

Instructions:

1. Go to <https://www.projectilemotionlab.com/>
2. Have fun exploring the simulation!
3. Read the study guide.
4. Answer these questions to reinforce your understanding.

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inspirit

Projectile Motion Worksheet

Simulation Link: <https://www.projectilemotionlab.com/>

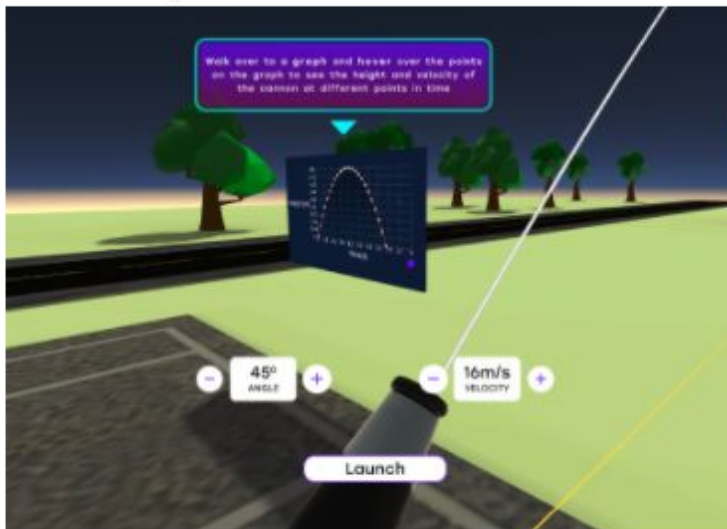
1. Projectile motion occurs when an object moves through the air _____.
 - a. Horizontally
 - b. Vertically
 - c. Both A and B
 - d. None of these

Answer: _____

2. Other than the force with which the object launched in the air, another force is also simultaneously acting on it. What is this force?

Answer: _____

3. If an object is launched at an angle of 45 degrees, and at a velocity of 16 m/s, what is the maximum height the object will reach? (hint: Use the simulation)



Answer: _____

4. If an object is launched at an angle of 60 degrees, and a speed of 18 m/s, what is the horizontal distance from the point of launch to where the object falls? (hint: Use the simulation)

Answer: _____

5. The path that an object takes when it is launched in the air is often referred to as its _____.
- a. Route
 - b. Projectile
 - c. Angle
 - d. Range

Answer: _____

6. When an object is launched into the air, there is no acceleration of the object on the horizontal axis. There is only acceleration along the vertical axis.
- a. True
 - b. False

Answer: _____

7. Which of these activities rely on the principles of projectile motion?
- a. Kicking a football along the ground
 - b. Aiming for the basket with a basketball
 - c. Bowling in a bowling alley
 - d. A car moving in a straight line

Answer: _____

Answer Key

1. Projectile motion occurs when an object moves through the air

_____.

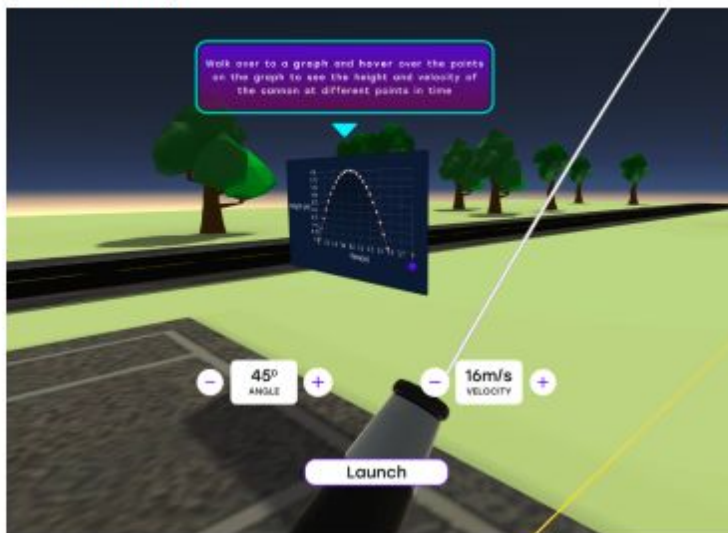
- a. Horizontally
- b. Vertically
- c. Both A and B
- d. None of these

Explanation: if an object moves in both the horizontal and vertical directions at the same time, it is said to be exhibiting a projectile motion.

2. Other than the force with which the object launched in the air, another force is also simultaneously acting on it. What is this force?

Answer: Gravity

3. If an object is launched at an angle of 45 degrees, and at a velocity of 16 m/s, what is the maximum height the object will reach? (hint: Use the simulation)



Answer: 6.63 m

4. If an object is launched at an angle of 60 degrees, and a speed of 18 m/s, what is the horizontal distance from the point of launch to where the object falls? (hint: Use the simulation)

Answer: 28.6 m

5. The path that an object takes when it is launched in the air is often referred to as its _____.
- Route
 - Projectile
 - Angle
 - Range

Explanation: The curved path that the object takes toward the center of the earth is known as the projectile.

6. When an object is launched into the air, there is no acceleration of the object on the horizontal axis. There is only acceleration along the vertical axis.
- True
 - False

Explanation: The only force acting on an object that is launched in the air, is acceleration due to gravity, which acts in the vertical direction. Therefore, the velocity of the object stays constant in the horizontal direction, without being subject to acceleration.

7. Which of these activities rely on the principles of projectile motion?
- Kicking a football along the ground
 - Aiming for the basket with a basketball
 - Bowling in a bowling alley
 - A car moving in a straight line

Explanation: Any activity in which the only force acting on the object is gravity can be termed as a projectile. In basketball, the ball is launched with a certain velocity while aiming for a spot above the basket, in order to achieve the target.