**Saturday Activities**

**Building Bridges**

Even though you can’t see it, a bridge BENDS and SQUEEZES together whenever a vehicle drives over it.

**What’s Happening?**

- **Weight**
  - from a vehicle pushes DOWNWARDS, causing COMPRESSION and TENSION.
  - With a bigger weight, the tension and compression get BIGGER too.

- **Compression**
  - (shown in RED)
  - SQUEEZES the top layer of the bridge inwards.
  - The weight also spreads to and COMPRESSES the legs.

- **Tension**
  - (shown in BLUE)
  - STRETCHES the bottom of the bridge outwards.

But if the tension and compression become TOO BIG, the bridge will...

### Experiment:

1. Place the flat template as shown in the diagram to the right. Load it with small objects of the same size (such as coins or toy bricks) one at a time, until it collapses. How many can it support?

2. Fold up the sides along the WHITE dotted lines and try again. How many of your item can it support now?

3. Fold along the remaining BLACK dotted lines to make a zigzag. How many can it support now?

Some bridges have extra supports underneath to SPREAD OUT the impact of the weight.

Suspension bridges have extra supports above.

Adding extra supports helps to avoid reaching the elastic limit for any one part of a bridge.

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**Bridge Template**

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