5.19.14 Lesson Plan

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| **CCSS:** | [CCSS.MATH.CONTENT.HSF.TF.A.2](http://www.corestandards.org/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.B.5](http://www.corestandards.org/Math/Content/HSF/TF/B/5/) Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.\* |
| **SWBAT** |  |
| **MPS:** | 1o) Using what is known and familiar and apply it to a new problem  6d) Attention to precision- attention to details (ie. Labels) |
| **Rationale:** | Students have been evaluating trigonometric ratios for acute and obtuse angles on a coordinate grid over the past few weeks, and for acute angles in right triangles. They are now familiar with the sign of trig ratios in different quadrants of the coordinate plane.  Last week students were introduced to law of sines as a method for finding angles and sides in triangles that are not right triangles. On Monday students used this knowledge to explore when there is more than one possible triangle in a situation with law of sines. Yesterday students identified problems that they could solve using Pythagorean theorem, law of sines, and neither, in preparation for law of cosines today (the questions that they identified as “neither” can be solved with law of cosines and they will work on these today). Today students will use their knowledge of Pythagorean theorem and law of sines to again articulate why they cannot use either in a specific situation. They will make predictions about the length of a side in a triangle and then will be introduced to a new process (law of cosines) that they can use to verify or refute their prediction. |
| **Grouping rationale:** | Students have been grouped based on their work in class so far and assessments they have had. Students are paired so that one student who was more successful is with a student who was less successful. This allows the successful student to practice explaining their work and become more confident in their knowledge, and the less successful student to have support from a peer. Following parent teacher conferences, and discussions of what students are struggling with, some student pairs have been changed in order to increase focus for certain students and increase full class participation in other students. In addition, some pairs have been adjusted to encourage certain stronger students to engage with their peers and support other students while improving their own ability to articulate mathematical ideas. |
| **Prereq:** | Graphing on a coordinate plane |
| **Announcements** |  |
| **Differentiation** | Hasn’t started yet: highlight question, ask student to read Q aloud, SQ (starting Q)  On track but getting stuck: CTQ (critical thinking Q level 1)  Needs a push: CTQ\* (critical thinking Q level 2)  Students paired with partners who support them- when students are confused they can check in with partners and then with fours around them, and then call a teacher over. This allows the teacher to seek out and support target students who are most likely to be struggling while other students are largely supported by their peers. |
| **Materials** | Smartnotebook presentation, cards |

**Students pick up graphing calculators as they enter**

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| **Circulation Questions** | |
| For groups just getting started |  |
| For groups to get back on track |  |
| For groups who need a push beyond |  |

Summary Rounds- What is something that you learned/realized today? What are you still confused about? Can anyone in your group explain it to you? Put on a notecard