PRINGLES PROJECT

Driving Question:

What is density and how does it work?

Purpose:

Learn how to calculate and adjust the density of an object.

Goal

You are to engineer a shipping container in which you can send a Pringle to Truman Middle School without breaking or cracking the chip.

Shipping Requirements

- The volume of the container must be smaller than 1,000 cm^3
- The density of the container must be greater than 0.1 g/cm^3
- Must have packing slip attached to package

Parameters

- Container must be constructed by the students in class.
- Container must be shaped so that the students can accurately measure the mass and volume.
- Your Pringle may not be altered in any way before or during shipping.

What do I need to know?	Already Learned	Need to Learn	Pg. # in notebook
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

Phase 1 - Planning

Make a list of potential materials and sketch potential designs. (2 points)

Meet with the teacher AND another group to discuss any potential flaws with your designs or how you could make the designs better. Summarize the discussions below: (2 points)

Teacher Discussion:

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Student Discussion:

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Make a sketch of your final design. <u>Include labels of materials</u>. (2 points)

Phase 2 - Creating

PROCEDURE (5 points)

Write a detailed procedure of how you will construct your design.

*Written in numbered steps using complete sentences.

*Describes in detail how container was constructed.

*Process could be repeated by someone else based on the instructions.

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DATA

Show your work (1 point)
Accurate measurements include units (3 points)
Final volume must be smaller than 1000 cm^3 (2 point)
Final density must be greater than 0.1 g/cm^3 (2 point)

	MASS		VOLUME		DENSITY
1st Try		÷		=	
2nd Try		÷		=	
3rd Try		÷		=	
Final:		÷		=	

SHOW WORK IN SPACE BELOW

Phase 3 - Testing and Reflection

Describe any changes to the blueprint design AND why you made them. (2 points)

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Explain <u>why</u> your chip was successful or unsuccessful (1 point)

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Explain how you kept your density greater than 0.1 g/cm^3 <u>OR</u> how you could keep the density greater than 0.1 g/cm^3 (1 point)

_____

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_____

Pringles Project Scoring Guide

Phase 1 - Planning

Sketching Potential Designs _____ / 2

Discussions _____ / 2

Final Blueprints _____ / 2

Phase 2 - Creating

Detailed Procedure _____ / 5

Data Table _____ / 8

Phase 3 - Testing and Reflection

Result (Broken or Unbroken) _____ / 2

Reflection Questions _____ / 4

TOTAL SCORE _____ / 25