

Name(s): _____

Period: _____

Egg Drop

DESIGN BRIEF: Design and construct a container that will safely protect an egg when dropped from a height of approximately 20 feet.

SPECIFICATIONS AND LIMITATIONS:

1. All sketches must be approved by the instructor before any work on a prototype container can begin.
2. All construction materials must be approved by the instructor in advance of construction.
3. The container can only be built from instructor approved materials.
4. If suspect materials are discovered the container will be disqualified.
5. All containers will be inspected before and after the test drop.
6. All eggs will be inspected before and after the test drop by the instructor.
7. **Your container must allow for the egg to put in immediately before the drop and removed immediately after the drop for inspection.**
8. The egg must not crack/break in any way or 30 points will be deducted from your final grade. You will have the option to try again multiple times to successfully complete the challenge.
9. All work must be completed by the student(s) in the time allotted by the instructor.
10. You can create multiple containers.
11. **The test egg will be supplied by the instructor.**

CONSTRUCTION AND TESTING:

Information: Class lecture, class activities and the Internet.

Materials: You decide. Masking tape and the egg will be provided, but all other materials must be brought from home. Some cardboard, drinking straws, and paper towels will be available if needed. A successful design can be made from simply those items.
Example materials include:

- | | |
|----------------|--------------------|
| • Tissue Paper | • Balloons |
| • Tissue | • Tape |
| • Cotton Balls | • Safety Pin |
| • Rubber Bands | • Paper Clip |
| • Foam Board | • Eggs for testing |
| • Cardboard | • Paper |

Tools and Machines: Rulers and scissors will be provided

Energy: Human power

Time: Research/ Sketching
Construction
Testing + Evaluation

Capitol: Max = \$5.00

ASSESSMENT: You will be assessed on your ability to successfully protect your egg during the test drop. Other areas under consideration will be sketching, final drawing, design concepts, construction, and documentation. The instructor will provide you with a scoring rubric which may be used to obtain your desired grade.

EGG DROP RESEARCH

DIRECTIONS: Please answer the following questions in complete sentences.

1. How much time did you spend researching your solution?

2. How many types of containers did you research?

3. List three internet sites that you visited to get information for your design.

4. How many containers do you plan to incorporate into your design? What is the benefit/limitation of having a heavy container vs. a light container?

5. Is there a design idea you found while researching your container that will offer your egg a particular advantage of survival over your fellow designers?

BRAINSTORMING

DIRECTIONS: Sketch up to eight (8) original egg drop container designs and list pros and cons of each. A portion of your grade is based on the number of designs and your notes about each.

| | |
|-----|-----|
| 1.) | 5.) |
| 2.) | 6.) |
| 3.) | 7.) |
| 4.) | 8.) |

FINAL DESIGN

DETAILED DRAWING

DIRECTIONS: Using the space below create a detailed drawing of your egg drop container. You may not begin building until this drawing is approved.

Below the drawing, make a list of materials needed to build your design. Your drawing should identify where the materials are used.

TESTING

DIRECTIONS: Record data during the egg drop challenge.

1.) How symmetrical was your container? Do you think symmetry will have an effect on how your container falls to the ground?

2.) Did the container fall straight down, or did it tumble/flip during the test?

3.) How did your container look after the test drop? Explain in high detail.

4.) Did your design safely protect the egg during the test drop?

EVALUATION & REDESIGN

EVALUATION

DIRECTIONS: Use complete sentences to answer the following questions.

Describe the quality of your container. Be sure to include the level of effort you placed on design, construction and craftsmanship.

REDESIGN

Describe what part of your design you would change if you had the opportunity to participate in the challenge again? Include any design, construction, or craftsmanship improvements you would make to your container.

ASSESSMENT (Student Copy)

DIRECTIONS: As a class we will review the assessment sheet before starting the activity.

IDEAS

| | |
|--|------------------|
| Extensive solutions generated (6 - 8+). Evidence of brainstorming evident as well as notation of pros and cons of each design. | 20 points |
| Several solutions generated (4 - 5), few notes and diagrams. | 10 points |
| Few solutions generated (1 - 3), no notes or diagrams. | 5 points |
| No solutions generated. | 0 points |

DOCUMENTATION

| | |
|---|------------------|
| Documentation complete with all sections correctly filled out. Sentences are complete and grammatically correct. Student(s) went above and beyond directions. | 50 points |
| Documentation complete. Some use of complete sentences. | 36 points |
| Documentation mostly complete, but a few areas left blank. Use of incomplete sentences and poor grammar. | 24 points |
| Documentation incomplete. Many areas left blank. | 10 points |
| Documentation incomplete. Little effort to no effort put forth. | 0 points |

PROJECT

| | |
|---|------------------|
| Evidence of thorough work appropriate to time allotted. Construction completed with attention to detail. Includes appropriate use of materials. | 40 points |
| Average amount of work with several examples of attention to detail. Room for improvement. | 26 points |
| An average amount of work completed but with little care or craftsmanship shown. | 18 points |
| Generally poor work with little craftsmanship shown. | 8 points |
| Very poor work, no evidence of craftsmanship or now evidence of any work. | 0 points |

SUCCESSFUL PROJECT COMPLETION

| | |
|---|-------------------|
| Egg was cracked or broken upon inspection | -30 points |
|---|-------------------|

RUBRIC

| | |
|------------------------|----------|
| 110 – 90 points | A |
| 89 – 79 points | B |
| 78 – 67 points | C |
| 66 – 55 points | D |
| Under 54 points | F |

