**Seismic -Safe Building Challenge**

**Checkpoints -- Must be initialed by teacher before moving on**

**Step #3 – Develop Possible Solutions**. Remember the main goal of this challenge is to build a structure that is self-supporting, free-standing, and can withstand a moderate earthquake. From your research (and from previous knowledge) make a list of things that are important (and you plan to use) to make your structure meet these goals!

1.

2.

3.

4.

What are the key aspects of building an earthquake-resistant structure? ***Each member of the team will produce one design idea for your earthquake-resistant structure***. Sketch your design idea on an 8 ½ x 11 piece of copy paper and label strategies that you will be using to keep your building upright during a moderate quake. This is an individual grade (10 points).

 Teacher Checkpoint

**Step #4 – Select the Best Solution (s)**. Brainstorm with other group members and decided which design will work best. Draw the plans for the earthquake-resistant structure your group will build or choose one of the designs created thus far as the final draft. You must stay with this design. You cannot use another team’s design during the building process. That will disqualify you. Label this design “Final Draft”.

Teacher Checkpoint

**Step #5 – Construct the Prototype**. Build a real-life model of your earthquake-resistant structure based on your sketch. Assess your building materials, write your checks and purchase materials, and build your design.

Teacher Checkpoint

**Step #6 – Test and Evaluate the Solution.**

Problems/Solutions

You will encounter difficulties when working on this engineering design challenge. What were your three biggest problems constructing the earthquake-resistant structure and how did you solve them? Please use complete sentences. (You will have the option to test your design on the shake table for a price. The real tests will occur on one day.

1. Problem:

Solution:

1. Problem:

Solution:

1. Problem:

Solution:

Teacher Checkpoint

**Step #7/8 – Communicate Solutions and Redesign Reflection**

1. Did your earthquake-resistant structure work properly when you tested it? Explain.
2. What could you do to your earthquake-resistant structure to improve its performance?
3. If you were starting over, what would you do differently? Explain.