

Lesson 6 What kind of bridge is best?

Note: This lesson plan needs work. The content has promise, but it did not work out well in practice. The students at Lowell were not engaged when exploring the website on the internet.

Objectives: Students will look at four kinds of bridges and understand when each type is likely to be used.

Materials: Computer lab with Internet connection and large monitor or projector for classroom viewing.

Resource: Bridges: Amazing Structures to Design, Build, and Test by Carol Johmann

For the "Try It" stations (see <http://www.pbs.org/wgbh/nova/bridge/> for details):

- ∞ Stacks of books (for each station except cable-stayed bridge station)
- ∞ 2 or 3 small sponges with a groove cut horizontally down the middle of each side (for beam bridge station)
- ∞ Pieces of lightweight cardboard 1x11 inches (for arch bridge station)
- ∞ 3-6 ft lengths of rope, 3-5 ft lengths of rope (for cable-stayed bridge station)
- ∞ Pieces of string (for suspension bridge station)

Pieces of regular copy paper and copy of handout Paper Bridges.

Handout: Engineering is Elementary assessment A-10.

Sponge: Catch up on journals. Engineering is Elementary assessment A-10.

Initial

Discussion: Go over answers from handout.

Briefly show students the PBS-Nova website on bridges:

<http://www.pbs.org/wgbh/nova/bridge/>

Show students the page Build a Bridge. Tell them that they will have an opportunity to look at four kinds of bridges (new bridge type – cable-stayed bridge). Students will play the game and look at resources on Resources page. (Don't call this a game! Kids will expect excitement. The game is interesting, but not exciting!)

Project: Show students the PBS Nova website on bridges:
<http://www.pbs.org/wgbh/nova/bridge/build.html>

Ask students to look at the sites where bridges need to be built, then to look at the descriptions of the four types of bridges. After reading the descriptions, have them play the game of choosing the correct bridge type for the location.

Allow students to browse the links on the Resources page.

Have a table set up with each of the four projects listed as “Try It” on the website. Students try out each project. The beam bridge and arch bridge projects are very quick to do. The cable-stayed bridge project is the most interesting and takes the longest.

On a fifth table, provide the handout Paper Bridges and several sheets of copy paper. Allow students to experiment with various types of bridges.

Vocabulary: Cable-stayed bridge

Final

Discussion: What have students learned about bridges? What kinds of bridges do they think they will find in their community? Note that most bridges students will see are beam bridges. There is a cable-stayed bridge in the park in front of the Children’s Discovery Museum. It is a pedestrian/bicycle bridge over a creek.

Home

Connection: Handout: Have you seen these types of bridges?