

# From improvising to *iterating* with engineering projects



Middle schoolers are inspired to think about science as more than facts and formulas as they engage with an approachable design process to solve problems they might encounter in their daily lives.

- ✓ Centered around the Engineering Design Process (EDP)
- ✓ Combination of digital resources and hands-on prototyping and iterating
- ✓ Support for teaching science and engineering in tandem



## Simple Machines

**Engineering Problem:** Oh no! You've dropped your keys through a sewer grate.

**Engineering Design Task:** Design a tool to get your keys back.



## Plant Growth

**Engineering Problem:** Your school wants to grow a large garden, but there is only a small piece of land available.

**Engineering Design Task:** Design a garden that is six times larger than the land it sits on.

BrainPOP Science Engineering Projects include an **introduction and steps** that are unlocked as students work in groups.



### Introduction

Watch a video overview that introduces The Engineering Design Process.



### Brainstorm

Brainstorm creative ideas with resources, success criteria, and constraints.



### Design

Sketch out a plan using key science concepts learned from the research.



### Research

Investigate scientific principles to help support their design solutions.



### Build and Test

Construct a prototype using everyday materials and iterate in real life.



### Evaluate

Review and reflect on the evolution of their design effectiveness and history.

