

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

## Answer Key: Launch Little Learners: Pre-K Motion Mastery Quiz

Preschoolers predict pathways and synthesize speed concepts by designing imaginary animal races and mechanical movements.

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**1. If you want to design a toy car that moves the fastest, which animal's 'zoom' style should you copy for your wheels?**

**Answer:** B) A lunging, leaping leopard

To move fast (high velocity), students must synthesize the concept of speed by identifying the leopard as the fastest moving model.

**2. True or False: If you push a ball and it changes its 'pathway' from a straight line to a curve, you have changed its motion.**

**Answer:** A) True

Directional changes are a key part of kinematics; changing the shape of the path is a change in displacement over time.

**3. Imagine a rocket starting at 'Zero' speed. To make it go up, the fire must help it \_\_\_\_\_ to reach the clouds.**

**Answer:** C) Speed up

This requires the child to apply the concept of acceleration (increasing velocity) to a complex multi-step scenario like a launch.

**4. You are building a slide. To make a teddy bear travel a long distance (displacement) away from the slide, how should it look?**

**Answer:** D) Tall and steep

Synthesis of gravity and kinematics: a steeper incline results in higher acceleration and greater displacement.

**5. True or False: A pendulum swinging back and forth is moving even though it stays in the same area.**

**Answer:** A) True

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Kinematics focuses on the change in position (displacement) and velocity over time, which the swinging motion demonstrates.

**6. If a honeybee flies in a circle and ends up exactly where it started, its total change in 'Starting Spot' is \_\_\_\_\_.**

**Answer:** B) Zero

This introduces the complex concept that displacement is zero if the start and end points are the same, despite the distance traveled.

**7. If you are acting like a robot and stop moving exactly when your teacher says 'Red Light,' what is your velocity?**

**Answer:** C) None / Zero

Stopping represents a change in motion where the rate of change of position becomes zero.

**8. True or False: When a ball rolls down a hill, it usually gets faster and faster (accelerates) as it goes down.**

**Answer:** A) True

This recognizes the observable effect of acceleration on an object's velocity over time.

**9. To describe how a train moves from the station to the city, we need to know how far it went and in which \_\_\_\_\_.**

**Answer:** B) Direction

Kinematics involves vectors; for displacement and velocity, direction is a necessary component of the description.

**10. If you push a swing gently, and then push it very hard, you are changing the swing's \_\_\_\_\_.**

**Answer:** C) Speed and height

Pushing harder increases acceleration, leading to higher velocity (speed) and greater displacement (height/distance).