Structures and Designs

Lab #1 Strong Shapes

NAME: _____ Due: _____

Purpose: To discover what shape is most stable when a force is applied to it.

Hypothesis:

_____

_____

Procedure:

1) Create a chart to collect your data.
2) Cut five straws in half and leave 2 straws whole.
3) Using a pipe cleaner attach the straws to make a triangle, square and a rectangle.
4) To do this bend each piece of pipe cleaner in half and insert each end into a straw.
5) Lay the three shapes on a table.
6) Push on the two opposite corners of each shape.
7) Record your observations for each shape.
8) Cut a piece of straw the length of the diagonal from one corner of your square to the other.
9) Insert that piece of straw with pipe cleaner and test the strength of the shape now.

Data: Create a chart to collect your data.

Analysis Questions: (answer on loose leaf)

1. What is elasticity?
2. Which shape was most elastic?
3. Which shapes deformed?
4. Which shape was the strongest?
5. Why did the square get stronger when you added the diagonal straw?
6. Draw a picture of each shape showing the thrust lines.

Sources of Error: (answer on loose leaf)

Conclusion: (answer on loose leaf)

FEEDBACK

❑ Incomplete or not handed in by due date ❑ Messy or missing data ❑ Poor knowledge exhibited in analysis questions ❑ Few or weak sources of error ❑ Incorrect or unclear conclusion ❑ Redo and parent signature required _____	❑ Complete by due date with accuracy ❑ Accurate data ❑ Good knowledge exhibited in analysis questions ❑ Credible sources of error ❑ Conclusion needs support	❑ Completed by due date with detail ❑ Accurate & clean data ❑ Excellent knowledge exhibited in analysis questions ❑ Insightful sources of error ❑ Supported conclusion