Suggestions for Teaching a STEM Starters Lesson
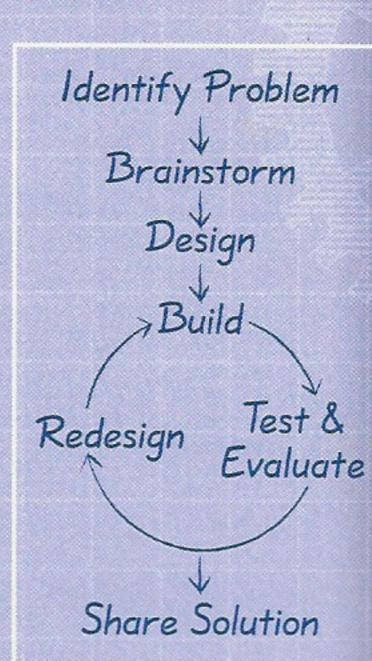
- Begin the lesson by frontloading content.
  - Provide students with key vocabulary so that they can have meaningful conversations during their builds.
  - Provide background information that may encourage a successful build.
    - For example, a brief lesson on simple circuits would give students the tools they need to begin a project using the Paper Circuits STEM Starters kit.
- Introduce to students the Engineering Design Process.
  - Discuss the steps an engineer might take when designing and building a new concept.
  - Point out the importance of the Build/Test & Evaluate/Redesign cycle.
    - Remind students that they may need to spend some time here before moving on and having a solution to share.
- Discuss the target outcome of the project.
  - What is the objective of the project? What should their device do? What activity should students be prepared to participate in with their completed devices?
- Present the STEM Starters kit and discuss the provided materials.
  - Point out that they will need to use additional supplies to successfully complete the build.
  - Teachers may or may not provide students with a collection of additional supplies.
    - Some teachers prefer to limit the amount of available additional materials, while others encourage students to use any available resources. Both can be exciting options.
- Explain the parameters of the project.
  - Some things to consider:
    - Amount of time allotted for completing the project
    - Size of group
    - Availability of resources
- Take a step back and allow students to take the lead.
  - Be available to answer questions, provide suggestions, and encourage teamwork.
- Upon completion, provide an opportunity for students to present their creations.
  - Presentations can include a discussion of the design process, materials used, and self-reflection.
  - Teachers may decide to have a competition to test the effectiveness of each build.
- Before concluding the lesson, allow students a final opportunity to make adjustments to their own devices.
  - Often, students are inspired by the ideas of their peers. Allow them to learn from one another.

Identify Problem
↓
Brainstorm
↓
Design
↓
Build
↓
Redesign ← → Test & Evaluate
↓
Share Solution

Engineering Design Process