

Name: _____ Date: _____ Class: _____

Notes for the Teacher on Assessing Resourcefulness

The Oxford English Dictionary says resourcefulness is about “the ability to find quick and clever ways to overcome difficulties.” Your students will encounter a host of difficulties in this project, including:

- Wrestling with the lumen/watt and illuminance/intensity distinctions,
- Shifting among familiar quantities like energy and those quantities expressed as rates per area,
- Making reasonable approximations to convert the lux reading to an intensity reading
- Assessing the impact of their assumptions on their results,
- Summoning metacognition skills to write about the role of the scientific method and the engineering design method in their work,
- Maintaining discipline and focus when given so much autonomy with the Breakthrough Starshot exercise.

Resourcefulness is not assessed in the same way you test for understanding of concrete knowledge or skill. It is manifested in the students’ actions. Watch them as they work. Eavesdrop. Look for instances of:

- Refraining from asking you to solve problems for them,
- Articulating tricks a student develops to keep track of units or the lux/intensity distinction,
- Laying out multiple approaches to a problem,
- Willing to abandon an approach that is not working and starting from ground zero,
- Favoring a more precise option over an easier one.

The individual writing students do in reporting on the work (Step 11 of the “With Students” section) will also help assess this. Making assertions that you know were handed to a student by coworkers suggests passivity while thoughtful documentation of reasoning is consistent with active commitment to the work. The same is true of the oral presentation of the Breakthrough Starshot brainstorming.