

**Teacher Name:** \_\_\_\_\_

**Grade:**

**School:**

### **Diagnostic Notes ~ Engineering**

Please include student's first and last name, and any notes about observed behavior.

<b>Manipulates Images Mentally</b> <ul style="list-style-type: none"><li>• Understands the 3-dimensional nature of the task</li><li>• Can visualize final product (even though may lack skills to make it work)</li></ul>	<b>Identifies Structural Flaws ~ Troubleshoots</b> <ul style="list-style-type: none"><li>• Sees where the problem is (sagging structure, or not enough support at the base)</li><li>• Finds solutions</li></ul>
<b>Elaborates on Simple Design</b> <ul style="list-style-type: none"><li>• Careful attention to detail</li><li>• Adds on to basic structure</li></ul>	<b>Demonstrates Complex Thinking</b> <ul style="list-style-type: none"><li>• Grasps underlying concepts of engineering</li><li>• Transfers previous learning to this activity</li></ul>
<b>These students surprised me today:</b>	<b>These students are generally stand-outs, but not in today's lesson:</b>

## OBSERVATION INSTRUCTIONS

The purpose of this activity is to provide opportunities for students to demonstrate high levels of thinking in problem solving. We do not expect that all children will achieve mastery of the task. This activity is designed to find students who have high potential. Our goal is that all students will be interested and engaged, and a few will excel. Please write the names of the students who exhibit these skills in the appropriate box or boxes. See the diagnostic notes descriptions below for details about the skills.

Please write first and last names. If the student exhibits these thinking skills more than once during the activity, put a check mark next to the name for each additional response observed.

Your knowledge and observations of your students are crucial to the success of this Javits Grant Project. Thank you for allowing us to come in to your classroom.

### Engineering Diagnostic Notes: Examples of what we might see

<b>Manipulates images mentally</b> <ul style="list-style-type: none"><li>• Has an immediate mental plan and begins working on a structure</li><li>• Can see in her mind what the finished structure should look like – this can often be frustrating for kids, who may lack to skills to make their visions reality</li></ul>	<b>Identifies Structural Flaws ~ Troubleshoots</b> <ul style="list-style-type: none"><li>• Can see that the trouble stems from lack of support, or racking (polygons squishing due to lack of structural support)</li><li>• Tries one or more ways to fix the perceived problem—these attempts may or may not work, but show the kind of thinking we are looking for</li></ul>
<b>Elaborates on Simple Design</b> <ul style="list-style-type: none"><li>• This child may come up with a very different way of building a structure, or might add on to or ‘improve’ the existing structure in some way</li><li>• Creative use of materials, including pattern making with colors, or decorative details</li></ul>	<b>Demonstrates Complex Thinking</b> <ul style="list-style-type: none"><li>• Can think beyond what is possible with the limited time and materials to see possible future projects. “If I had a million DOTS and toothpicks, I’d build...”</li><li>• Thinks about these structures in real life and makes comparisons</li></ul>
<b>Additional Notes</b> ~ please tell us anything else you would like us to know. Thanks so much!	