

NAME: _____
GROUP NAME: _____

DATE: _____



MARBLE ROLLER COASTER

Scenario:

You are president of an engineering firm that designs and builds roller coasters. Six Flags has just commissioned you and your team of highly trained and specialized engineers to design their new roller coaster. This is to be the premier roller coaster in the world. It is to be faster and more thrilling and any other coaster.

Assignment:

You are to design and construct a roller coaster that can change levels at least 7 times. A minimum of two of these level changes or drops must consist of some type of loop. Your prototype coaster is to be built only of poster board and glue. A marble will be used as the vehicle for your prototype coaster.

NOTE: Marbles will begin at the top of the coaster and end at the bottom level of the coaster. The Marble does not have to return to the starting point.

Requirements:

Materials: You may only use the following items.

Amounts are limited.

- 5 Poster boards
- 30 Glue Sticks (Hot Glue Gun)

NOTE: Masking tape may be utilized to hold things in place until glue has time to dry, but it must be removed from the prototype prior to testing.

Design Criteria:

Any design will be acceptable as long as it is functional and safely performs the assigned task within the design specifications.

Testing:

- Each design team will present their coaster and demonstrate it for the class. (3 attempts)

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MARBLE ROLLER COASTER RUBRIC

ROLLER COASTER	POINTS POSSIBLE	POINTS EARNED
Creative Design	25	
Neat Construction	25	
2 Loops	25	
7 Level Changes	25	
EXTRA Elements	Extra Credit Points	
	Total	

ROLLER COASTER PRESENTATION/TEAMWORK	POINTS POSSIBLE	POINTS EARNED
Participating each day	25	
Participating in Presentation	25	
Quality of Presentation	25	
Description of all rollercoaster elements/test report	25	
EXTRA Elements	Extra Credit Points	
	Total	

DESIGN PROCESS	POINTS POSSIBLE	POINTS EARNED
Define the Problem/Challenge	5	
Brainstorm Ideas	5	
Sketch Design (NEAT) Labeled with loops, level changes, structure support	15	
Create Prototype Roller Coaster	25	
Test Roller Coaster Redesign Documentation	25	
Final Product and Presentation	25	
	Total	

Comments: