

# UCF Physics Simulations Reference Sheet

## Projectile Motion

In this activity, students will have the option of playing at bat or in outfield. As the batter, the goal is to hit the ball at a target circle in the field. As a catcher in outfield, the goal is to catch the ball as it reaches the target. In both scenarios, students will adjust variables such as velocity, force, and angle to accomplish the task.

**Tip**

If you hover over the variables, ink canvases will appear. Use these to adjust the variables. As you write, the recognition box will indicate if the software has identified your handwriting.

**Play Ball**

Runs experiment

**Instant Replay**

Replays experiment

**Camera Follow**

Toggles camera perspective

**Skip Instructions**

Skips game tutorial; useful when restarting game

## Mechanical Energy

In this activity, students will adjust the height of a cyclist in order for him to successfully complete the obstacle course. In Level 2, there is an additional obstacle component.

**Tip**

Adjust the height of the cyclist by clicking and dragging him around.

## Torque

In this activity, students will apply force to a wrench to repair a loose nut on the bike. Students will adjust variables such as force, radius, and angle to accomplish the task.

**Tip**

Adjust the height of the cyclist by clicking and dragging him around.

## Graphing

In this activity, students can visualize various equations by graphing them. Some default equations have been provided in the menu bar. Students can also use the ink canvas to write their own equations.

**Tip**

Using the sliders on the bottom left of the screen to adjust the values of  $x$ ,  $y$ , and  $z$  in the inputted equation.

## Tips and Tricks

**Tip**

When writing variables in the ink canvases, be sure to write legibly with clean strokes. The computer is very sensitive and will take into account small divets and artifacts.

**Tip**

When selecting activities from the main menu, be sure to angle the stylus downwards. The program functions best when the activities are performed from left to right.