Coherence and Alignment Among Science Curriculum, Instruction, and Assessment (CASCIA) Project

Grade 8 Unit 1: Forces and Energy

Task 3 Prompt 3 Scored and Annotated Anchor Set

August 2024

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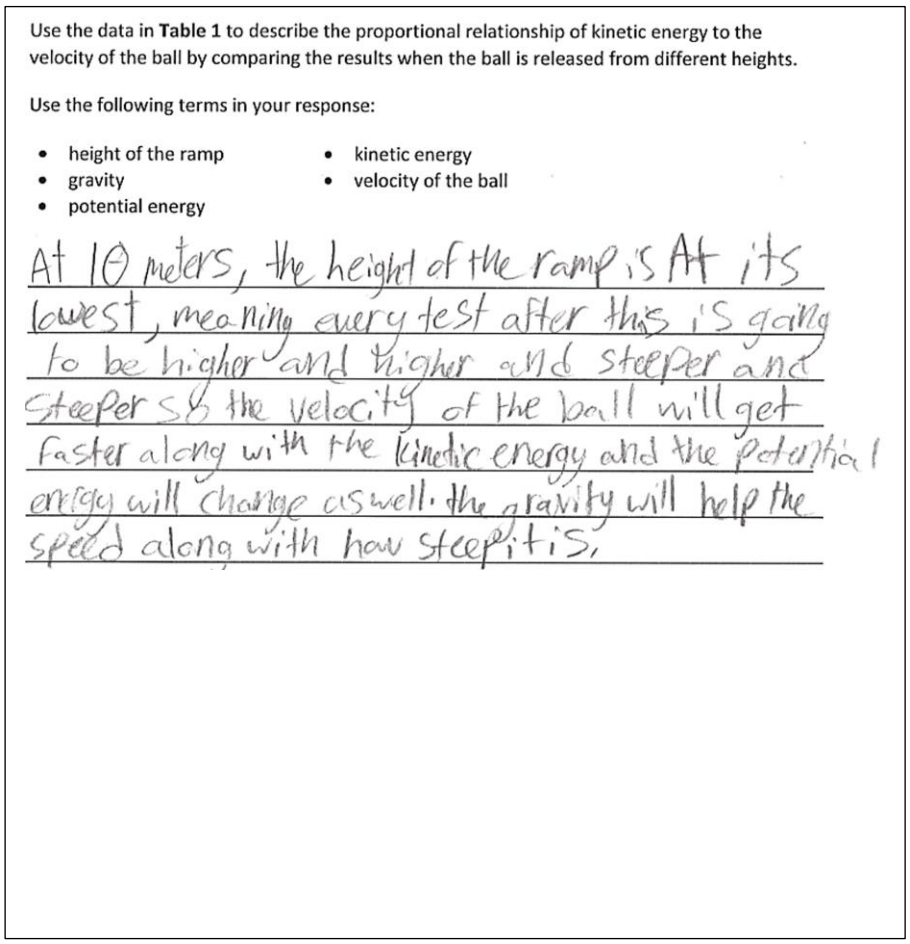
CASCIA Grade 8 EOU Assessment 1 Task 3: Roller Coaster Thrills
Prompt 3 Score Point 4

Prompt 3 Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 3	No aspect of the response is correct	Response includes **one (1)** of the **four (4)** aspects	Response includes **two (2)** of the **four (4)** aspects	Response includes **three (3)** of the **four (4)** aspects	Response includes the following aspects: • A description of the proportional relationship of kinetic energy to the velocity of the ball using all five (5) terms • The higher ramp having more potential gravitational force **or** a reference to ramp height and gravity • Kinetic energy is proportional to velocity • Data comparison(s) from Table 1

Score Point 4 (4/4 aspects met)

- Describes the proportional relationship of kinetic energy to the velocity of the ball using all five (5) terms.
- Includes the higher ramp having more potential gravitational force **OR** a reference to ramp height and gravity.
- Includes that kinetic energy is proportional to velocity.
- Includes data comparisons from Table 1.



Use the data in **Table 1** to describe the proportional relationship of kinetic energy to the velocity of the ball by comparing the results when the ball is released from different heights.

Use the following terms in your response:

- height of the ramp
- gravity
- potential energy
- kinetic energy
- velocity of the ball

At 10 meters, the height of the ramp is At its lowest, meaning every test after this is going to be higher and higher and steeper and steeper so the velocity of the ball will get faster along with the kinetic energy and the potential energy will change as well. the gravity will help the speed along with how steep it is,

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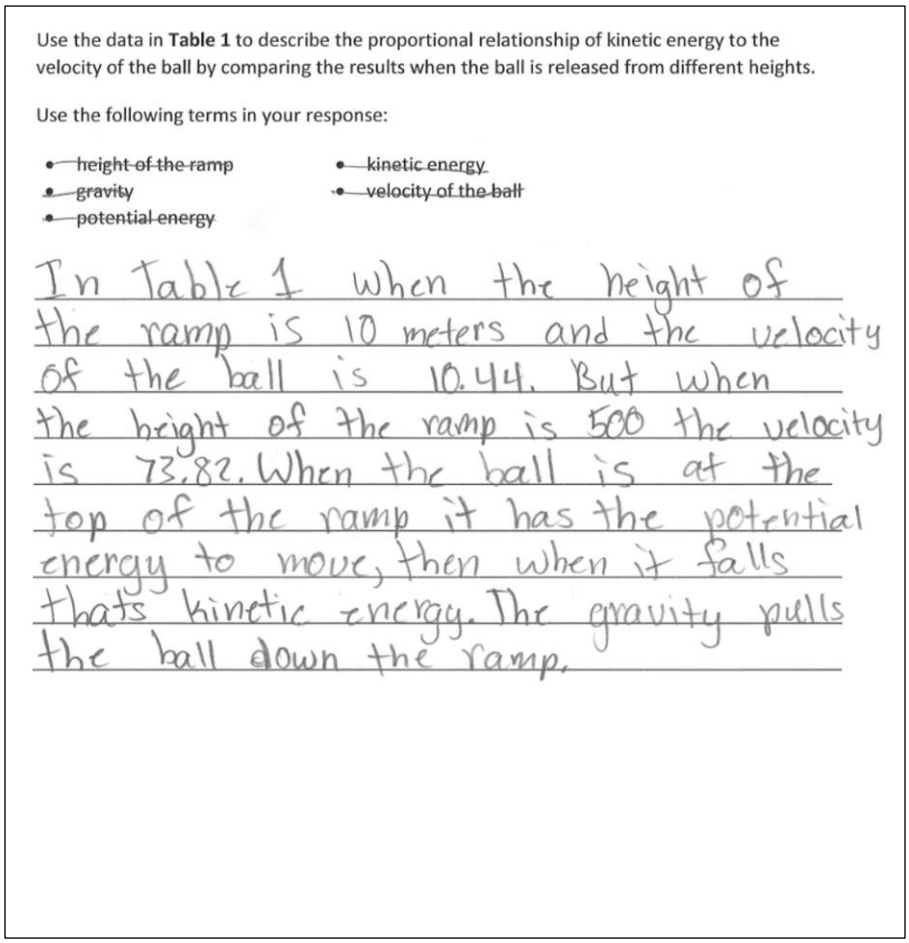
Score Point 3 (3/4 aspects met)

- Describes the proportional relationship of kinetic energy to the ball's velocity using all five (5) terms.
- Includes the higher ramp having more potential gravitational force **OR** a reference to ramp height and gravity.
- Does **NOT** include that kinetic energy is proportional to velocity (i.e., The student does not relate kinetic energy and velocity.).
- Includes data comparisons from Table 1.



Use the data in **Table 1** to describe the proportional relationship of kinetic energy to the velocity of the ball by comparing the results when the ball is released from different heights.

Use the following terms in your response:

- ~~height of the ramp~~
- ~~gravity~~
- ~~potential energy~~
- ~~kinetic energy~~
- ~~velocity of the ball~~

In Table 1 when the height of the ramp is 10 meters and the velocity of the ball is 10.44. But when the height of the ramp is 500 the velocity is 73.82. When the ball is at the top of the ramp it has the potential energy to move, then when it falls thats kinetic energy. The gravity pulls the ball down the ramp.

CASCIA Grade 8 EOU Assessment 1 Task 3: Roller Coaster Thrills
Prompt 3 Score Point 2

Prompt 3 Rubric

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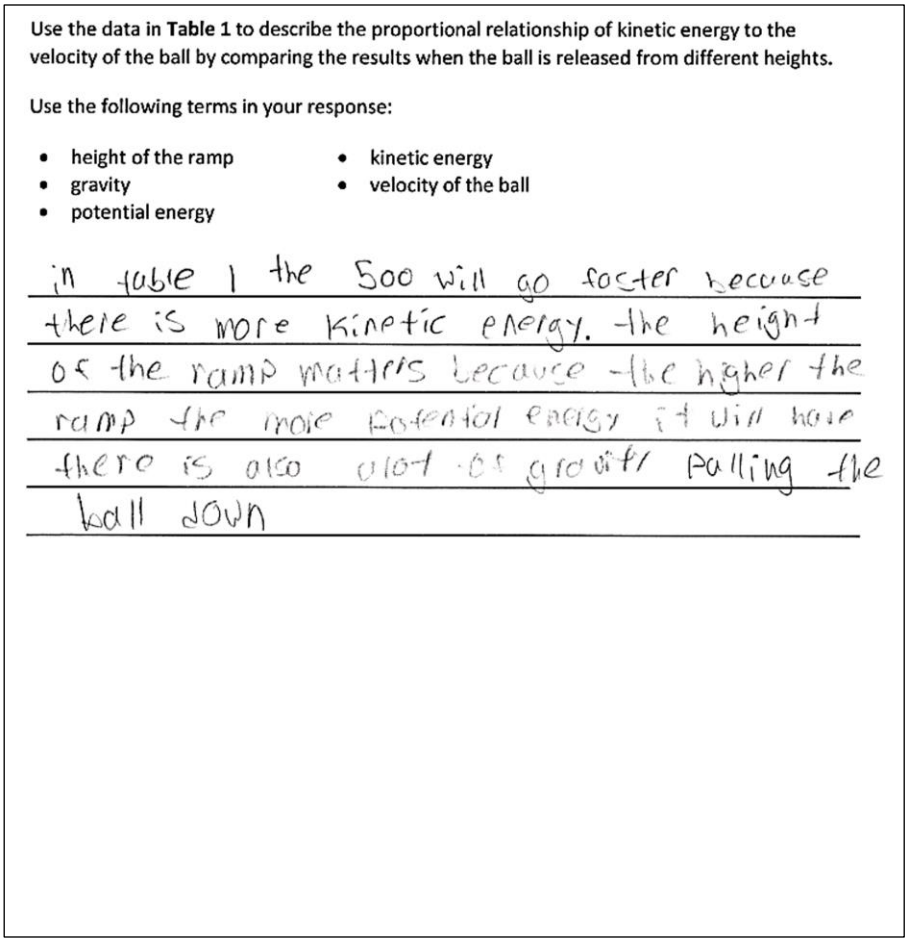
Score Point 2 (2/4 aspects met)

- Does **NOT** include all five (5) terms.
- Includes the higher ramp having more potential gravitational force **OR** a reference to ramp height and gravity.
- Does **NOT** include that kinetic energy is proportional to velocity.
- Includes data comparisons from Table 1.



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in table 1 the 500 will go faster because there is more kinetic energy. the height of the ramp matters because the higher the ramp the more potential energy it will have there is also alot of gravity pulling the ball down

CASCIA Grade 8 EOU Assessment 1 Task 3: Roller Coaster Thrills
Prompt 3 Score Point 1

Prompt 3 Rubric

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Score Point 1 (1/4 aspects met)

- Does **NOT** include all five (5) terms.
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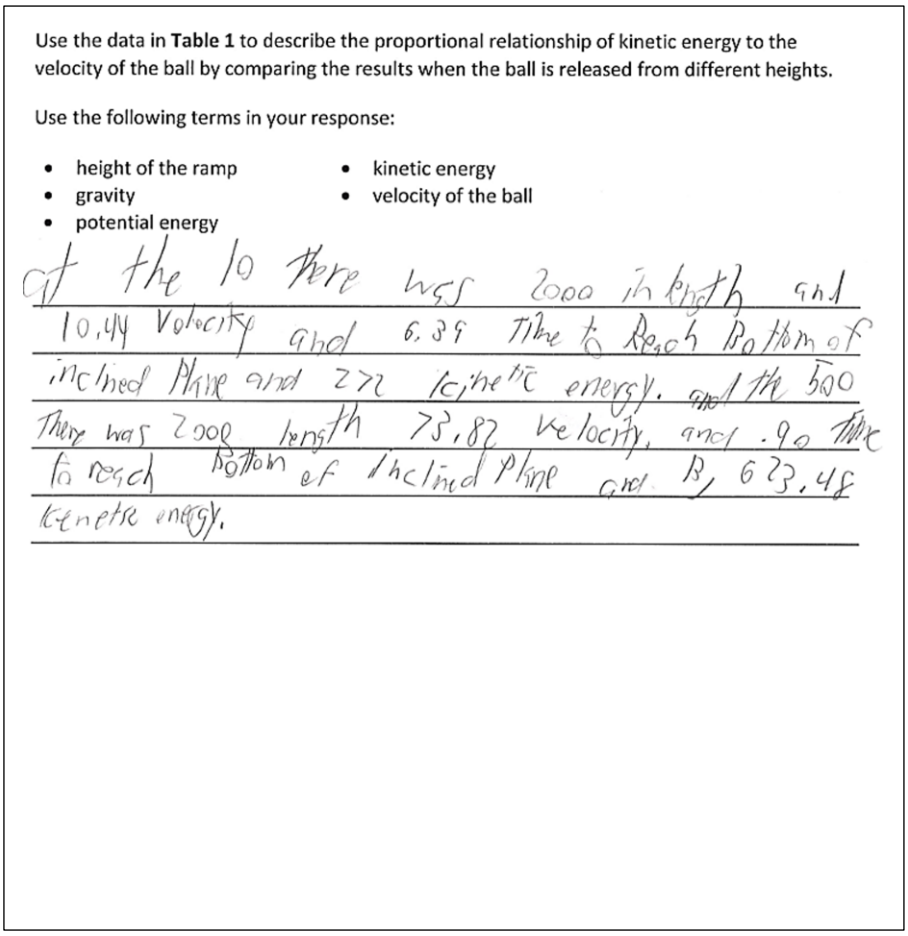
- Does **NOT** include that kinetic energy is proportional to velocity.
- Includes data comparisons from Table 1.



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Use the following terms in your response:

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At the 10 there was 2000 in length and 10.44 velocity and 6.39 Time to Reach Bottom of inclined Plane and 272 kinetic energy. and the 500 There was 2000 length 73.87 velocity, and .90 Time to reach Bottom of Inclined Plane and B, 673.48 kinetic energy.

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Prompt 3 Score Point 0

Prompt 3 Rubric

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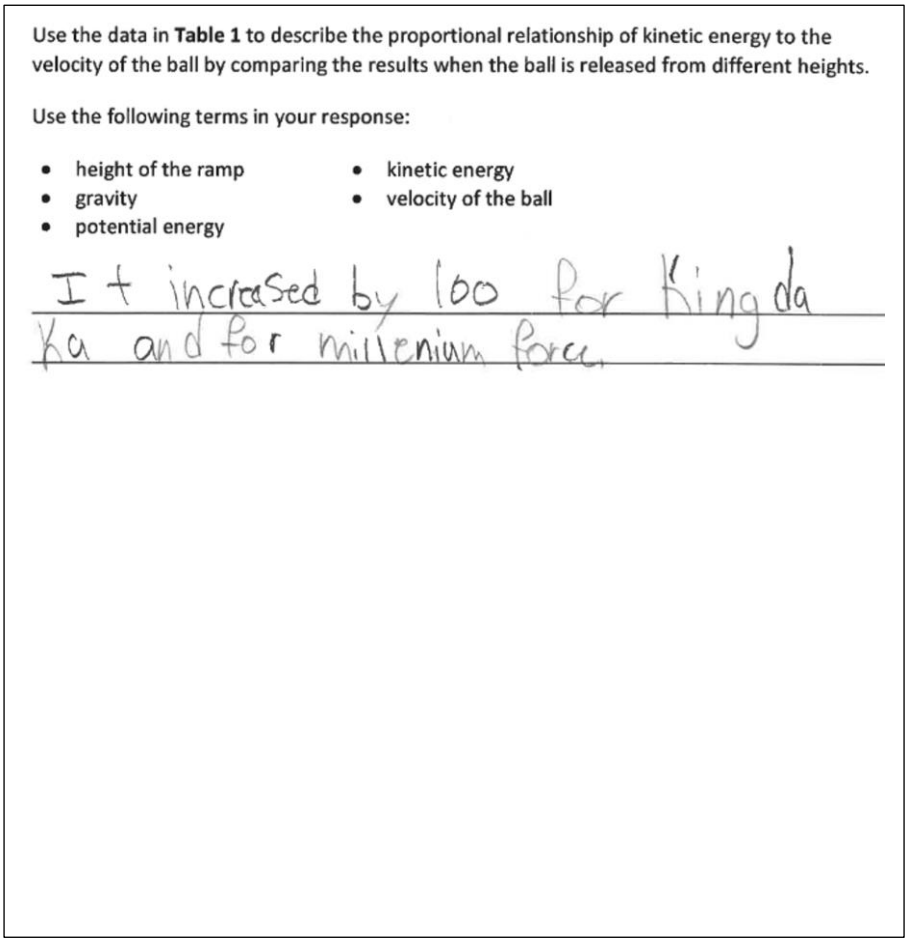
Score Point 0 (0/4 aspects met)

- Does **NOT** include all five (5) terms.
- Does **NOT** include the higher ramp having more potential gravitational force **OR** a reference to ramp height and gravity.
- Does **NOT** include that kinetic energy is proportional to velocity.
- Does **NOT** include data comparisons from Table 1 (i.e., The student references data not associated with Table 1 or the prompt.).



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Use the following terms in your response:

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It increased by 100 for Kingda Ka and for millenium force.