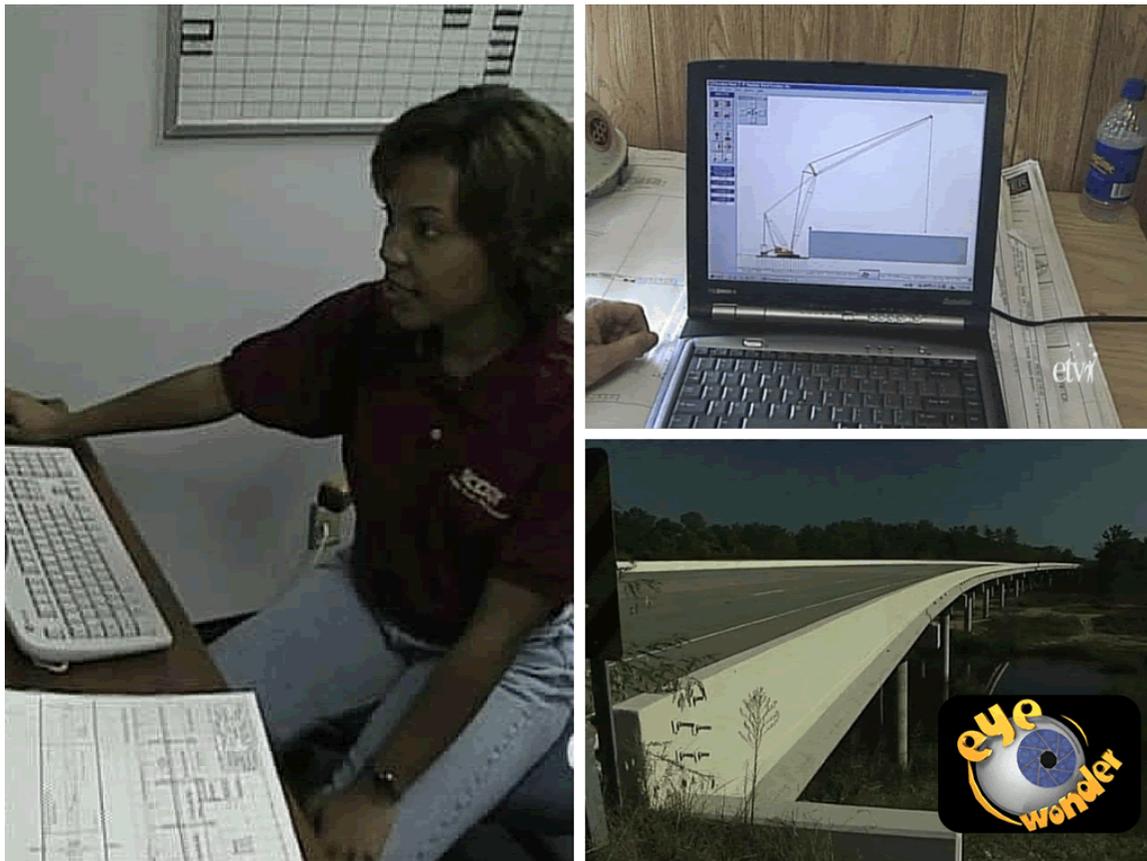




Eye Wonder



Architecture and Construction

Architecture & Construction consists of designing, planning, managing, building or maintaining structures. Take a look behind the scenes with **Eye Wonder**.



Eye Wonder

About the Series

[Eye Wonder](#) excites students with interesting facts and just plain fun! The series explores science and integrates technology, while focusing on various careers. The videos are less than 10 minutes and are filmed through the eyes of the cameraman, D.V.

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<http://media.knowitall.org/series/architecture-construction-0>

Bridges (8:57)

The **Eye Wonder** team learns all about bridges. D.V. visits a bridge under construction and SCDOT to learn more about the construction and engineering that must occur for a bridge to be built and stay standing safely.

Crane (7:57)

The **Eye Wonder** team learns how cranes are used. D.V. speaks with a worker from Buchner Steel at a construction site about heavy lifting cranes and their parts.



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S.C. Standards & Classroom Activities

Bridges

Grade Level: 6-8th

Grade 8

8.S.1A.8 - Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge.

Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.

8.S.1B. Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.

Performance Indicators: Students who demonstrate this understanding can:



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8.S.1B.1 - Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Type of Activities: Long-term post-video project

Introduction- Following the video, students will investigate a place to build a bridge, research what type of bridge might be needed, design a bridge, and build a miniature model.

Background: Engineers must do a great deal of planning before they even begin to construct a bridge. They need to research the location where it is needed. They must know if the area will be prone to flooding, earthquakes, subsidence, or any number of geophysical problems. They also need to determine the needs of the people for whom the bridge will serve. Then, a bridge must be designed that will take into account all the engineer has learned about the land and needs of the people. They must choose appropriate materials for the task, again taking into account the location and function of the bridge (walking, bicycle, small cars, large trucks, etc.)

Activity: Building Bridges



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This is a long-term research project, possibly for an entire 4 to 9-week period. It can be as simple as building a bridge out of materials to as complex as researching specific locations, bridge designs, and performing a mock design proposal before actually building their models.

Materials: Internet access to research locations and bridge designs. Maps, materials for building the bridge (straws, tooth picks, popsicle sticks, or any other material that you or your students can think of)

Procedures:

1. Students should consult a map location to determine where a bridge might best be placed to serve a neighboring community. (advanced project)
2. Having determined the location and type of bridge, they will need to do research on the Internet to determine the design of bridge best suited to their needs. (advanced project)
3. Select materials appropriate to build their bridges. You may want to give them the materials (simple project) or have them select materials themselves (advanced project).
4. Write a proposal for their design (advanced project)
5. Once approved, build their model bridge.



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Modifications: As explained above, this could be done as a simple model building project or a long-term research project complete with multi-disciplinary aspects from writing (Language Arts), bridge design (math), geology (8th grade science), and economic issues (social studies).



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Credits

An instructional television series produced by Instructional Television, South Carolina Department of Education and ETV in SC (*Equal Opportunity Employers*)

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Visit scetv.org/education for more educational resources.