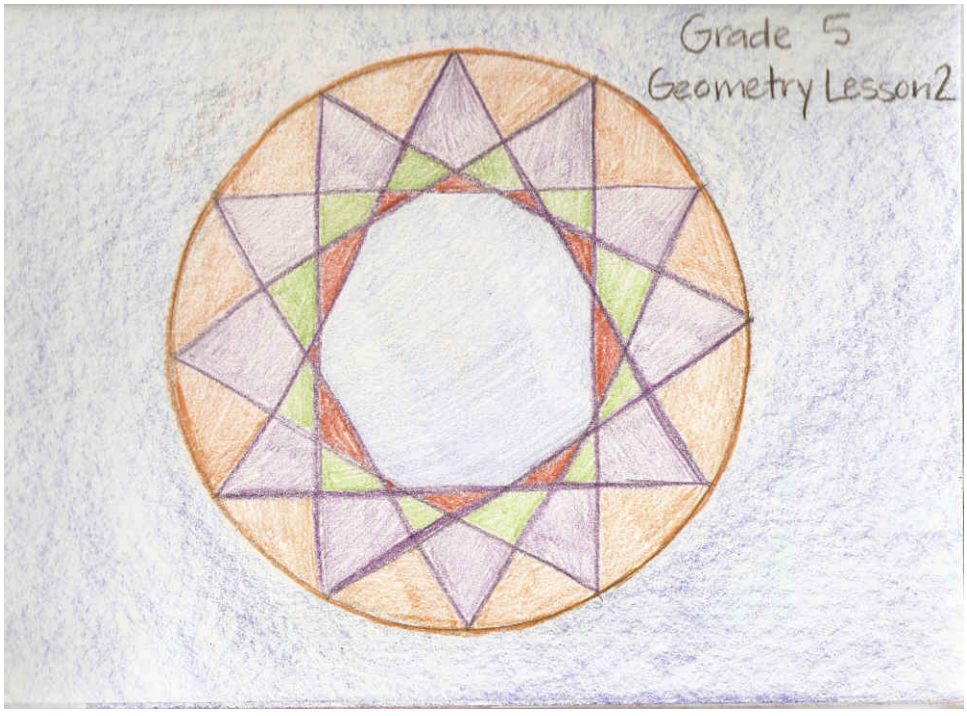
This lesson is reminiscent of the times table lessons in earlier grades, only we won't be focusing on the times tables, just the beauty of shapes. Construct a circle with a string and pencil (like you did above with the rope and chalk) – this lesson is constructed on the companion DVD.

On the outside of your circle, mark it off like you would to make a clock with all 12 numbers.

Freehanded, connect :
1 to 5 with a line, 5 to 9 with a line, 9 to 1 with a line.

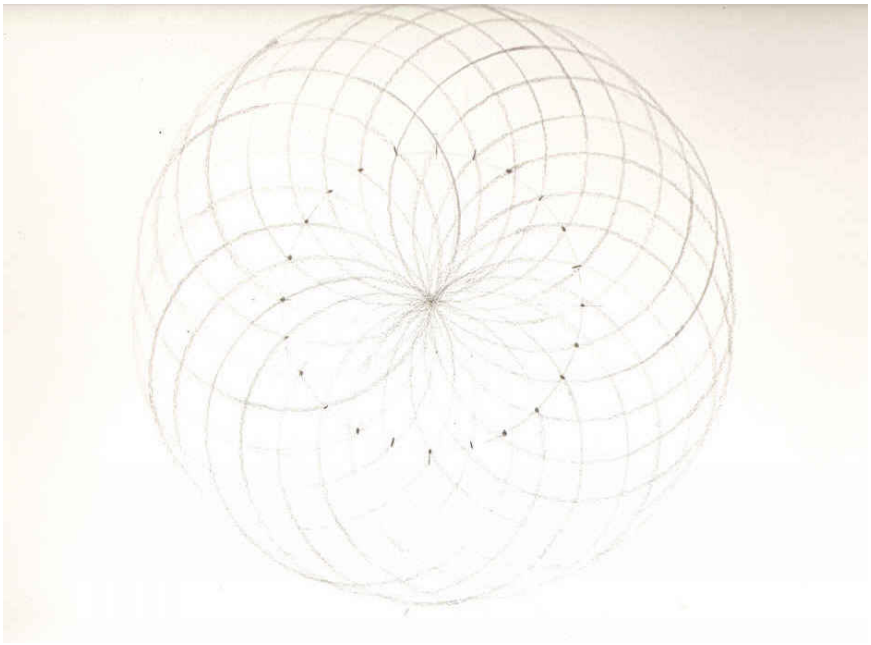
Once you have this initial triangle constructed, finish this drawing by joining:
2 to 6, 6 to 10, 10 to 2, 3 to 7, 7 to 11, 11 to 3, 4 to 8, 8 to 12, 12 to 4

Now that you have your circle constructed with triangles nestled inside, begin to make it beautiful! Congratulations! Your first freehanded geometric drawing is done!



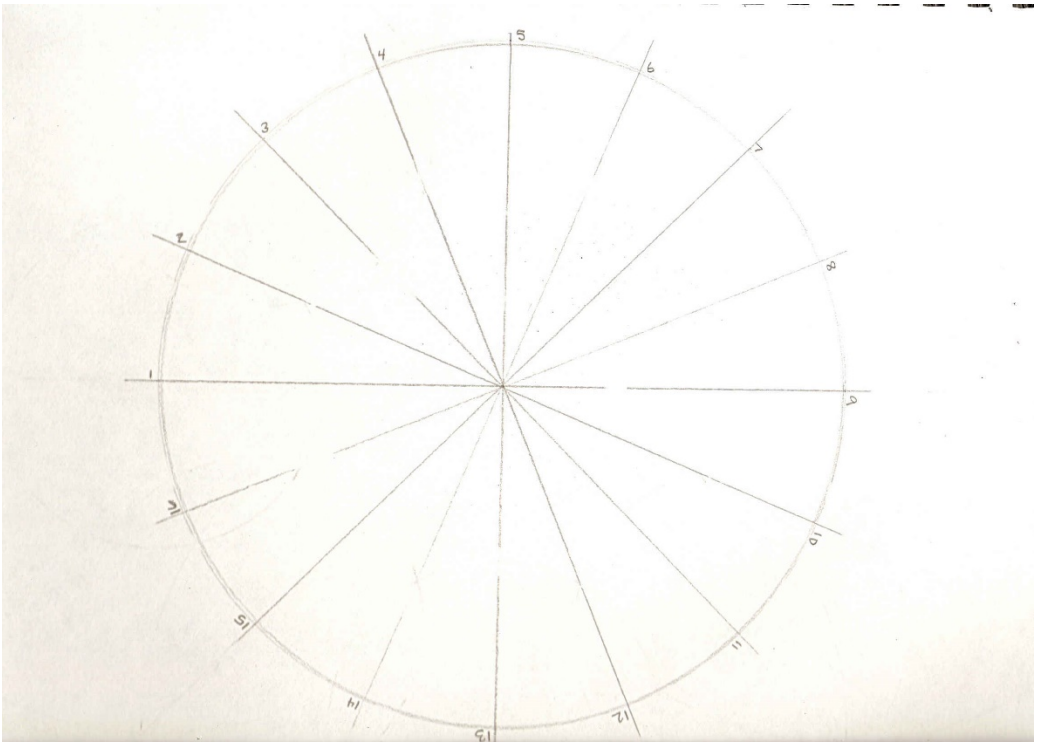
Lesson 9 (Grade 6)

These circles look hard but really they aren't. Construct a 24-gon and erase all your arcs, keep your markings for each division. You should have 24 points around your circle. With your radius the same as your circle, place the point of your compass at each of the 24 points and construct a circle. See the figure below. This construction can take on many variations – have your child play around with how it changes based on changing the width of the compass or skipping some circles. Have fun with it!



Lesson 10 (Grade 7)
This lesson focuses on circles, the construction looks complicated but once you get all the angles bisected then you have the basic construction done. You could use a protractor for the angle bisections but it is good practice to use the method in lesson nine and also generally more accurate. You could use the protractor to check your work.

Begin with a set of perpendicular lines and putting the point of your compass at the center, draw a circle with a radius of approx 3.75 inches. Bisect the first four 90^{o} angles and then bisect those, giving you sections that are 22.5^{o} - 16 of these sections. Erase your arcs and number your points.



Start with connecting every fifth point around the circle and then you could do sixth and seventh as well – that is what is shown in our picture. I used colored pencils for the figure to easily show the progression – you could go one step further and color it in. Think about where in nature these circles can be found.