

## Carousel Station Descriptions

We will have eight stations set up around the room with computers at most of them. Four of you will rotate together through these stations (like a carousel) while I circle the room helping wherever I can. You will have approximately **eight minutes at each station**. I will set a timer and let you know when it is time to switch. Here are the stations with quick descriptions (Note: the website links have already been pulled up at computers at each station but are provided here if you want to rewatch them at home):

1. Station 1: Here you will work individually on computers and play three holes of “Trig Mini Golf”  
[http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.MATH.JR.SHAP.TRIG&lesson=html/object\\_interactives/trigonometry/use\\_it.html](http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.MATH.JR.SHAP.TRIG&lesson=html/object_interactives/trigonometry/use_it.html)
2. Station 2: Using headphones, watch a video entitled “Exploring Trigonometry (Video Interactive)”. Afterwards, with a partner, write down two main points from the video. Then explain why the ratio between altitude and horizontal distance must remain constant if the angle of descent is constant (i.e. three degrees with respect to the horizon). Finally speak with the other pairing at your station, sharing your two main points and your explanation about the constant ratio.  
[http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.MATH.JR.SHAP.TRIG&lesson=html/video\\_interactives/trigonometry/trigonometrySmall.html](http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.MATH.JR.SHAP.TRIG&lesson=html/video_interactives/trigonometry/trigonometrySmall.html)
3. Station 3: At this station you will explore the unit circle at your own pace and compose a voice recording on your initial observations and questions about what you notice about...
  - i. the relationships between sine and cosine waves
  - ii. radian versus degree measures and
  - iii. the relevance of special right triangles as they relate to sine, cosine, and tangent waves[https://phet.colorado.edu/sims/html/trig-tour/latest/trig-tour\\_en.html](https://phet.colorado.edu/sims/html/trig-tour/latest/trig-tour_en.html)
4. Station 4: Here is a station where you’ll have the opportunity to blend your understanding of sine, cosine, and tangent with wave functions. Complete three drawings from any three angles. After talking to a new partner from your quad at this station, bullet point 3-4 observations below your drawings  
<https://www.mathsisfun.com/algebra/trig-interactive-unit-circle.html>
5. Station 5: Here, you will manipulate (i.e. ‘transform’) each of the three trigonometric functions discussed thus far: sine, cosine, and tangent. See what happens to the amplitude, period, and frequency of waves as you change values within functions. For now, focus primarily on sine, cosine, and tangent.  
<https://illuminations.nctm.org/Activity.aspx?id=3589>

6. Station 6: At Station 5, you learned how to transform functions by changing portions of functions. Here you will use a length of rope to try to do this in a corner of the classroom. Please keep it cool in here but have fun adjusting frequency and period after quickly defining 'transverse wave', 'frequency', 'wavelength', and 'amplitude' with the dictionaries on the desk. Take turns creating transverse waves with the twelve-foot segment of rope provided in class. See if you can set up a constant frequency and amplitude. Expect a shoulder workout for sure!
7. Station 7: This station has some sound effects so make sure the volume is up on the computers!
  - a. First, quiz yourself on the basic trigonometric identities while selecting your level of difficulty and mode (either degrees or radians):  
<http://www.kwarp.com/portfolio/trigspinner.html>
  - b. Second, compare and contrast transverse, longitudinal, and periodic transverse waves:  
[http://www.physics.nyu.edu/~ts2/Animation/Trans\\_Long\\_Periodic\\_Waves.html](http://www.physics.nyu.edu/~ts2/Animation/Trans_Long_Periodic_Waves.html) and respond to this question: Which waves do sine and cosine functions represent?
8. Station 8: Watch minutes 0:00 though 4:50 of a video synthesizing several trigonometric concepts, taking notes and pausing whenever it seems useful:  
<https://www.youtube.com/watch?v=ovLbCvq7FNA> and then watch minutes 4:50 through 6:30 and do the same