THE WHOPPERS CHALLENGE!

Mr. Hershey of the Hershey Chocolate Company has been disappointed with the sales of one of his favorite candies: WHOPPERS! He wants to increase the sales by a gimmick. He doesn't want to change the flavor. Instead, he just wants to increase sales the cheapest way possible.

He noticed that some consumable products such as drinks and other foods get big sales from just the packaging. As one of his industrial engineers, he has commissioned you to create a model for a "catchy" package for his Whoppers candy.

Being the very stingy person that he is, Mr. Hershey has given you the following limits to make the model for his Whoppers.

Here they are:

1) You are allowed only to use the poster board given to make your model. You can use your own poster board that you purchase if it is approved by Mr. Hershey's CFO, Mr. D.
2) Your model has to fold up from a net. You cannot cut up 2 or more pieces and glue them together to form your model. This is for production line efficiency.
3) Mr. Hershey ***DEFINITELY doesn't want any new candy package models in the shape of a rectangular box***. He believes that has gone the way of the dinosaur. He has chosen you to create a new "gimmicky" and innovative shape to help increase candy sales.
4) Mr. Hershey wants the package to be as efficient as possible. He wants the model to fit EXACTLY 600 WHOPPERS (He's too cheap to fit in 1,000).

Mr. Hershey can be a ruthless man. His instructions need to be followed exactly and completely. Any deviation from them would result in stiff penalties.

Project summary:

- Create a 3D figure that will hold EXACTLY 600 Whoppers.
- The figure needs to be created from a net.
- The figure needs to be made out of the given poster board (unless Mr. D says otherwise).

- The figure cannot be in the shape of a rectangular prism. This includes cubes.
- You cannot download a net or a formula(s) for the volume of figure on the internet, books, etc. All calculations have to be done by you.
- The figure needs an opening to fit about 2 Whoppers at a time.
- Duct tape cannot be used to put it together.
- Besides the actual shape, you will need to write up and turn in a **typed** paper that contains the following information

1) Volume of your model with calculations
2) Surface Area of your model with calculations. (Does not include tabs)
3) Scale Drawing of the net of your model. Scale Drawing must include measurements of sides. (Drawn on computer preferred – less points given to drawing done by hand and pen)
4) An explanation of the faults of trying to calculate the volume of 600 Whoppers.

Evaluation of Project:

Project Worth: **200 points (Counts as an Exam)**

Category	Points
Completion of Model	+80
Final Paper with calculations and written explanation	+20
Final Paper with scale model drawing with measurements	+20
Prototype of Model	+20
Draft 1 of scale drawing model with measurements (pencil)	+10
Draft 2 of scale drawing model with measurements (computer)	+10
Draft of calculations	+10
Effort on Model & Paper	+20
Creativity of Model	+10
For every 5 extra Whoppers that fit into your model	-1
For every 5 Whoppers that is suppose to fit into your model	-1

DUE DATES ((EVERYTHING IS DUE BY 3:00PM ON THE DUE DATE

Friday, April 17
Whopper Scale Model (Design) Draft 1 (Pencil)

- Sketch of possible net done in pencil
- On graph paper
- After approval, it will be returned to you.

Friday, April 24
Whopper Calculations Draft 1

- Mathematical calculations of volume and surface of shape due on graph paper
- After approval, it will be returned to you.

Friday, May 8
Whopper Design and Calculations Draft 2

- Completion of drawing of net and calculations done on computer due
- Needs to be printed before class
- After approval, it will be returned to you.

Friday, May 15
White Prototype

- Folded up and taped up prototype of model using white poster paper

Friday, May 22
WHOPPER PROJECT COMPLETED WITH PAPER

Whopper Project Rubric

Points	Creativity Rubric
10	• Created a polyhedron that isn't a prism/pyramid/cylinder with a lot decorations and has a great theme
8	• Created a polyhedron that isn't a prism/pyramid/cylinder with some decorations
6	• Created a prism/pyramid with a lot of decorations and a great theme
4	• Created a prism/pyramid with little decorations
2	• Created a cylinder with a lot of decorations
0	• Created a cylinder

Points	Effort Rubric
20	• Clean model • Not a lot of tape showing • Followed all "Project Summary" Instructions • Typed up calculations • Computer drawn net design (hand written measurements in pen ok)
16	• Clean model • Some tape showing • Followed all "Project Summary" Instructions • Typed up calculations • Computer drawn net design (hand written measurements in pen ok)
12	• Clean model • A lot tape showing • Followed all "Project Summary" Instructions • Neat handwritten calculations in pen • Neat hand drawn net design in pen
8	• Roughly put-together model • A lot tape showing • Followed "Project Summary" Instructions except the use of duct tape • Handwritten calculations in pen • Hand drawn net design in pen
4	• Roughly put-together model • A lot tape showing • Followed "Project Summary" Instructions except the use of duct tape and did not use a net design • Handwritten calculations in pen • Hand drawn net design in pen