Conducting an Incubation

Context:

**Our Goal:**

Assess ease of use of our prototype

**Product Information:**

Our team has created an incubator for remote water sanitation testing in low resources settings. The incubator is separated into two chambers, the electronics and incubation chamber. We will use Petrifilms and incubate them for 24 - 48 hours to assess water quality. A live digital display of the temperature readings can be seen protruding from the cap of the thermos.

**Your Goal:**

Start an incubation test

Instructions:

***Step 1:*** Take Petrifilms (stack of 10 max) and place them in the shelf in vertical orientation. The side that “opens” should be pointing upwards out of the shelf.

***Step 2:***Take the shelf and place it in the “incubation chamber”

***Step 3:*** Adjust location of the temperature sensor so that it is either above or in the “incubation chamber”

***Step 4:*** Take the female wire connector\* for the digital display and thread it through the cap of the thermos. Once the wire is through the cap, connect the digital display to the female wire connector.

*\*Note:*

*The female wire connector mentioned above is 4 individual female wire connectors that are taped together. The 4 individual wires are black, red, blue, and yellow.*

**Warning:**

Digital display must be connected to the system before turning the system on, or the digital display will NOT turn on. If you turn the system on after connecting the display and the display still doesn’t turn on, unplug the digital display and flip the connections, and try again.

***Step 5:*** Flick the switch on the battery to turn on the system and begin incubation (o → -). Green lights should illuminate from the battery, implying that it is on.

***Step 6:*** Screw on the lid of the thermos. Live temperature readings can be seen on the digital display that protrudes out the top. Please allow 24 - 48 hours for a successful incubation.

Additional Assistance (Optional):

Please refer to these images if you are having difficulty using the device.

* [Outside View of Final Solution](https://drive.google.com/file/d/13Jc5LOd9OdwGqFzZs9gYkMpQh3Qa8kuO/view?usp=sharing)
* [Shelf](https://drive.google.com/file/d/1VPvUYnY_WPY_CkTKkHqnCs5iyFgZ3ZQT/view?usp=sharing)
* [Incubation Chamber](https://drive.google.com/file/d/1Vl0eNMv4kqXfAasvQTcg8jxqjhOQQBGS/view?usp=sharing)

Please refer to this [video demonstration](https://youtu.be/XZvEMkBjWKY) if you are having difficulty using the device.

| Ranking | Scale of Ease of Use |
| --- | --- |
| 5 | Simple to use with just instructions, no additional pictures or videos necessary |
| 4 | Somewhat simple to use with just instructions, pictures were necessary to use correctly |
| 3 | Confusing to use with just instructions, pictures and videos were necessary to use correctly |
| 2 | Difficult to use, requires hands on assistance or instruction from another party |
| 1 | Nearly impossible to use, requires an expert to use |