Task #4 – Wheel and Axle
Summative

Standards:

Use observed evidence to construct or support a scientific explanation.

Explain why simple machines make work easier.

Identify and model simple machines in students' current context.

Explain how the six simple machines function.

Task:

Construct a crank using a bendable straw, a cup with holes punched in it, a string, and some type of load.

Guiding Questions

1. Identify the load and the effort.
2. What was easier to lift – the load by itself or with the crank?
3. When you turn the crank one time, how many times the axle turn?
4. Which moves farther, your fingers or the washer?
5. How does a lever make work easier?

Writing/Verbal Prompt

You are designing a wind turbine to generate "green" energy. What will you do to make sure the turbine wheel spins as easily as possible?

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Rubric:

	Machinist 5 points	Apprentice 3 points	Tinkerer 0 points
Basic Understanding	Student uses vocabulary words to make connections between how the simple machine works and how it affects the effort.	Student makes connections between how the simple machine works and how it affects the effort	Student does not connect how a simple machine works to how it affects the effort
Model	Student creates functioning inclined plane	x	Student does not create inclined plane
Evidence to support scientific claim in explanation	Student refers to several observations from experiment to support claims	Student refers to one observation from experiment to support claims	Student does not refer to experiment to support claims