The Hammer

Name(s): _____   **Date:** _____

NGSS GOALS	BRONZE	SILVER	GOLD	PLATINUM
1. Student work related to this Crosscutting Concept: In this project, we built an animated toy and wrote an explanation that describes what caused the patterns of motion we observed.				
Patterns: Observed patterns of forms and events prompt questions about relationships and the factors that influence them.	• We drew and labeled the parts of the animated toy. ☐	• We met Bronze. • We identified the location of the cam(s), wheel(s), and shaft responsible for the pattern we saw. ☐	• We met Silver. • We included a diagram showing the pattern we observed • We explained how the cams and/or wheels make the pattern in the motion we observed. ☐	• We met Gold. • We tried at least one more cam shaft design • We used words and a diagram to explain how this new cam shaft design caused the pattern in the motion we observed. ☐
2. Student work related to this Practice: In this project, we investigated which gears have the most friction when tested by hand and by the hammer.				
Analyzing and Interpreting Data: Seek to improve precision and accuracy of data with better tools and methods.	• We completed our tests by hand and by the hammer for all four gears shown in our data table. ☐	• We met Bronze. • We picked which system is better. • We explained why. ☐	• We met Silver. • Our explanation clearly describes which test is more accurate. • We explained why. ☐	• We met Gold. • We used the best test method on three different combinations of gears (i.e. an 8 tooth onto of a 24 tooth or 40 tooth, etc). ☐
3. Student work related to this Practice: 3. Student work related to this Practice: In this project, I explained whether the hand or hammer was best the best test for gear friction. In my explanation, I used evidence from my experiments.				
Constructing Explanations: Construct a scientific explanation based on valid and reliable evidence obtained from student's own experiments.	• Our explanation for which test was best referred to what we discovered in our experiment. ☐	• We met Bronze. • We correctly used numbers from our experiment in to support our ideas. ☐	• We met Silver. • We explained why the number of hammer hits can be used as a measurement for gear friction. ☐	• We met Gold. • We shared our explanation and evidence with classmates. • We revised our explanation to make it more clear. ☐

Notes: