**SPAGHETTI BRIDGE CHALLENGE**

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ CLASS: \_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SUPPLIES:**

One box of spaghetti Meter Stick Two Desks

One hot glue gun Scale Dowel Rod/Ruler

6 Glue Sticks Bucket Calculator

String Weights (to test your bridge)

**WORK ORDER:**

1. You will be building a bridge that:

* weighs less than 250g
* spans a gap of 50 cm and is 60 cm long
* is less than 10 cm wide

1. Draw a plan of your bridge on paper first. Use your imagination; the bridge can be any shape you like as long as it is the right weight, width and length. (Hint: use the research you did on bridges to help you design yours – Beam, Truss, Arch and Suspension).
2. Build your bridge out of spaghetti and glue. The glue can only be used on overlaps, intersections and joints.
3. Check the weight of your bridge to make sure it weighs less than 250g. Record the actual weight here\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Measure your bridge to make sure it is the correct length (at least 60 cm) and width (less than 10 cm). Record the actual length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and width\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Now it's testing time! Place the bridge between two desks that are 50 cm apart.
6. Place the dowel or ruler halfway along the bridge so it runs across the center of the bridge.
7. Use string to hang the bucket off the dowel or ruler.
8. Slowly add weights to the bucket until the bridge breaks.
9. Add up the weights, dowel and bucket your bridge held. This is the load of your bridge. Record the load of your bridge here \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. Divide the load by the weight of the bridge. This is your load/weight ratio. The higher the load/weight ratio, the stronger your bridge. Record the load/weight ratio here \_\_\_\_\_\_\_\_\_\_\_\_\_.