GROUP ACTIVITY SHEET

Your objective today is to graph a height vs. time scatterplot of your data and write a sinusoidal equation to match your graph. As a group, you might consider sketching your graph on a piece of scrap paper before making your big graph. Extend the horizontal axis to include two full periods of your graph.

Graphing Check List:
- Title
- Spatially, does the graph fill the paper? Use only the quadrant(s) necessary.
- Label axis with units and descriptions.
- Plot your points. Using a smooth curve, create a sinusoidal graph through the points. This is not a connect-the-dot activity. Do NOT use straight lines.
- Accurately sketch a second period of your graph.
- Using a dashed line, sketch the midline of your graph. Discuss how the midline relates to the transformations.

Writing Equation Checklist:
- What is the equation of the midline?
- What is the amplitude and how do you find it?
- How long does it take to complete one full cycle of your graph?
- The FREQUENCY, **b**, of a sinusoidal function is the number of cycles between 0 and 2π. What is the frequency of your function?
- To account for the frequency in your equation, you would write $f(x) = \sin(bx)$.
- How is the vertical shift related to the picture?

Ferris Wheel Data

Object	Max height	Height of Center of Object	Diameter	Radius of Moving Part	Period (one per moving part)