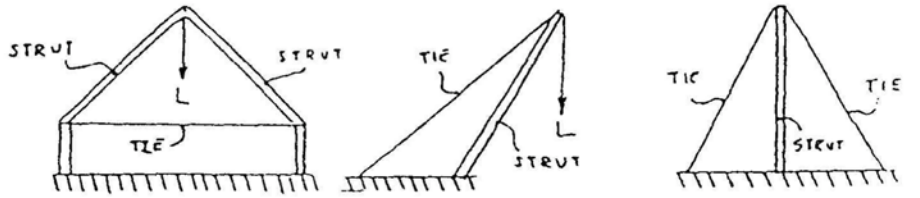
Structures Handout

Structural Members

Struts and Ties:

A **strut** is structural member that is being pushed from opposite ends. It is said that a strut "resists compression."



A **tie** is a structural member that is being pulled from opposite ends. It is said that a tie "works in tension."

Columns are vertical, structural members of a structure.

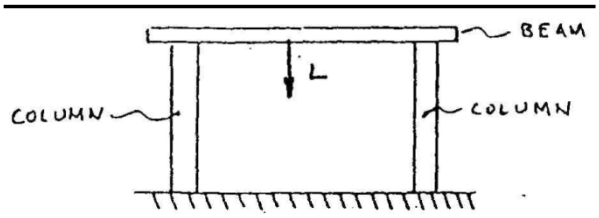
Columns stand perpendicular to the ground. Since they are used to hold up the weight of a structure and to resist the external loads pushing down upon them **columns are always in compression**. A column is a special type of strut.

Beams are horizontal structural members that are used to carry a load.

(Horizontal members whose purpose is to keep columns apart are not beams.)

Beams are used to support loads placed between two columns. They transfer the load horizontally, across their length to the columns.

Beams must resist forces pushing perpendicular to them. These forces are also known as **"bending forces**." Thus, "**beams are always in bending**."



With the paper or cardboard structures we will build, the columns may also work as ties. This is not generally true in structures made from more common building materials.

Name _____ **Period** _____ **Date**

Structural Members

Homework Questions

1. What is a strut?

2. What is a Tie?

3. What is a Column?

4. What is a Beam?

5. Is a column a strut?

   Why or why not?

6. What structural member is always in tension?

7. What structural member is always bending?

8. What structural member is always in compression?