

Name: \_\_\_\_\_

## Explaining Why with Newton's 1<sup>st</sup> Law of Motion SPH4C



### Part 1: Objects At Rest

Set a coin on top of a piece of card on top of a beaker. Snap the card away horizontally.

What happens to the coin? \_\_\_\_\_

Use Newton's 1<sup>st</sup> Law of Motion to explain why.

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(Try repeating the trick with a narrower-mouthed flask.)

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Set a teddy bear on top of a dynamics cart at rest. Jerk the cart forward quickly.

What happens to the bear? \_\_\_\_\_

Use Newton's 1<sup>st</sup> Law of Motion to explain why.

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What do you think would happen if you were to jerk the card backward quickly instead?

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Part 2: Objects In Motion

Set a teddy bear on top of a dynamics cart and roll the cart along the floor until it hits the wall (or other immovable object).

What happens to the bear? \_\_\_\_\_

Use Newton's 1<sup>st</sup> Law of Motion to explain why.

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Now place a textbook at one end of the table. One person needs to hold the textbook down to keep the textbook from moving while another person rolls the cart with bear at the book.

What happens to the bear? \_\_\_\_\_

While the bear is in the air is it a \_\_\_\_\_. (Hint: it starts with "p.")

What do we wear to prevent this happening to us when we're in the car? \_\_\_\_\_

Explain how these work: \_\_\_\_\_

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(This one might take some practice.)

Walk along the floor holding a ball. Toss the ball about 30 cm vertically upward while continuing to walk.

What happens to the ball? \_\_\_\_\_

Use Newton's 1<sup>st</sup> Law of Motion to explain why.

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(Try repeating this while running.)