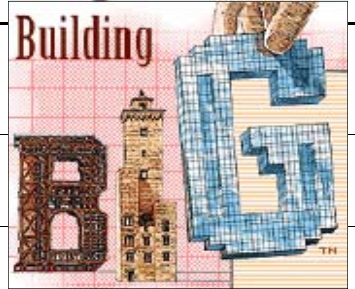


Student Link

Internet Treasure Hunt for Grade 7 (Science & Technology: Structures)

Student Name: _____

1. First, let's look at the difference between forces and loads and how they affect large structures. In StudentLink, click on the **Grade Seven door**. Then click on **Science and Technology**. Under **Structural Strength and Stability**, click on **"Building Big"**.



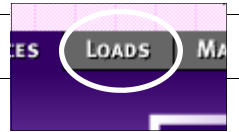
2. Click on the **Interactive Lab** link, then on the



3. Use the chart below to fill in information about each force.

| TYPES OF FORCE | DEFINE IT | DRAW IT |
|----------------|-----------|---------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

4. For each force, click on **"see it in real life"** to see an example.



5. Now click on the **"Loads"** tab near the top of the screen.

6. Read through each type of load to see how it affects a structure. Complete the chart below.

| TYPES OF LOAD (use term in graphic) | DEFINE IT | DRAW IT |
|--|-----------|---------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

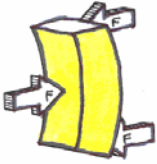
7. There's lots to explore and learn at this web site. Check out **materials** and **shapes** that also affect a structure's strength.

Student Link

Internet Treasure Hunt for Grade 7 (Science & Technology: Structures)



Student Name: _____



8. Return to the **StudentLink 2 Grade Seven Science and Technology** page. Click on **Forces on Bridges** in the **Strength and Stability** column.
9. Read the paragraphs to find out about each type of force. Complete the chart on how different forces can “destabilize” a bridge.

| Force Type | Your Definition | Simple Diagram |
|----------------|-----------------|----------------|
| 1. Compression | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |



10. Return to **StudentLink Grade Seven Science and Technology** and click on “**Bridge Tips**”. This web site is full of great tips if you’re trying to build a stable structure that will span an open space (aka, a bridge.)

Look out for...

- ◆ Form of the Bridge
- ◆ Importance of Connections



11. After reading the information, scroll down the page and click on [Balsa Bridge Building Contest](#). This site takes a minute to load. Click on “Quick Access” And select “Photos:”



Bridges for this contest had to span a distance of 40 CM and have a height of at least 5 CM. The average bridge was able to carry a load of 56 KG. The winning bridge (at left) held a load of 209.4 KG before reaching structural failure. On the right a bridge is under stress. The tester is adding weight to the garbage can chained to the bridge.



12. After looking at some of the bridges list three characteristics that these model bridges have in common?

A) _____ B) _____ C) _____

13. What steps would you take to create a balsa bridge that could withstand great loads?

