**Findley Oaks Elementary**

**STEM Design Brief**

**Name: smashing Spider Egg Drop**

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| **Subject:**  Fall STEM Activity | **Grade Level:**  **4** | **Suggested Timeframe:**  2+hours |

**Inspiration: Video about a girl who tried a few different kinds of packaging** [**https://www.youtube.com/watch?v=1fl9ZHIJJkU**](https://www.youtube.com/watch?v=1fl9ZHIJJkU)

**Standard:**

**S2CS3:** Students will identify and investigate problems scientifically.

**S2CS4:** Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

**Vocabulary:**

**Inertia – Inertia** is the resistance of any physical object to any change in its state of motion, including changes to its speed and direction. It is the tendency of objects to keep moving in a straight line at constant velocity.

**Gravity - Gravitation**, or **gravity**, is a [natural phenomenon](http://en.wikipedia.org/wiki/Natural_phenomenon) by which all [physical bodies](http://en.wikipedia.org/wiki/Physical_body) attract each other. Gravity gives [weight](http://en.wikipedia.org/wiki/Weight) to physical objects and causes them to [fall](http://en.wikipedia.org/wiki/Free_fall) toward the ground when dropped.

B**ackground/Design Challenge:**

Help! Johns Creek, Georgia has an abundance of giant spider eggs breaking before they are ready to hatch. The **spiders** in town need your help with designing a spider web that will catch their fall and not break.

The Findley Oaks fourth grade teachers are in competition with each other to see whose class will make the best spider web and construct the best protection for their egg.

**Criteria:**

The egg must:

Support a fall (not break) from 2 feet, increasing in increments of 2 feet. (2-4-6-8-10) The egg that drops from the highest point and is still not cracked wins the challenge.

The Spider web must:

Be able to protect the egg.

**Constraints:**

* You will be working in a team of \_\_\_\_\_ members.
* You are limited to using only the materials listed/provided.
* Your team has \_\_\_\_\_\_\_amount of time to complete the challenge.

**Materials:** (You may select from these items.)

* One egg
* Dental floss
* Plastic bag(s)
* Tissue paper
* Cotton balls
* Glue
* Paper plates
* Packing peanuts
* Recycled paper
* Foam items

**Tools:** (You may use these tools, but they may not become part of your product.)

* scissors
* student research
* rulers