**Problem, Research and Hypothesis Handout**

**Exploring the Electromagnetic Spectrum and Phosphorescence with Design Intent**

**Problem:** To create a phosphorescent bioplastic by using the following reaction scheme:

**corn starch + water + vinegar + glycerin + phosphorescent powder -> polymer bioplastic**

*Objective/Design Challenge*: You want your bioplastic to glow, but also have structural integrity.

What does structural integrity mean to you? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedure:** The class will be divided into groups. Each group will be in charge of manipulating one of the reactants in the scheme by increasing its concentration from a provided standard/control bioplastic procedure.

The reactant that your team will be manipulating: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reactant Research**

**Hypothesis**

|  |  |
| --- | --- |
| independent variable | dependent variables |

Using your research and prior knowledge, construct a hypothesis that includes both your variable and how it will change in the experiment: