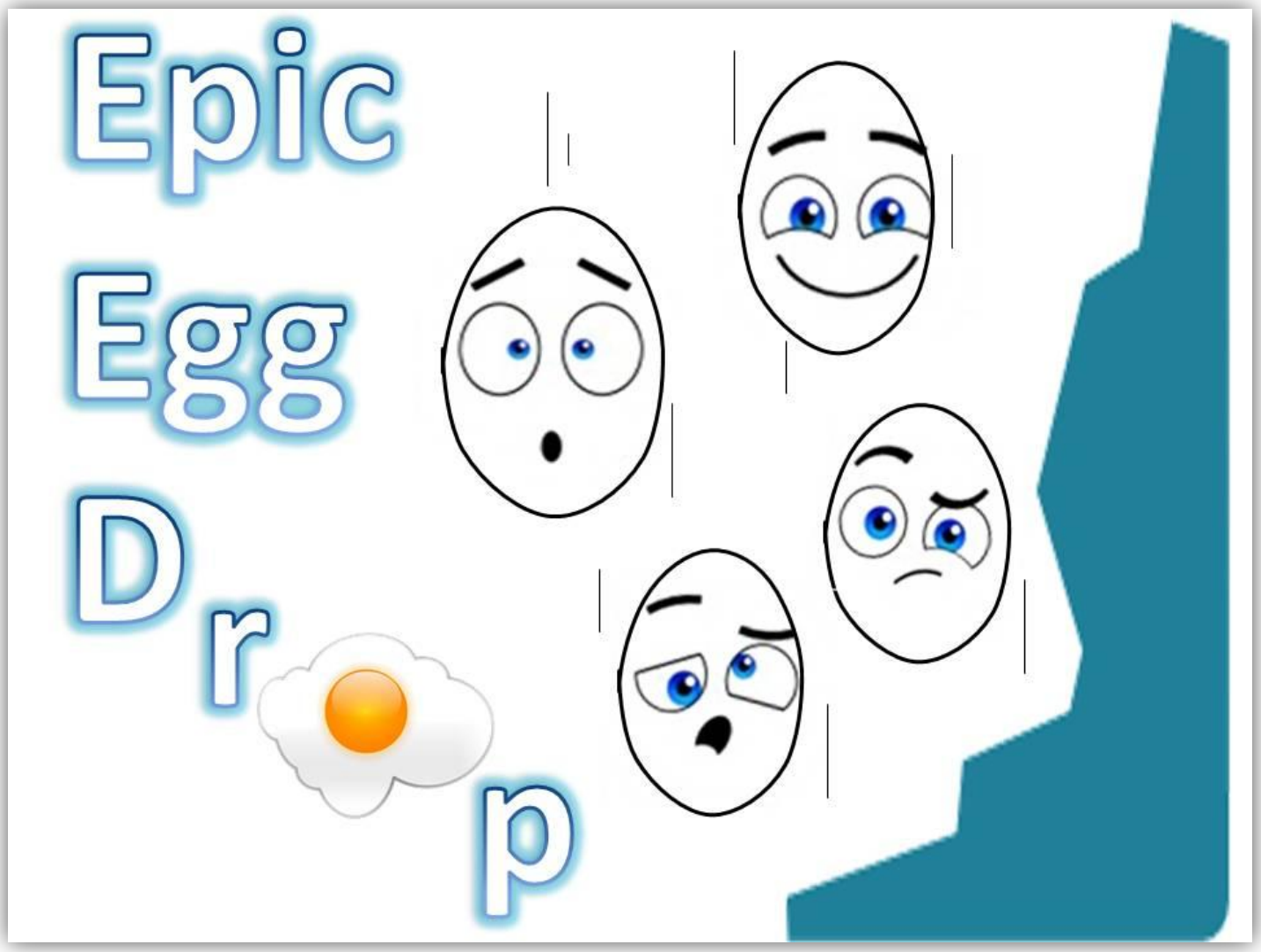


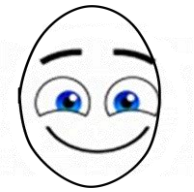
Technological Design Saves Lives!

Technology Designer:

_____

Co-Designers:

_____



What do shovels, cell phones, and heart monitors all have in common? They are inventions created to make our lives better and easier! See, people invent things to solve our problems. The process of designing objects or processes for our benefit is called **technological design**. This is a four-step process.

Problem Identification → **Solution Design** → **Implementation** → **Evaluation**

Me and my peeps want to find a safe way to go sky diving. Why should we be excluded from extreme sports? We need your help to design some Extreme Gravity Game (E.G.G.) devices so that we can sky dive without getting scrambled! Let's go through the process of technological design so that we come up with a way to help me and my peeps safely sky dive.

Step 1: Problem Identification

So what's the problem?

_____

_____

Step 2: Solution Design

Here we have to think of possible designs to solve our problem. Before we do that, we have to know the factors that we have to consider. So here they are!

Objective: Construct a device that is the lightest weight possible, yet durable enough to protect an egg thrown off the roof of the school building.

Materials: You can only use 8x11 typing paper, straws, rubber bands, and clear tape to construct your device.

Rules:

1. Device can weigh no more than 200 grams and must be easily weighed on a triple beam balance.
2. Eggs must be visible (at least partially) in the device.
3. Name of Group and Block must be clearly visible on the project at all times.

INSTRUCTIONS: COLLECT THE MATERIALS LISTED ABOVE AND DISCUSS IDEAS FOR AN E.G.G. DEVICE PROTOTYPE.

What are your ideas about a solution to this problem?

_____

_____

Make a sketch of your top 2 models for your device in the space below. Include the location of the egg in the model.

1

2

What are the advantages and disadvantages of both model designs?

MODEL 1		MODEL 2	
Advantages	Disadvantages	Advantages	Disadvantages

After discussing with your group the advantages and disadvantages of both model designs, which model do you think would be the best to construct? Why?

_____

_____

_____

_____

_____

_____

Step 3: Implementation

OK. Time to build your model! Use only the materials listed above and remember to build the lightest model possible. Then follow the chart below.

<table>
<tr><td colspan="2">Now that you are done with constructing your model, are there any problems with the design of your model?</td></tr>
<tr><td>If yes…</td><td>If no…</td></tr>
<tr><td>List problems:</td><td>Visit the testing site. Insert egg into EGG device and test drop from 1 meter high.</td></tr>
<tr><td>How do you propose to fix problem? List ideas.</td><td>Score your EGG device by circling one of the following ranks.

A= Egg survives the fall fully intact
B= Egg is cracked, but intact
C= Egg is broken

*If the EGG device is Grade A, visit testing site and test drop at 2 meters high.
*If the EGG device scores less than Grade A</td></tr>
<tr><td>Draw modified design here.</td><td>Why did the design fail?
_____
_____
How do you propose to modify your design?
_____
_____
_____</td></tr>
<tr><td>Construct modified design and then revisit top of this table.</td><td>Construct modified design and retest.</td></tr>
</table>

Step 4: Evaluation

Here we have to decide if your EGG product solves the problem! Will your device help me and my buddies not crack our melons on the concrete as we sky dive off the roof of the school building? To make sure, I have some questions for you.

Does the EGG design solve the problem?

_____

_____

What are some good and bad things about the design?

_____

_____

How can this design be improved?

_____

_____

_____

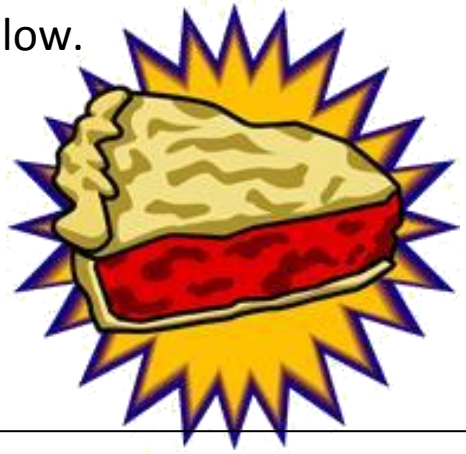
Now that we have gone through the process of technological design, it's time to put our product on the market!! But wait… What were the steps of technological design again? List them below.

P_____

S_____

I_____

E_____



Strawberries are in the P.I.E.

P.S.I.E.

Reflection

How has your understanding of technological design changed through this project? Comment for each of the steps of the technological design process in the chart below.

Technological Design Step	What I thought before	What I know now
Problem Identification		
Solution Design		
Implementation		
Evaluation		