

Brainstorming Solutions

Overview

This lesson walks the class through the design process and encourages them to work collaboratively to develop an idea of how they might address their watershed issue.

This document contains activities from lesson 8 of the Groundswell Creating Meaningful Outdoor Experiences Curriculum Unit. See the complete version of the lesson on pages 63-70 of the unit.

Curriculum Connections

Michigan K-12 Science Standards

- MS-LS2-5, HS-LS2-7, HS-LS4-6, MS-ESS3-3, HS-ESS3-4, 3-5-ETS1-1, 3-5-ETS1-2, MS-ETS1-1

Key Questions

- How would our solution work?
- How would our solution benefit the Great Lakes Watershed?

Student Objectives

- Students will utilize the design process to develop an idea collaboratively.
- Students will explain how their solution would benefit the Great Lakes Watershed.
- Students will write a letter to a community partner explaining their project and requesting help.

Materials List

- Sticky Notes (each student group should have a big stack)
- Pens/markers/pencils
- Design Plan worksheet (1 per group)
- Community Partner Letter template (1 per student)

Lesson Activities

2. Explore:
 - a. Materials:
 - i. Sticky Notes (each student group should have a big stack)
 - ii. Pens/markers/pencils
 - iii. Design Plan worksheet (1 per group)
 - b. Procedure: Group brainstorming activity
 - i. Split students into groups of 3-7 people
 - ii. Cover rules for the brainstorm:
 - This brainstorming will help us answer the question, "How might we try to tackle or solve this issue?"
 - Collaboration is key here; make sure to build off of your classmates' ideas, don't shoot down the thoughts of others, go for quantity at first, and don't speak over others.
 - iii. Review the four phases of the design process with students. Concise explanations of each phase are:
 - Gather:** We have already worked on this phase! This is when you get out into the community and see examples of the issue firsthand. Gather information about what exactly the problem is.
 - Generate:** Brainstorm with a group of people to think about possible ideas and designs! Dream big!
 - Make:** Choose one idea and build a rough model of it, called a prototype, to see if you can bring our idea to life!
 - Share:** Use your prototype to share your ideas with others, and then think about what you could change to improve it!
 - iv. Generate ideas:
 - Student groups will generate ideas on sticky notes and place them on an open wall space, on a poster board, or their table. Encourage them to brainstorm as many ideas as possible and write one per sticky note. Give them approximately five minutes for this initial brainstorm.

- v. Select favorite ideas
 - Have the group read all of the brainstormed ideas together aloud.
 - Each group member will vote on their top 2-3 favorite ideas using a colored marker.
 - The group will identify which idea has the most votes. This is the idea they will select to develop further.
- vi. Groups will develop their favorite idea by filling out the design plan worksheet.

4. Elaborate/Extend:

a. Materials:

- i. Community Partner Letter template (1 per student)

b. Procedure:

- i. Students will use the template to draft letters explaining their progress in their Environmental Action Project and the ideas they brainstormed during today's lesson; they will also ask the community partner to come in to help them develop the details of their project.
- ii. In setting up meetings with the community partner, the instructor can forward student letters to them, giving student work a real audience.

The Design Process: Brainstorming Solutions

Design Plan: Use this worksheet to explain your favorite idea and think about how it could work!

Our plan is...

What will it be?

That...

What will it do? Explain how your idea will work.

Because...

How will this design help solve the issue we have identified?

Contact a Community Partner

Directions: Use the template below to plan what your letter will include. Then, type or handwrite a final copy of the letter!

(Date goes here)

Dear _____
(name of Community partner you're writing to goes here)

Paragraph 1: Introduce yourself and name your school and class.

We are studying watersheds and want to provide a meaningful service project that will improve our Great Lakes ecosystem. The issue our class is focusing on is:

We have brainstormed some ideas for how our class can work to address this issue. Some solutions we have thought of are:

Would you please visit our class to tell us more about your work and explain how you could help us with our project?

Thank you for your time,

(Sign your name here)