

Cantilever

Team Member Names: _____

Assignment: Using the materials listed below build structure that will cantilever out from anchor points on a wall. No part of the structure may touch the ground. The goal is to build a structure that reaches as far as possible from the wall while holding an egg. The distance is measured from where the egg is from the wall during testing.

Materials: (10 sheets) copy paper, (12") three-quarter-inch masking tape, (4) large paper clips, (4) small paperclips, (1) 10" drinking straw, (36") mason line. The golf balls are used to simulate the test as they are about the same size and weight of an egg. Students can use these in class to get a better idea of how the structure will react but should not be allowed to use eggs in class until test day.

Assessment Rubric: Be sure to review all the rules and expectations before the project starts.

Engineering Notebook	Points
- Evidence that instructions were followed including notes taken during testing, revisions, etc...	30
- Some instructions followed and notes taken, but not much detail or effort put forth	20
- No evidence of instruction being followed. Only sketches present.	5

Brainstorming	Points
- Two or more detailed sketches that reflect potential solutions. e.g. Materials used and identified, basic dimensions supplied, Construction methods.	20
- Two or more sketches that reflect potential solution, without much detail.	15
- One or two sketches, with no detail and effort	5

Structure supports egg	Points
- Distance from wall (inches)/3 = _____ x # of seconds egg is supported by the cantilever. (5seconds max)= _____/100 * 20 = _____points earned.	____/20
Show work:	

Structure	Points
- Originality, quality construction. Matches design or revisions in engineering notebook	10
- Limited creativity and/or neatness. Doesn't match design from engineering notebook	5
- Poorly constructed.	0

Evidence of Engineering disciplines/job duties	Points
- Evidence of engineering duties performed cited in engineering notebook. This will act like your conclusion statement. At what stage of this activity did you and your teammates perform the following engineering disciplines.	____/20
Research Engineer	5
Design Engineer	5
Analysis Engineer	5
Construction Engineer	5