Name _____ Period _____ Date _____

Structures Worksheet #2
Columns & Compressive Strength Experiments

When you do this homework refer to Structures Handout: "Strength" and the work done in class.

A **column** is a vertical structural member that is in or subject to compression.

Experiment I

Make a tube by rolling a piece of copy paper the long way. Use tape to hold the tube together. Use a piece of tape as long ass the tube so the sides won't open at any point.

Make another tube by rolling the paper the short way. Again, do not double up the paper.

Now see how many lightweight books you can stack on each column before it fails (i.e. breaks, folds or bends.)

Use the same configuration of books to test each column. Be sure to stack the books gently and on the center of the column.

1. Which column held more books? _____

2. Why do you think this happened? _____

Experiment II

Do the same experiment with one change. Make two tubular columns, one twice as tall as the other. Here's how to make them. Make 2 tubes **the long way**. Then cut one to 1/2 its length. Now test them.

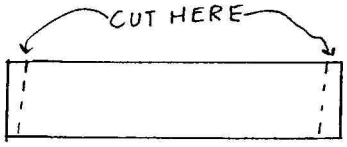
3. Which column held more textbooks before it failed? _____

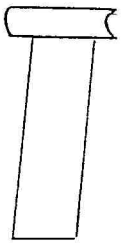
4. Why do you think this happened? _____

_____

Experiment III

Now make one more, tall tube column by rolling the paper **the long way**. Cut the top and bottom as shown below. Keep the angle formed by your cut to about 5° to 10°. Then stand it up (see diagram below) to do the experiment.





5. How many books will this new column hold before it fails? _____

6. Why did this column fail when it did? _____

7. What variables do you think effect the compressive strength of a column? _____

_____

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