

Lesson 4: Prototype Development

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Grade Level(s)

Grades 8-12

Lesson Overview

Using empathy and all information gathered to this point, students will identify the needs of their user and design a prototype to satisfy those needs.

and Learning Objectives

Students will synthesize all information gathered, work collectively and individually, and engage in design thinking to design a prototype solution for their user.

Preparation

Assemble various materials to be used in the prototyping process.

Materials and Resources

- student notebooks (field notebooks)
- sketchbooks or paper for drawing/outlining
- digital cameras (phones work just fine for this)

Activity 1: Start Prototyping (15 Minutes)

- Based on the research, student writing, field notes, and interviews, students will choose one idea and design a prototype as a solution. These prototypes may be in the form of a physical model, electronic presentation, letter or proposal, etc. The form the prototype takes should depend on the desired outcome. Students will sketch, perform, build, or otherwise create a prototype and be ready to share with a partner or small group.

Activity 2: Sharing Solutions and Capturing Feedback (15 Minutes)

Students share their prototype solutions with a partner, small group, or the whole class. The presenter will take about 30 seconds to introduce or explain the prototype, then shares the prototype for feedback.

During feedback, the presenter is quiet and only takes notes. When the review process is complete, the presenter replies to group or partner with an “I heard you say...” statement and reviews feedback.

As prototypes are reviewed, have students contemplate these questions:

- What worked?
- What could be improved?

Activity 3: Making Revisions (15 Minutes)

Students take the feedback they’ve captured and make alterations or additions to their prototypes.

Activity 4: Reflection (10 Minutes)

Have students write briefly to reflect on what they have learned about their community, themselves, the problem, and solutions. Was this an effective project? What could be done to improve student learning?

Troubleshooting

- Be sure to have enough supplies so students are not limited with few options.
- Make sure students observe any restrictions or limitations on picture-taking, recording, and filming both on your school grounds and off. Counsel students to be respectful with the community at large and review privacy laws regarding social media.

Assessment

Activity 4 lends itself well to an assessment opportunity. Did students grasp the STEM applications of this assignment? Did they conceptualize present and future implications of emergency preparedness? Did their thinking change, and was that change reflected in their prototypes and revisions?

Extensions

As a class, students could decide which prototype most accurately reflects the best solutions for the problem of surviving the zombie pandemic apocalypse and present it to the users for feedback.