



**BRIDGE UP!
ENGINEERING**

LESSON 2 – GRADE 3

LESSON 2 – GRADE 3: Engineering



Big Idea

Students will recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.



Essential Questions

What jobs are associated with science and engineering?



Background Information

It requires a great number of people to build a bridge. In the planning stage, civil engineers, landscape and bridge architects, surveyors, and other specialists and technicians are involved. During the construction of the bridge, additional people come on board, such as equipment operators, iron workers, welders, carpenters, electricians, and heavy and tractor-trailer truck drivers. After a bridge is completed, there are people who conduct inspections of bridges and others who maintain them.



Standards & Benchmarks

Minnesota Science Standards

3.1.3.2 Cultures

Men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.

Benchmark: 3.1.3.2.2 Involvement of Various people

Recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.

Wisconsin Science Standards

G.4.1 Identify the technology used by someone employed in a job or position in Wisconsin and explain how the technology helps.

G.4.2 Discover what changes in technology have occurred in a career chosen by a parent, grandparent, or an adult friend over a long period of time.

G.4.3 Determine what science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally.

G.4.4 Identify the combinations of simple machines in a device used in the home, the workplace, or elsewhere in the community, to make or repair things, or to move goods or people.

G.4.5 Ask questions to find answers about how devices and machines were invented and produced.



Connections with multimedia program

Bridge Up! iBook



Activity Description

In this activity, the students will recognize the various jobs surrounding the building of bridges with the use of Eve Bunting's story, *Pop's Bridge*.



Vocabulary

Crew – A group of people doing work.

Tide – The rise and fall of the sea.

Cling – To stick to or hang on tightly to something.

Balancing – Keeping steady.

Foggy – A thick mist or low clouds.

Disappears – Something passes from sight.

Stretch – To extend or spread out.

Excitement – Feeling of great happiness.

Painter – A person that paints structures.

Sky walker – A person works on high wire structures.



Materials

- *Pop's Bridge* by Eve Bunting
- Graphic organizer



Procedure

- Read *Pop's Bridge* as a group or aloud to the students. Point out the features of the book, the different workers, including the cover, pictures, and vocabulary.
- As you read, ask students to summarize and retell the main events of the story every few pages. Also, make sure to point out the various jobs associated with the bridge.
- When you finish reading *Pop's Bridge*, ask students about the main characters' jobs. Invite them to describe interesting things about other characters' jobs.
- Use the students descriptions of jobs associated with *Pop's Bridge* to brainstorm other jobs associated with bridges and construction.
- Have students work with partners to compare and contrast the jobs and responsibilities of the main characters in the graphic organizer.



Assessment

Venn diagram

<http://www.eduplace.com/graphicorganizer/pdf/venn.pdf>



Extensions

Nonfiction vs. Fiction

<http://www.scholastic.com/teachers/sites/default/files/asset/file/nonfiction-vs-fiction-graphic-organizer.pdf>



Other Resources

Golden Gate Bridge: Bridge Design and Construction Statistics

<http://goldengatebridge.org/research/factsGGBDesign.php>

Golden Gate Videos

<http://www.travelchannel.com/video/tour-the-golden-gate-bridge-11321>