Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_\_\_

Melt It Lab

**Engineering Teamwork and Planning**

You are part of a team of engineers given the challenge of building a container to melt an ice cube as fast as possible. You’ll have lots of materials to use such as aluminum foil, fabric, cotton balls, moss, cardboard, additional paper cups, tape, straws, paper clips, clothespins, wire, string, rubber bands, and other readily available materials. Your team’s challenge is to melt the ice cube faster than any other team’s devices by the end of the hour.

**Planning and Design Phase**  
Think about the different ways you can use the materials provided to melt an ice cube. In the box below, draw a diagram of your planned cup and include a list of the parts you think you might need. You can adjust this later and also add more materials during construction.

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| Materials Needed: |

**Construction Phase:**

Build your system around the cup using any of the materials provided.

**Classroom Testing:**

Your teacher will give you an ice cube. Measure the length of your ice cube and then put it into your device immediately. Every 5 minutes quickly measure the length of your ice cube and return it to your device. Record your lengths in the chart below.

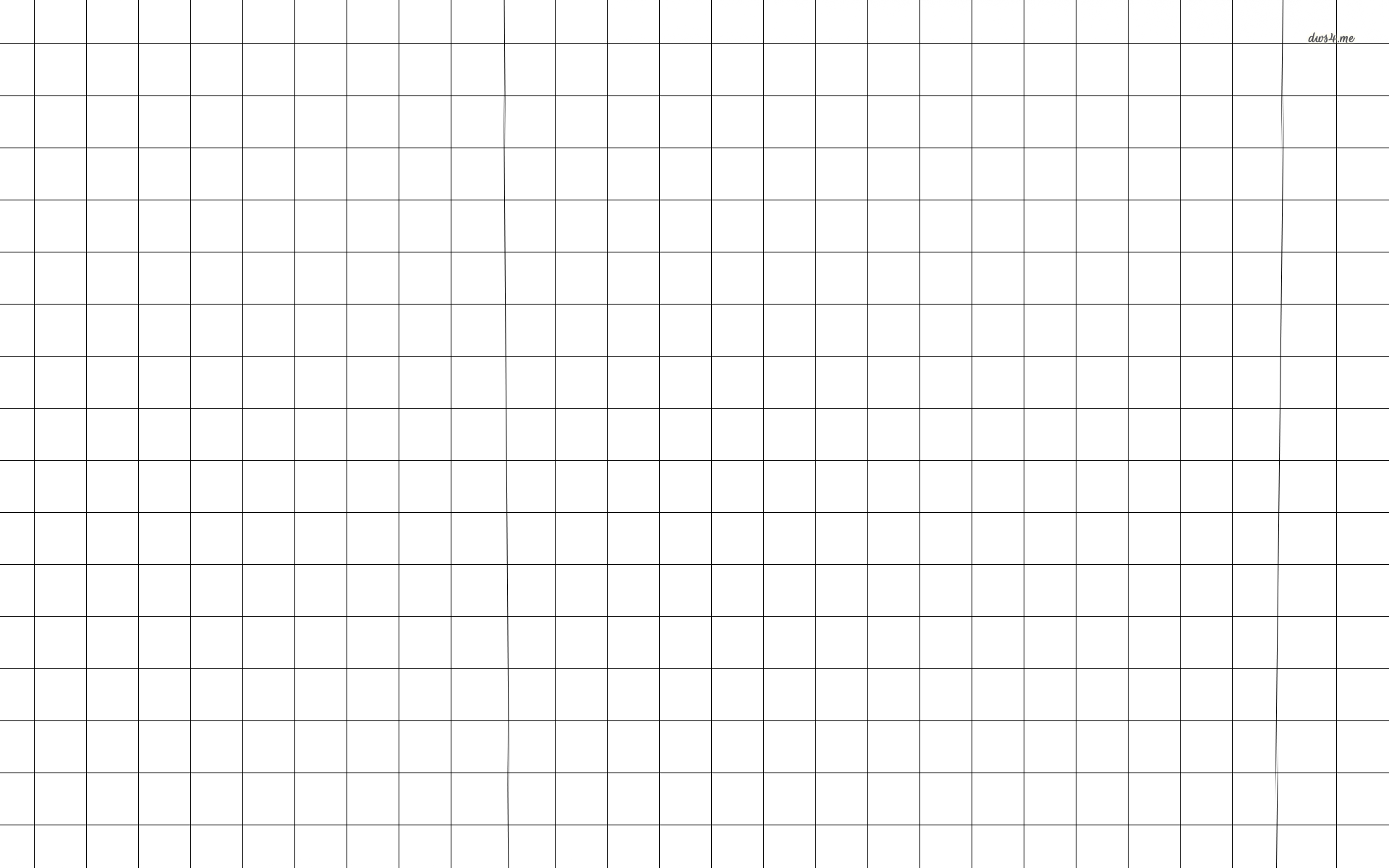
|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Original Length of Ice Cube | Length at 5 minutes | Length at 10 minutes | Length at 15 minutes | Length at 20 minutes | Length at 25 minutes | Length at 30 minutes | Length at 35 minutes | Length at 40 minutes | Difference in Length from original length to final length |
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| Class Length Differences |
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| Average Class Length Difference |
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**Data:**

Graph your data over time. Make sure that you make the right graph and that everything is labeled correctly.



**Reflection:**

1. How similar was your original design to the actual cup that you built? What changed? Why?
2. How did your team’s ice cube length compare with other groups ice cubes?
3. If you had a chance to do this project again, what would your team have done differently?
4. What did your graph tell you about the rate of ice cube change?
5. If you could use one additional component material that was not provided to you which would you choose and why?
6. What aspects of other team designs did you find most innovative? Why?