8th Grade Science

Obviously, things didn't go as planned and we weren't able to come back on April 6th. I truly wish things were different. However, we are going to try and make the best of the situation. We should have taken the state test this week. I am confident that you would have done well and that we would have passed as a group. So, in an attempt to keep your work as close to normal as possible, we will try to complete the rocket project.

Day 1

You will begin the water rocket project. The first step is to understand what you will be making and how it is supposed to work. So today, you just have to read the following instructions/guidelines and e-mail if you have any questions.

You will be making a water rocket from a 2-liter bottle. I highly recommend and encourage a regular shaped Pepsi, Mt. Dew, or Coke bottle. (See Picture 1) The reason I recommend these is past history has shown these brands to be more durable. These bottles will have approx. 115 PSI being applied to them.

****Very important***** The above-mentioned bottle will be the main body of your rocket. DO NOT CUT, SCRATCH, or PUT HOLES in it. This will ruin your rocket. It will be filled approx. 2/3 full of water and placed on the launcher. (See Picture 2) Please note the direction the bottle is facing on the launcher. It goes up from their when I pull the pins.

Your rocket is going to have a passenger. The passenger is a Grade A, unboiled, regular egg. Your objective is to design a rocket that launches as high as possible into the air, deploys a parachute, and returns the egg back to the ground without breaking it. Most of the previous winners have launched as high as the football stadium lights or higher.

The parachute must be hidden and not exposed as the rocket is placed on the rocket and launches. (NO BAGS HANGING FROM THE SIDE).

You can use any SAFE object to build your rocket. Obviously by now you have figured out the need for compartments, pieces, etc. Please do not ask your parents to go out and buy you a bunch of stuff. Challenge yourself to use things you have around your home.

DO NOT PUT EGGS IN ROCKET before I launch them. Food allergies, and a smelly mess must be avoided.

Things to consider:

Weight of your rocket: There is a fine line between too much or too little. Don't forget about the weight of the egg.

Aerodynamics: This will play a crucial role in how high your rocket is able to fly.

Padding: Crucial to the survival of the egg.

Commonly Used Materials: Tape, Cardboard, Plastic, Funnels, String, Cloth, Styrofoam, Glue, Bubble Wrap, Egg Cartons, Pieces of 2liter bottles, Smaller plastic bottles, etc.

Day 2

Today I would like you to work on a rocket design. Take inventory of your available materials and sketch some different designs.

Day 3 and 4

Refine your design down to the one you like the most. You will be making a detailed blueprint of your design. A blueprint is a picture that includes all measurements, dimensions, and materials used. BE VERY SPECIFIC on this. (See picture 3) Your blueprint should include predicted measurements for every item you attach to your rocket. This includes length of tape, string. Dimensions should be given for things such as wings, fins, egg compartments, nose cones, parachutes, etc.

Day 5

Send a picture of your blueprint to me and I will make suggestions and give you grade credit for completing this step.

Please send to scott.hamm@db.k12.oh.us

Day 6

Time to gather all of your materials you will be making your rocket from. Use this day to make sure you have everything for your build.

Day 7, 8, 9, and 10

Use these days to build your rocket. Remember, DO NOT CUT YOUR MAIN BOTTLE!!!, PARACHUTES MUST BE HIDDEN. At the end of day 8, please contact me and let me know how it is going. When you finish your rocket please send me a picture of it to the above listed email address. You will receive grade credit for doing this. If I see any things that need corrected, I will discuss them with you.

Day 11

Take this day to try and test your parachute. I suggest tucking it in the rocket and throwing it straight up in the air. If you have a SAFE place to toss it from a height, that could be helpful also. Do Not Use an Egg in it. If the egg breaks, you will have a smelly mess to deal with.

Day 12, 13, 14

Decorate your rocket. Have fun with this. Give your rocket a theme and a name. Be creative. If your parents allow, paint it. Please DO NOT use washable paint. The rocket will get wet at launch time, and the paint will smear and run all over the person launching it. If you paint your rocket, please leave a space covered with tape near the bottom so I can see inside it. (Picture 4) This is crucial to successfully launching. Follow all safety precautions when using paint. Spray paints MUST be used outdoors with adult supervision.

Day 15

Send me a picture of your final product. You will receive grade credit for this as well.

Launching.

If we return to school on May 4th bring your rocket with you.

If we are out longer, I will have a drop off date assigned for you. I will work on getting a video feed to Facebook and I will launch all of the rockets.

Either way, the final launch is a contest and I will provide CASH reward to the winner and possibly the top three. We will have a judging panel of teachers and volunteers.

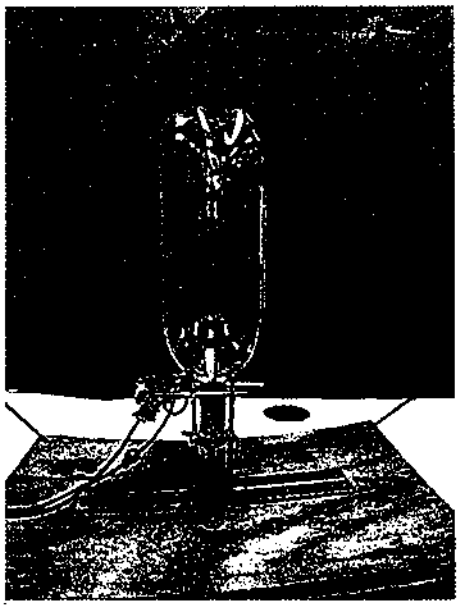
Remember the Criteria

Rocket Launches High into the Air

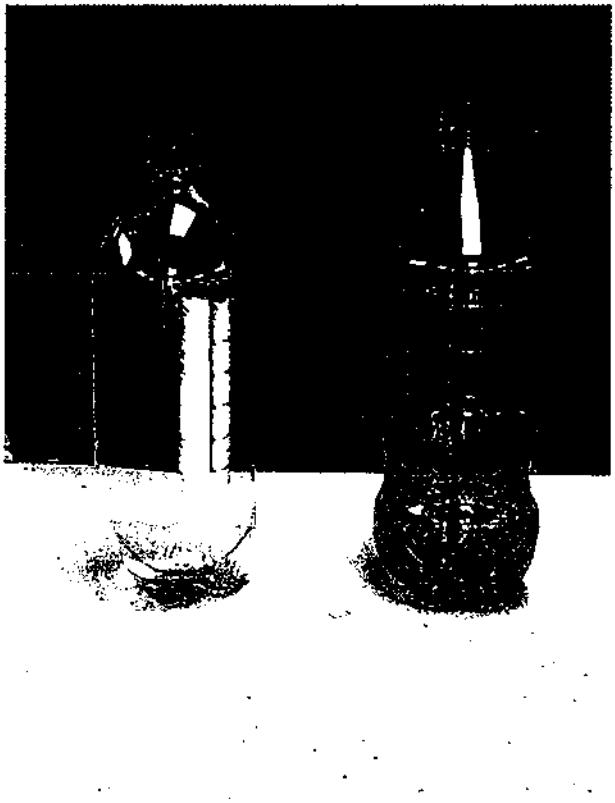
A Hidden Parachute Opens as close as possible to its HIGHEST point of flight.

The Egg Returns Unharmed (Cracks in Shell Count as Broken)

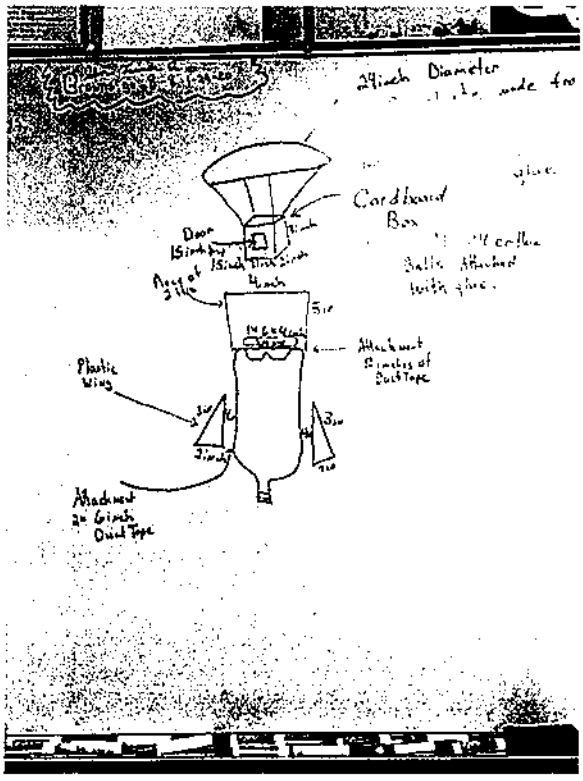
Picture 1



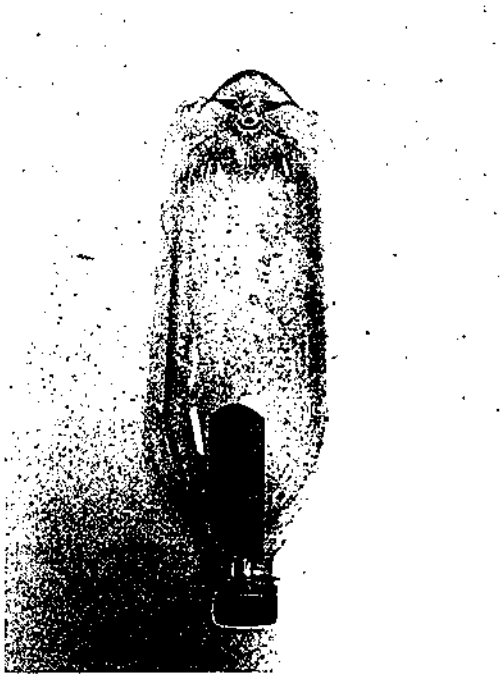
Picture 2



Picture 3



Picture 4



Bonus Picture, A Past Finished Product. Just an example. Not saying it worked. Notice the parachute is hidden.