

<b>Date:</b> 3.12.15	<b>TOPIC:</b> <i>What is this lesson about?</i> <b>THE UNIT CIRCLE!!!!</b>
<b>CCSSM Standards:</b> <i>Which of the Common Core standards will this lesson address?</i> CCSS.Math.Content.HSF.TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. CCSS.Math.Content.HSF.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. CCSS.Math.Content.HSF.TF.A.3 (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$ , $\pi/4$ and $\pi/6$ , and use the unit circle to express the values of sine, cosine, and tangent for $x$ , $\pi + x$ , and $2\pi - x$ in terms of their values for $x$ , where $x$ is any real number.	
<b>Learning Target(s):</b> <i>What do you want students to learn today?</i> Outcome objectives: What are the coordinates for the unit circle at 0, 30, 45, 60, and 90 degrees? How can we use symmetry to find other points in our unit circle? How do we use our unit circle to find the exact value of our trigonometric functions?	
<b>Literacy Objectives/Key Vocabulary:</b> <i>How will you attend to literacy in this lesson?</i>	

<b>Agenda</b>	<b>Materials</b>
<i>In what order will things happen today? How will time be allotted?</i>	<i>What supplies/equipment will you need? What instructional materials are you using?</i>
<b>Welcome/Warmup</b> (8 mins) <b>Talk about warmup</b> (5-10 mins)	-5.2 and 5.1 notes for warmup (they should have these) -warmup 5.2b (pass this out) -highlighters, markers, colored pencils, rulers -extra scratch paper at each table for them to take notes of what we talk about and then they can staple onto their notes packet afterward.
<b>Announcements</b> (6 mins) <i>Office Hours</i> <i>PCC credit</i> <i>HW due Tuesday</i> <i>Seating</i> <i>Pi day</i> <i>Anyone have anything?</i>	<b><u>Warmup 5.2b (check out worksheet)</u></b>  "This is a review of what we did in section 5.1. Try first to do these from your memory or with the help of a partner. If you still can't remember, take a look at your notes. For a test, you will not be able to use notes."
<b>Recap of last time</b> (5-6 mins)	
<b>Notes (p. 3)</b> (12 mins) <i>Find pi/4 triangle + points</i> <i>Use symmetry (show on poster)</i> <i>Have studs fill in points</i>	Take 4 minutes to check with students and float around. Encourage them to work together. Afterwards, check in with spec. students (see my key) and let them know that they will be writing their work on the doc cam, so make sure you understand that specific one.
<b>Notes (p. 4)</b> (5-6 mins) <i>Counting by pi/6, pi/4, pi/2, etc.</i> <i>Put into calculator (pay attention to deg/rad)</i>	
<b>Work time</b> (18 mins) <i>(AT has indiv. Conferences with</i>	

<p><b>studs about PCC credit while I float)</b>  <b>I will be checking 3 problems (15, 25, 49)</b></p> <p><b>Look at final exam (12 mins if time)</b>  <b>Pass back and answer questions about it</b></p> <p><b>EQUITY/STATUS:</b> How will you ensure full participation?</p>	<p>After 8 (total) minutes, check in with students about the answers and ask if they have any questions about the work done. Any feedback?</p> <p>Discuss the importance of being critical of one another's work; this isn't in a mean way, but super important for us to grow and get better collectively.</p>
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<p><b>Implementation</b>  <i>How will the details play out?</i></p> <p><b>Launch</b> hook students into the learning</p> <p><b>Warmup:</b>  <i>Have one person go up to the doc cam and do the work for each problem (see my warmup key to see who I picked). Have them do this while everyone else is working so the spotlight is not on them.</i></p> <p><b>Recap of Last Time:</b>  <i>How did we figure out that first point at <math>\pi/6</math>?  (used sides of triangle for point at vertex)</i></p> <p><i>Call on students (use Popsicle sticks) to tell you, from memory if possible, how we can find each trig value. We did the sentence frame activity so you can actually talk about what this process is. A lot of times we just watch someone else do it, and we don't really get to externalize the work, and talking about it actually helps us learn and remember.</i></p> <p><b>Explore</b> activity? lab?</p> <p><b>Why did I give you extra graph paper at your tables? Take notes of what we talk about and then you can staple it onto your packet afterward!</b></p> <p><b>PAGE 3—Begin by talking about finding <math>\pi/4</math> sides + point</b>  <i>"Look at this triangle (put up 45-45-90 triangle). How can we figure out what the side lengths are? Think about it for 12 seconds...don't give me the answer yet.</i></p> <p><i>Why? Don't use notes...don't use book...don't give me theorems. Explain it to me in a way that makes sense for you.</i></p> <p><b>Look at symmetry of circle using triangles (pg. 3)</b>  <i>"What does this say about those other points?</i></p> <p><i>Take 23 seconds to write out the coordinates for the point when theta is 60 degrees or <math>\pi/3</math> radians.</i></p> <p><b>BY 10.30</b></p> <p><b>PAGE 4—How do we find angles that we haven't talked about yet?</b></p> <p><i>Talk about counting by <math>\pi/6</math>, or <math>\pi/3</math>, or <math>\pi/4</math>, or <math>\pi/2</math>...  Use calculator to find bottom examples (radians or degrees?)</i></p> <p><b>BY 10.35</b>  <b>AT quick announces about PCC Credit/Work on hw</b>  <i>"I will check on three problems!" (15, 25, 49)</i></p> <p><b>Wrap-Up / Closure</b> support sense making</p>	
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