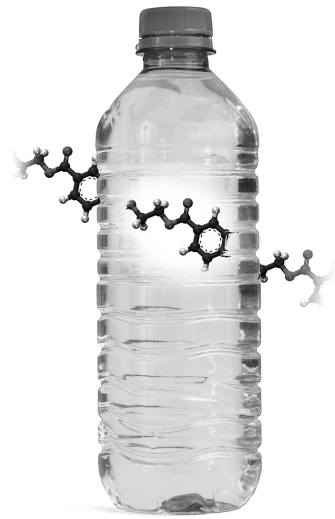


# STRESS QUEST.



## PART 1: FIND STRESS

Today we are searching for stress. Yes, indeed. We want lots of stress. For today's activity, I invite you to search the campus for objects – synthetic or natural – that illustrate several different types of stress:

1. Tension (simple uniaxial)
2. Compression (simple uniaxial)
3. Bending (flexure)
4. Shear (simple)
5. Torsion

While many objects have complex geometry or complex loading and thus experience multiple types of stress at the same time, I want you to find objects that withstand **predominantly one type of mechanical stress** in their normal usage or existence. Once you find a suitable object for each type of stress, take a photo. Be sure that your photos clearly identify the object (we should be able to tell what it is), but also illustrate the specific part of the object is interesting from a stress perspective.

## PART 2: ESTIMATE STRESS

Now that you have identified components under different stress conditions, let's estimate the primary stress (e.g., tension, compression, bending, torsion, shear) on two of the components you photographed.

1. Select one: tension, compression, or shear. As a team, estimate loads and geometries, and calculate the stress.
2. Select one: bending or torsion. As a team, estimate loads and geometries, and calculate the stress.

Submit your two photos with appropriate annotations, as well as your team's calculations, by the end of the class period. See the course web site for an example.

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