



Egg Drop Challenge Lesson Plan & Class Presentation Assignment

Goals:

What do you hope to accomplish? What do you want these students to take away from your lesson plan?

We hope to teach kids how to think creatively and practically to solve a problem. They should take away practical knowledge to solve a similar problem in the future or develop creative solutions to other problems by using the same logical process. We also hope that the kids will walk away with a better understanding of simple machines and where they exist around them.

What is the activity/design-challenge that you will be implementing? Describe it.

The design challenge is called “Egg Drop.” In this challenge, the students will be given materials such as noodles, cotton, cardboard, tape, string, sponges, newspaper etc. to build a simple machine which makes transporting an egg between two heights efficient (such that the egg does not break).

How are you going to use this activity to engage these students?

The “Egg Drop” activity will engage students by inviting them to collaborate with their group/partner(s) and develop a method to protect the egg from a drop. They will need to use problem solving skills and creative thinking in order to execute this activity. A competitive element can be used to further engage the students.

What are the scientific principles that every student should walk away with? Will your students understand that you’re doing science? How?

Students should learn critical thinking and creativity by designing methods to combat the force of gravity. Our students will understand that we are dealing in science by emphasizing: in the creation of the “egg carrier”, we are using our own *everyday* scientific knowledge of gravity to help move something from a higher altitude to a lower altitude.

Agenda:

How do you plan to begin the lesson plan? Do you intend to do introduce yourselves? Play a game? Do some short movements?

We will begin by engaging the students in a quick game.

Next, we will introduce how science applies to the real world by giving short demonstrations of gravity and its application to the real world.

Minutes	Activity	Leader(s)	Description
0-10	Introduction Game		Quick introduction of leaders -names, reason why we're here Game: TBD
10-15	Explanation of the challenge and the rules		-Describe the challenge to students -Explain rules and regulations (see below) -Show students the various materials provided and the designated box for size restrictions -Break into groups
15-40	Students work on their egg drop contraption		-Leaders will wander from group to group to answer questions, etc. -Announce the time remaining periodically
40-55	Each group attempts the egg drop, successful groups proceed to the next height for another drop		We will start off with a particular height. We are thinking of dropping from about 4 feet. Then whichever groups manage to keep their egg from breaking, can continue onto the next level of dropping from a higher height, and so on. They will not be allowed to modify the structure in between droppings.
55-60	Reflections on successful approaches and improvements		Why did you choose the materials that you chose? Would you choose different materials? Why did your egg <i>not</i> break? Why <i>did</i> your egg break? What would you do differently if you had more time? Did you have fun?

Egg Drop Rules:

- With the provided materials, design a way to protect your egg from breaking when it hits the ground.
- The final contraption must fit into the designated box, so that each group has an equal advantage.
- For 2nd Graders: the egg must be dropped from a starting height of 4 feet.
- Each group with a design that is successful at the first drop height will proceed to the next drop height, which will be slightly higher.

Materials:

What will you bring with you?

- 9 bags of cotton balls
- 6 boxes of cardboard
- 24 sponges (1 per group)
- 5 rolls of masking tape
- news paper
- 1 to 2 rolls of saran wrap
- tarp (for egg drop)
- paper towels
- Clorox wipes (for clean up)
- eggs (4 dozen eggs)
- measuring tape

What should students have ready (i.e. pencils, paper, scissors)?

The students should have pencils, paper, and scissors.

Classroom Set-up:

Students should be placed in groups of 2-3 depending on class size. A small group is ideal for the students to get the most out of this project.

Students will be designing and building egg carriers at their desks or on the floor of their classroom. An outdoor area for testing the egg carriers would be preferred but otherwise a large indoor space that can be cleaned easily will do.

Water may be needed for clean up and washing hands.

How much time do you need for set-up/clean-up? 10 minutes are needed for the set-up of the egg drop and then about 15-20 minutes for clean up.