Bridging Design and Ecology—
Footbridges

Context
For one of our first projects in design, we have been asked to design a footbridge! The bridge has to be designed for an outdoor setting which we will survey and model. We will work in teams of three.

Problem
Design and construct a "footbridge".

Design Constraints
• After visits to the site, and upon building a model of the setting, we will develop a list of constraints together.

Design Considerations
• Pay close attention to appropriate form of materials, simplicity, unity and economy
• Pay close attention to structural design principles and safety codes
• The uses of the bridge *and* its setting are extremely important
• Remember, building or placing the bridge must *not* interrupt the local ecology
*No Sloppy work!

Sequence
• Think about and sketch your designs without worrying too much about structural design—concentrate on the setting
• Choose appropriate materials and structures (Consult your engineering notes)
• Collect the materials that you need
• Be sure you like your design and check to make sure it is workable
• Double-check the constraints on forms and size
• Cut your materials and smooth any sharp edges
• Do your gluing, fastening or welding or painting of individual members before you assemble the bridge
• Assemble pieces temporarily before you complete your bridge
• Place the bridge in the model setting and assess its design

Management Issues
• End of Day 3: Site Assessment completed
• End of Day 5: Model setting completed
• End of Day 6: Approval of design sketches
• End of Day 7: Approval of materials
• End of Day 10: Submit finished bridge for display

• Be sure to obey all safety rules when using tools and machines!
• Remember to be polite to people who help you!

Related Studies

- Drafting and Sketching
- Design
- Geometry
- Materials science
- Structural Engineering
- Ecology
- Surveying

Honest Self Evaluation

1. We stayed within the design constraints and deadlines— _____ out of 5 marks

2. Our bridge is very much like my approved sketch— _____ out of 5 marks

3. Our bridge is stable and functional — _____ out of 5 marks

4. We have a nice display of the principles and elements of design— _____ out of 5 marks

5. Our bridge relates very well to its setting — _____ out of 5 marks

6. Our finished bridge represents quality work— _____ out of 5 marks

7. our use of resources was economic— _____ out of 5 marks

_____ Total out of 35

Assessment

Student's Assessment Student Total _____

Design Principles

- Appropriate Form _____ out of 10
- Simplicity _____ out of 10
- Ecology _____ out of 10
- Economy _____ out of 10

Craft and quality _____ out of 10

Deadlines, Safety and Participation _____ out of 15

_____ Total out of 100