



PUMPKIN DROP



Objective: Students will use critical thinking, creative thinking, and problem-solving skills to design a pumpkin holder to protect a pumpkin dropped from the roof of the school to the ground below.

Requirements: All students in the 3rd-6th grades are invited to **submit a design proposal by completing the attached Pumpkin Drop Packet** which includes thinking skills activities. Students may work alone or with other students, but help from adults should be minimal.

The pumpkin must be a **normal orange pumpkin** and at least the size of a soccer ball. The pumpkin, along with the holder, should be able to be carried by one student without help and able to be wrapped in a tarp to be pulled up on the roof. Please keep the safety of participants & observers in mind at all times.

Dates: Pumpkin Drop packets should be completed and turned in to Mrs. Hutchens **NO LATER than Tuesday, October 18.** You may turn in earlier than that. The top 20 design proposals will then be chosen and announced by Thursday, October 20.

The Pumpkin Drop will take place on Friday, October 28. Parents are welcome to come and watch. Mrs. Hutchens will send specific information about the time closer to the event.

Materials: **Recyclable materials** that are appropriate for school. You may **NOT** use whole boxes, coolers, styrofoam, packing peanuts, bubble wrap, or pillows. You may **NOT** use tape to enclose the outside of the pumpkin. You may only use 1 yard of tape in your design. Again, you may only use items that have been used and would be thrown away. **Again, NO whole boxes, coolers, styrofoam, packing peanuts, bubble wrap, or pillows are allowed.** *Be creative and flexible with your thinking.*

Email Mrs. Kim Hutchens if you have any questions
at hutchensk@mtnbrook.k12.al.us.



Name(s) _____

Teacher _____ Grade Level _____

*Remember the work in this packet is what determines if your idea will be chosen for the pumpkin drop.
Please show your best work.*

PRODUCTIVE THINKING: MATERIALS



Make a list of many, varied, and unusual recyclable materials that you could use to protect your pumpkin. Remember, you cannot use whole boxes, styrofoam, packing peanuts, bubble wrap, or pillows. No duct tape around your pumpkin. You may NOT use tape to enclose the outside of the pumpkin. You may only use 1 foot of tape total in your design. Please remember the safety of the crowd. You do not want sharp things or pieces of wood or metal flying off when it lands. What could you use that no one else will think of using?

When you think your list is complete, ADD more ideas.

Is everything on your list something that would be discarded or recyclable?

Name(s) _____

Teacher _____ Grade Level _____



PLANNING

Think of all the steps needed to complete your pumpkin protector and put the steps in order.

Here are two websites that might help you:

<https://sciencing.com/background-information-egg-drop-experiments-8704697.html>

<https://sciencing.com/physics-egg-drop-science-projects-8099094.html>

How will you use the research above to improve your design?

Ideas:

Materials:

Things to Remember:

Ideas to make it a different/unique design:

Potential Obstacles:

Jobs of Group Members:

Other Planning Ideas:

Name(s) _____

Teacher _____ Grade Level _____

PRODUCTIVE THINKING: DESIGN

Sketch at least TWO different designs for pumpkin holders. Remember that your pumpkin will be dropped from the roof of the school. Try to think of unique designs that no one else will use. Give each design a name. You may add paper or use the back if you need more room.

Design 1 Name: _____

Design 2 Name: _____





DECISION MAKING



1. List the names of your 2 designs from the previous page.

- 1.
- 2.

2. Write at least five questions (criteria questions) to help you evaluate your alternatives.

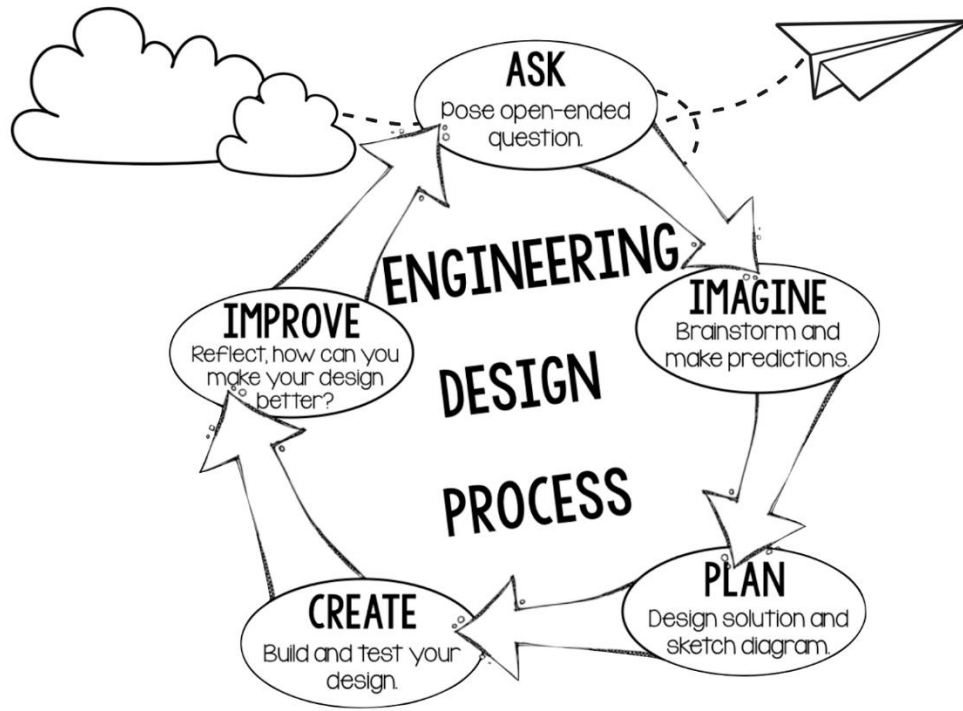
Examples – Can I easily find the necessary materials?
 Will this design cushion the landing of the pumpkin?

Five Criteria Questions
1.
2.
3.
4.
5.

3. Answer the questions above for each design. Give each question an honest answer. Use your answers to help you decide. You may use the back and/or add additional paper to answer the questions for each design.

Design 1 Answers	Design 2 Answers

4. State your final decision and give many, varied reasons for your decision. Turn your criteria questions into statements below.



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TEST AND IMPROVE

Build and test a miniature of your design using an egg. Try to send Mrs. Hutchens a picture at hutchensk@mtnbrook.k12.al.us.

What worked?

What didn't work?

What improvements will you make?



First and Last Name(s) _____

Teacher _____ Grade Level _____

Parent Email Addresses for all team members: _____

(These email addresses will be used for all announcements regarding the pumpkin drop. Include ALL team participants.)

DETAILED PICTURE

DRAW and **LABEL** a detailed picture of the design your team chose. Be **NEAT** and **SPECIFIC**.
Your actual design should look like this picture.



Design Name: _____

- ✓ We verify our design is original.
- ✓ We verify our design is safe and does not include items that are restricted.
- ✓ We verify we created our design with used/recyclable materials.
- ✓ We verify our entire packet is complete.

Team Signatures: _____

****EVERY PAGE OF YOUR DESIGN PACKET MUST BE COMPLETED ENTIRELY TO BE CONSIDERED FOR ENTRY.****