Land Yacht

Name(s): Date:

<table>
<thead>
<tr>
<th>NGSS GOALS</th>
<th>BRONZE</th>
<th>SILVER</th>
<th>GOLD</th>
<th>PLATINUM</th>
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1. **Student work related to this Crosscutting Concept:**
   In this project, we built a land yacht with different sized sails. We tested it with a fan at different angles.

   **Energy and matter: Flows, cycles, and conservation:**
   Energy may take different forms and can be tracked as energy flows through a design system.

   • We built a land yacht.
   • We practiced running our land yacht on the test track in front of the fan.
   • We met Bronze.
   • We built different sized sails for our experiments.
   • We aimed the fan at our vehicle from different angles.
   • We met Silver.
   • We built and tested a wind sucker.
   • We changed and tested our wind sucker design with at least two additional ideas from the list on our Student Worksheet.
   • We met Gold.
   • We proposed at least two additional things to test how the energy from the fan can be transferred to a LEGO® sail vehicle.

2. **Student work related to this Practice:**
   In this project, we investigated how the size of our wind sail affects the motion of our land yacht. We also investigated wind direction and a unique design called a 'wind sucker'.

   **Planning and Carrying Out Investigations:**
   Identify independent and dependent variables and controls, how measurements will be recorded, and how many data are needed to support a claim.

   • We completed at least two out of the three possible investigations on our student worksheet.
   • We identified at least one 'control' (e.g. wind speed, sail size or wind angles) to keep the same in through our experiments.
   • We met Bronze.
   • We completed all three investigations.
   • We identified at least two 'controls' (e.g. wind speed, sail size or wind angles) to keep the same through our experiments.
   • We met Silver.
   • We identified at least three 'controls' (e.g. wind speed, sail size or wind angles) to keep the same through our experiments.
   • 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.

3. **Student work related to this Practice:**
   In this project, we labelled our design for a wind-powered vehicle.

   **Obtaining, Evaluating, and Communicating Information:**
   Integrate qualitative and/or quantitative information in written text with visual displays to clarify claims and findings.

   • We labeled one important part of our land sailor design.
   • We met Bronze.
   • We labeled two extra important parts of our land sailor design.
   • We explained how one of the important parts of our land sailor works.
   • We met Silver.
   • We explained how all three important parts of our land sailor work.
   • We met Gold.
   • We created and shared our diagram and explanation to classmates.
   • We revised our work and made it more clear for our classmates to understand.

Notes: