

Apple-Arrow Simulation manual

Overview:

Welcome to the Apple-Arrow Simulation! This program is designed to simulate the fall of an apple from a cliff and allows you to try and hit the falling apple with an arrow. Below are steps to get you started:

How to Use:

1. Launching the Program:

- Open the application. Upon launch, you'll see the simulation screen divided into two sections: the animation screen on top and the Instruction section, the Control section, and the Log section on the bottom.

2. Setting Up the Simulation:

- In the control section (in the middle-bottom of the screen), locate the input fields for arrow velocity and angle.
- Enter your desired values for arrow velocity and angle in degrees. These values will determine the arrow's initial speed and direction (Default values are $V=200$ and $\theta = 30^\circ$).

3. Starting the Simulation:

- After setting the values, click the "Start" button. This action initializes the simulation.
- The apple will begin falling from the top of the screen, and the arrow will move based on the velocity and angle you provided.

4. Interacting with the Simulation:

- You have the option to pause and resume the simulation using the "Pause" and "Resume" buttons.
- Use "Repeat Animation" to rewatch the previous simulation without altering the trial count. That would give you a good perspective for the next guesses.
- To restart the simulation at any point, click the "Reset the Game!" button. This resets the trial count and allows you to set new values with a new apple velocity.

5. Trial Count:

- The simulation provides a maximum of 5 trials to hit the apple. Once you reach the limit, the game resets automatically.

6. Exiting the Simulation:

- To exit the simulation, click the "Exit" button or use the Esc key on your keyboard.

Tips and Additional Information:**- Objective:**

- Your goal is to time the arrow's release to hit the falling apple.
- The simulation ends if you successfully hit the apple, exhaust all trials, or if either the apple or arrow moves out of the screen boundaries.

- Adjustments:

- Pay attention to the falling pattern of the apple and adjust the arrow's velocity and angle accordingly for a successful hit.