

# BIRDEE Unit 1 Lesson Plans

## 1.6.2. Prototype 1: Requirements Evaluation

*Students evaluate their design prototype 1 using their design requirements. They will test the insulation properties of their prototype/performance criteria using Govee Sensors. Students will export data during the next class.*

**Before the Lesson:** Teachers should use [1.4.3 Thermal Regulation Experiment TEACHER DIRECTIONS PPT](#) to reset the sensors and prepare for the prototype test.

### Engage: 5 min

#### **View:** [1.6.2. BID Ideation](#)

- You are designing and creating a new type of sustainable light.
- List three organisms that could inspire your light. Sketch an idea of your light inspired by each of your organisms.
- **Class Discussion** on what students brainstormed

### Explain: 5 min

Today we will evaluate each group's initial prototype using your design requirements. Your group will test the effectiveness of your prototype using Govee Sensors. You will use the [1.6.2. Design Requirements Evaluation](#) handout to evaluate your prototypes.

#### **View:** [1.6.2. Design Requirements Evaluation](#)

**Teacher Note:** *Teachers will model how to use the handout to demonstrate how students will evaluate their prototypes.*

### Explore: 15 min (Group)

#### **Design Requirements:**

- You will work in your group to complete your evaluation of your prototypes.

### Evaluate: 20 min (Group)

#### **Test Setup:**

Now, we will test the thermal insulation requirement of our prototype using the Govee sensors like we did in the thermal regulation experiment. We are going to set up the experiment like we did before.

#### **Teacher Notes:**

- *Help students to turn on the sensor and make sure the sensors are recording before wrapping up the class*
- *Make sure students put the sensor in a good location so that the temperature will be measured properly.*

### Student Handouts:

[1.6.2. Design Requirements Evaluation](#)

### Student Materials:

1. Jars
2. Govee sensors
3. Ice
4. Double sided tape
5. Scissors

### Instructional PPT's & Materials:

[1.6.2. BID Ideation](#)

### Teacher Resources:

[1.4.3. Thermal Regulation Experiment TEACHER DIRECTIONS PPT](#)

[1.4.4. Thermal Regulation Part 2: Analyze Data TEACHER DIRECTIONS](#)

### Web Resources:

N/A

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- *Students will record the data overnight and review during the next class.*
- *Teachers should make sure the sensors are recording data before wrapping up the class. Teachers will need to download data before the next class using [1.4.4. Thermal Regulation Part 2: Analyze Data TEACHER DIRECTIONS](#) as a guide.*

**Extend: 5 min** (Group)

**Teacher Note:** *Clean up and let students know they will export data and conduct data visualization at our next class.*

If you finish setting up your experiment and get cleaned up early, you can start working on setting up a new Test in the EDPL.

**EDPL:** Create a new test in the EDPL for prototype 1, select the requirements the test is evaluating, and input the steps required for the test.

**Teacher Note:** *It should not be too difficult for students to create a test in the EDPL and input the test steps since students have done this test before in the thermal regulation experiment and should be familiar with the steps.*