**Leaning Tower of Pong**

**Essential Question:** How do you design a free-standing structure that can support weight? What design makes the structure more stable? What design makes the structure stronger?

**Objective:** Create a free-standing structure which will support the weight of a ping pong ball at its highest point.

Students must use the Design Loop.

1. Identify the problem
2. Research the problem
3. Brainstorming
4. Pick the best solution
5. Make it
6. Test it
7. Redesign

**Instructional Activities:**

Students will be introduced to the Design Process with a Power Point presentation and discussion. After they have learned the process, they will apply it to the construction of a free-standing paper structure.

Students will have 25 minutes to design a free-standing structure that will support the weight of a ping pong ball at its highest point. They will work in groups and will need to follow the Design Process to come up with their final structure. A free-standing structure is defined as a structure that is not taped to, leaning against, or supported by the table surface in any way. The structure can be moved from place to place. The scissors may only be used as a cutting tool.

**Resources/Materials:**

40 pieces of white paper

50 cm. of masking tape

1 pair of scissors

**Assessment:** Students will test out their towers in front of the class. We will evaluate the strength/support of the towers. If the ping pong ball is supported, their tower is successful. We will evaluate creative choices and practical building techniques. Students will receive a group score based on a rubric.

**Differentiation:** students will be working in groups. Students can work with other students if they need help with the project. Jobs in each groups will be encouraged based on interest and ability. If students finish early, they  can follow the enrichment lesson (creating a unique structure that has a span that can support weight, like a bridge).