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Part 1: Video Game Physics (2 50-minute sessions)

Students apply their knowledge of physics as they investigate how video games represent the principles of mechanics.

Activity 1A: Video Game Reality?

Students observe video games and discuss whether the principles of mechanics are realistically represented in each game. Students are introduced to the unit and the unit project.

Activity 1B: Calculating Speed in Video Game Worlds

Students determine the speed of characters in video games by timing the characters and using visual clues to estimate distances.

Part 2: Game Gravity (2 50-minute sessions)

Through laboratory investigations, students recall and reinforce their understanding of gravity and acceleration due to gravity. They apply this understanding to an analysis of gravity in video games.

Activity 2A: Falling Objects!

Students explore gravity in the real world. They use a variety of procedures to calculate acceleration due to gravity on Earth and compare their results.

Activity 2B: Gravity in Pixel-Land

Students develop and conduct procedures for calculating the acceleration due to gravity in a video game. Students share their results and discuss how game play is affected by realistic and unrealistic treatments of gravity.

Part 3: Where Are the Physics? (2 50-minute sessions)

Students work in teams to analyze one video game in detail, and share their findings about how the principles of mechanics are represented in the game.

Activity 3A: Analyzing a Game

Students use their knowledge of mechanics to analyze a video game. They prepare a short presentation in which they describe realistic and unrealistic applications of the principles of mechanics in the game, and they explain how the game designer's choices affect game play.

Activity 3B: Sharing Results

Students present their video game analyses to their classmates.