

Name: XXXXXXXXXXXXXXXXXXXX
Period: 6th Date: 12-12-19
Course: Science
Grade: 7th Teacher: ms. Medina

Portfolio Student Reflection Form

Type of Work Selected: rollercoaster lab report Topic: roller coaster design

Identify the GLOBAL CONTEXT that this work connects most closely to: Scientific and technical innovation

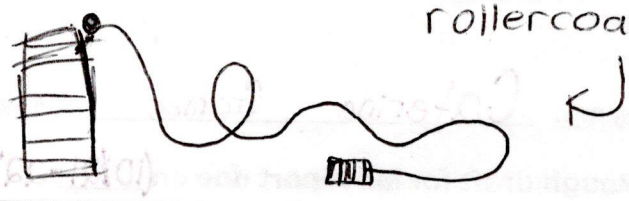
1. How does this work relate to this Global Context? you use science and math for the report
2. What Key Concept(s) were you working on? Creativity
3. Why did you choose this sample of your work? i chose it because we get to build our own rollercoaster.
4. What do you like about this selection? Why? i like it because ~~you're~~ you're allowed to make the ride how you like.
5. If you were to do this work again, what would you change? Why? i would change the way the rollercoaster looks and the type of marble.
6. Write a short 4-5 sentence paragraph explaining how this assignment advanced your understanding of the topic and what the IB Learner Profile attribute you exhibited in completing this assignment. (Inquirer, Knowledgeable, Thinker, Communicator, Principled, Open-Minded, Reflective, Balanced, Risk-Taker, Caring).
i learned what factors affect the rollercoaster and what is needed to make it work. another thing i learned was what materials are needed for a rollercoaster. The learner profile exhibited is risk-takers because i took many risks to make the rollercoaster.

rollercoaster

TV: **mass** OV: **average speed**

Constants: 1. **track size** Control: **None**

2. **amount of tape**
3. **1 meter hill**



Data:

ROLLER COASTER TRACK RATING

SAFETY Did marble stay on track? (Y/N)	NUMBER OF TURNS	NUMBER OF HILLS	NUMBER OF LOOPS	ORIGINALITY Scale 1-5
Yes	1	1	1	5

Mass of small marble: 3.4 g
Height of highest hill 1 m

Mass of large marble: 7.1 g

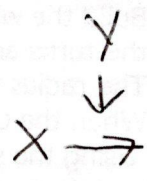
ROLLER COASTER AVERAGE SPEED (small marble)				ROLLER COASTER AVERAGE SPEED (large marble)			
RUN NUMBER	TRACK LENGTH (meters)	TIME (seconds)	AVERAGE SPEED (m/s)	RUN NUMBER	TRACK LENGTH (meters)	TIME (seconds)	AVERAGE SPEED (m/s)
Run #1	3.66	5.55	0.66	Run #1	3.66	2.50	1.46
Run #2	3.66	3.15	1.16	Run #2	3.66	2.03	1.80
Run #3	3.66	2.81	1.30	Run #3	3.66	1.77	2.06
Run #4	3.66	2.83	1.29	Run #4	3.66	2.36	1.55
MEAN	3.66	3.585	1.02	MEAN	3.66	2.165	1.69

Graph: Graph the mean average speed of both balls

Results: Write answers in complete sentences (paragraph form)

1. What effect did the heavier car (large marble) have on the ride time ^{average speed}
2. Describe the energy transformations that took place in your roller coaster.
3. Draw your roller coaster track in the box below. Label PE and KE energy transformations on the rollercoaster track.

The track had a high ~~high~~ incline in the beginning. After there was a ~~loop~~ loop and a curve



4. What principles related to PE and KE did you apply in designing your rollercoaster?
5. What is the potential energy of the highest hill? Show calculations
6. Calculate the kinetic energy of the small and large marble. Show calculations

Conclusion: C-E-R (2 paragraphs minimum)

Claim: a statement that answers the purpose or problem being investigated (has to have mass and average speed)

Evidence: (explain how the data supports the claim)

Reasoning, Part 1 (Why the evidence supports the claim):

Reasoning, Part 2 (explain the underlying scientific concept that supports the claim):

(mass, average speed, kinetic and potential energy, momentum, law of conservation of energy)

$h = \text{height in meters}$ (3.4) (1 meter)

$g = \text{gravity}$

$m = \text{mass}$