Sample Outline Slideshow for Student Guidance

Slide 1: Title, Challenge, Objective, & Real-world Connection

- Title: “Hit the Target”
- Challenge: Launch a projectile to hit a target 60 meters away using the PhET simulation.
- Objective: Use the principles of projectile motion to find the correct angle and velocity to reach the target.
- Real-world Connection: This mirrors the job of a Test Officer who designs and runs experiments to ensure military equipment (like launchers) meets performance goals under specific conditions.

Slide 2: Key Variables & Team Predictions

- Key Variables: Define each term
    - o Angle (θ):
    - Velocity (v):.
    - Gravity (g): The acceleration due to gravity, constant at 9.8 m/s².
    - Mass (m):
- Initial Prediction:
    - We predicted_____.
    - We guessed a velocity of _____, based on_____.

Slide 3: Experimental Process

- Trials and Testing Content:
    - We used the PhET Projectile Motion simulator to test combinations.
    - Trial 1: 45°, 15 m/s No → Landed short (~45 m)
    - Trial 2:
    - Trial 3:
    - Trial 4:
- Adjustment: We realized we needed to balance angle and velocity for max horizontal range.
- Screenshot: [Insert a screenshot - team’s table of results]

Slide 4: Final Strategy & Explanation

- Final Settings and Strategy
    - What were your final values (angle and velocity) that hit the target?
    - Justify your choices using scientific vocabulary (e.g., range, horizontal velocity, gravity, optimal angle).
    - Reference Newton’s laws or projectile motion principles if applicable.

Slide 5: Reflection & Communication

- What did your team learn through experimentation?
- What challenges did you face and how did you overcome them?
- How did your team collaborate and use evidence to make decisions?