





Windmill

Name(s): _____

Date: _____

NGSS GOALS	 BRONZE	 SILVER	 GOLD	 PLATINUM
1. Student work related to this Crosscutting Concept: In this project, we built a windmill to lift a treasure chest and a mechanism to power a spinning top.				
Energy and Matter: Flows, Cycles, and Conservation: Energy may take different forms and can be tracked as energy flows through a design system.	<ul style="list-style-type: none"> We built a windmill to lift a treasure chest. We built windmill blades with different numbers of sails. <input data-bbox="533 874 572 912" type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We built and tested a ratchet mechanism. <input data-bbox="807 874 847 912" type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We used the gearbox from the windmill to power a spinning top. <input data-bbox="1085 874 1125 912" type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We invented and tested new spinners or a spinning game. <input data-bbox="1362 874 1402 912" type="checkbox"/>
2. Student work related to this Practice: In this project, we picked different variables to test so we could investigate what affected the motion of our windmill, the treasure chest, and our spinning tops.				
Planning and Carrying out Investigations: Plan an investigation and in the investigation identify independent and dependent variables and controls	<ul style="list-style-type: none"> We completed at least two out of the three possible investigations on our student worksheet. We identified at least one 'control' (e.g. sails, ratchets or spinning tops) and to keep the same through our experiments. <input data-bbox="533 1300 572 1338" type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We completed all three investigations. We chose the correct measurement tools. We identified at least two 'controls' (e.g. sails, ratchets or spinning tops) to keep the same through our experiments. <input data-bbox="807 1300 847 1338" type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We identified at least three 'controls' (e.g. sails, ratchets or spinning tops) to keep the same through our experiments. <input data-bbox="1085 1300 1125 1338" type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We proposed at least one new experiment. We identified the independent and dependent variable for our new experiment. We identified at least three 'controls' for our new experiment. <input data-bbox="1362 1300 1402 1338" type="checkbox"/>
3. Student work related to this Practice: In this project, we labeled our design for a windmill.				
Obtaining, Evaluating, and Communicating Information: Integrate qualitative and/or quantitative information in written text with visual displays to clarify claims and findings.	<ul style="list-style-type: none"> We labeled one important part of our 'magnificent mill' design. <input data-bbox="533 1676 572 1715" type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We labeled two more important parts of our 'magnificent mill' design. We explained how one of the important parts of our 'magnificent mill' works. <input data-bbox="807 1676 847 1715" type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We explained how all three important parts of our 'magnificent mill' work. <input data-bbox="1085 1676 1125 1715" type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We created and shared our diagram and explanation with classmates. We revised our work and made it more clear for our classmates to understand. <input data-bbox="1362 1676 1402 1715" type="checkbox"/>
Notes:				