



LESSON PLAN

WHAT IS ENGINEERING? GRADES K-2

SUMMARY

Students will use the engineering design process to design a container that will slow down the melting of an ice cube.
Duration: 1 hour.



ENGAGE

Tell students that you have a problem: you want to sell snow cones this weekend, but it's going to be hot outside. You need help designing a container for ice that will slow down the melting of your ice.



EXPLORE

Show students the materials they can choose from to build their containers. Before building they will need to draw out their plan. Once they have their plan drawn, they can get their materials and start building.

Once students have had 20-30 minutes to build, regain the attention of the class and ask them how you will know who has built the most effective container. Hopefully they will come up with the idea to test the containers by placing ice in them. Follow up by asking, "How can we test to see which design works best?" They should decide to observe and perhaps time how long it takes to melt an equal amount of ice cubes. The container that keeps the ice cube solid for the longest time is the best container.

MATERIALS

- Bag of ice cubes
- A variety of materials; some suggestions:
 - Paper plates
 - Cardboard
 - Felt or other fabric
 - Aluminum foil
 - Popsicle sticks
 - Pipe cleaners
 - Wood pieces
 - Plastic bags
 - Modeling clay
 - Paper bags
 - Plastic cups
 - Styrofoam cups
 - Newspaper

DIY Activity

- Toothpicks
- Bag of gummy bears
- Hard cover book



EXPLAIN

After determining which one was the best solution to the problem, ask “Why do you think that container was the most effective?” and “What materials did this group use?” Conclude that some materials are better at keeping things cold.



ELABORATE



WATCH THE GENERATION GENIUS WHAT IS ENGINEERING? VIDEO AS A GROUP

Facilitate a conversation using the Discussion Questions.



EVALUATE

Students can play the online Kahoot! quiz game located below the video which provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz or the exit ticket questions. All these resources are located below the video in the Assessment section.



EXTENSION

After the activity discuss different containers that they have seen or used to keep things cold. (coolers, insulated bags, Styrofoam etc.) Talk about the materials that these types of things are made of. Let them re-do their containers after the video, making changes from what they have learned.