

## Art 126

### Foundation Design II

# Warm Up / Problem Solving Exercises



For the first few days of class we will work on in-class exercises that enhance basic problem solving skills. Using only paper and tape, you will be required to construct basic structural systems capable of withstanding certain stress loads. These simple paper systems emphasize the importance of structural integrity in concepts related to projectiles, spans, bridges, cantilevers, columns, and free-falling systems. Exercises last approximately one hour each.

**#1. Paper Projectile Exercise:** Design and construct a system that, when launched in the classroom will cover the greatest distance.

**Materials:** 2 sheets of typing paper, 3" of transparent tape, and 1 paper clip.

\*only 1 sheet of paper may be used in the final solution to the problem.

**#2. Paper Tower Exercise:** Design and construct a free-standing system that will ascend to the greatest possible height while supporting the weight of a Quarter at the top. System must fit within a 3" base.

**Materials:** 2 sheets of typing paper, 3" of transparent tape.

**#3. Paper Cantilever Exercise:** Design and construct a system that will extend the greatest possible distance from the wall.

**Materials:** 1 sheet of typing paper as a base to be attached to the wall, 1 full sheet of newsprint, 3" of transparent tape, and two push pins.

**#4. Paper Bridge Exercise:** Design and construct a free standing system to span the greatest distance between two points without touching the floor.

**Materials:** 1 full sheet of newsprint, 3" of transparent tape, ruler, and scissors.

\*tape may not be used to anchor either end of your span.

**#5. Paper Stress Test Exercise:** Create a system to support the greatest possible weight (bricks) at the greatest possible height.

**Materials:** 2 sheets of typing paper, 3" of transparent tape, ruler, and scissors.

**#6. Egg Drop Exercise:** Construct a system that will protect an uncooked egg from breaking from a 20' drop.

**Materials:** 2 full size sheets of newsprint, 3" of transparent tape, ruler, scissors, and egg.