

Lesson Plan

Ice Cream Engineer

Book: *We Need Manufacturing Workers*

Series: Essential Jobs

Level: Pioneer

Objective

To help students use information from print and online sources to understand how engineers make plans and solve challenges.

Supplies

- *We Need Manufacturing Workers* book
- “Ice Cream Factory Engineer” video from PBS Kids: <https://pbskids.org/designsquad/video/ice-cream/>

Before the Activity

Pull up the “Ice Cream Factory Engineer” video in your web browser. Read the *We Need Manufacturing Workers* book out loud to the class.

Activity

We Need Manufacturing Workers describes the many kinds of workers who help factories make and package items. Some of these workers are engineers. The “On the Job” feature on page 16 describes what engineers do. Read this page aloud. Then ask the following questions:

- What do engineers do? (Possible Answers: They plan how factories work. They plan each step of how a factory will do its job. They plan how workers and machines will work together.)
- How do engineers test their plans? (Answer: They use computers.)
- What do engineers try to do for each step? (Possible Answers: They try to make each step quick and easy. They make sure it works well with other steps done by people or machines.)
- Why would making each step quick and easy be helpful? (Possible Answer: If each step is quick and easy, the factory can make more items more quickly.)

Next, have students watch the “Ice Cream Factory Engineer” video. In this video, an engineer explains how he designs the machines that make ice cream. He describes three challenges he faced when making three different ice cream flavors. Discuss the following questions as a class:

- What challenges did the engineer have to solve for each ice cream flavor?
 - For the first flavor (Black & Tan), the machine had to blend two different ice cream flavors together and add a frothy top.
 - For the second flavor (Core Concoctions), the machine had to add two different kinds of ice cream, plus a core of caramel.
 - For the third flavor (Chunky Monkey), the machine had to put lots of big chunks into a small container.
- To solve the challenge for the third flavor, what two things did the engineer need to know? (Answer: He needed to understand how the chunks flow through pipes into the ice cream, and he needed to know how to make that happen at high speeds.)
- How could knowing these two things help him solve the challenge? (Possible Answers: Understanding how the chunks move would help him know how many would end up in each ice cream container. He would also find out if the chunks moved differently or got stuck at high speeds.)

Evaluation

Could students recall details from the text and the video? Could they make logical guesses about what information would help the ice cream engineer solve challenges?

Standards

This lesson may be used to address the Common Core State Standards' reading standards for informational text, grade 2 (RI 2.1), and speaking and listening standards, grade 2 (SL 2.1, 2.2).