



*Cars: Engineering for Efficiency  
Day 3*

Why do engineers want to design energy-efficient cars?

**What kind of energy does your car have at the top of the track?**

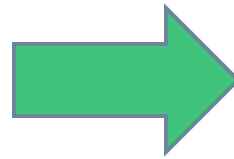
**What about at the bottom of the track?**



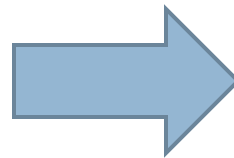
**What is a variable? What is a control?**

# Vocabulary

□ **Variable** – Something that is allowed to change during an experiment.

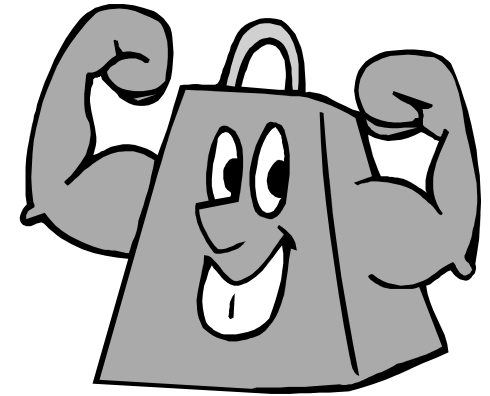


□ **Control** – Something kept constant or controlled during an experiment.



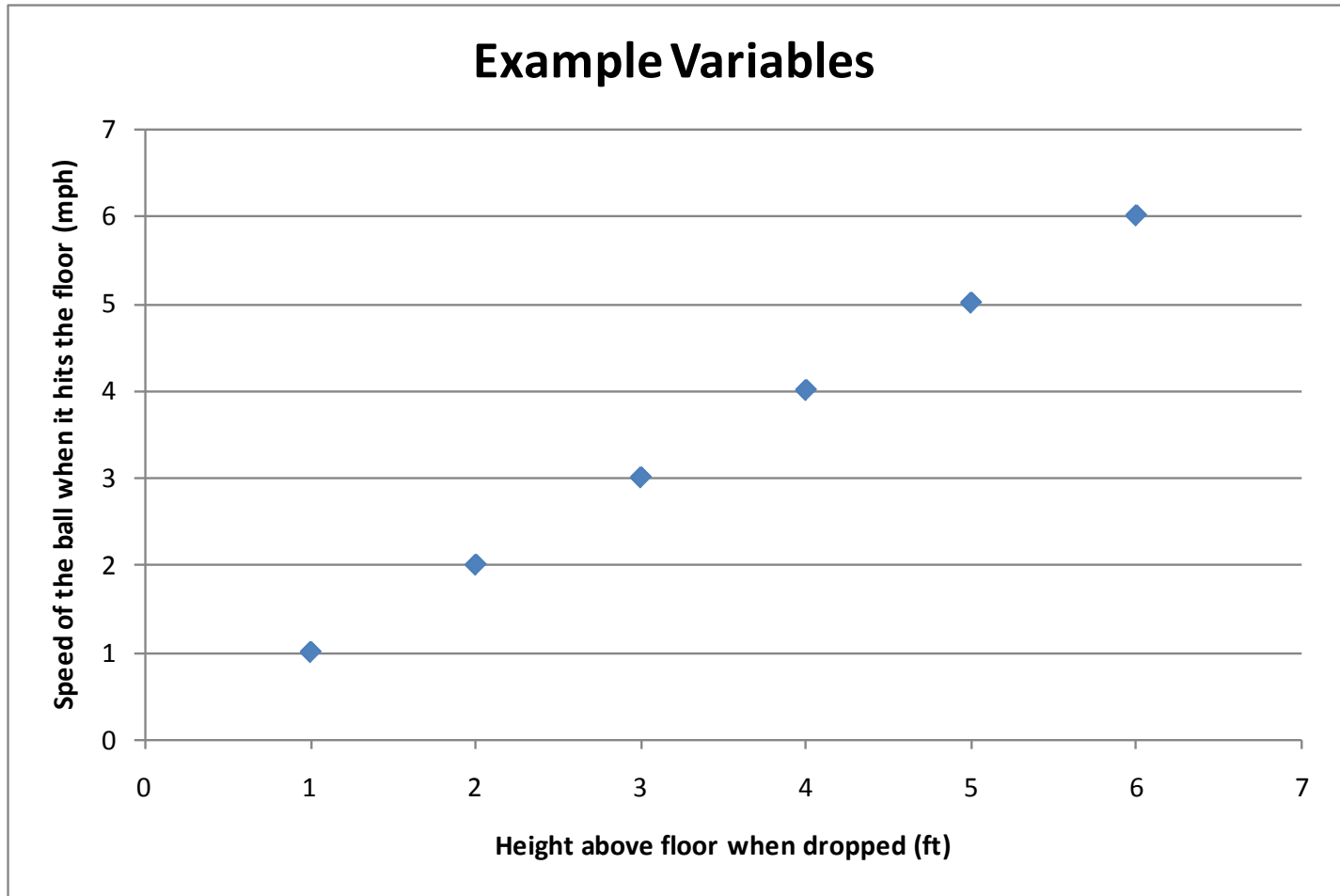
# Independent vs. Dependent

- ***Independent Variable*** – This is a variable you intentionally change during the experiment, like how much your car weighs.
- ***Dependent Variable*** – This is a variable that changes as a result of a change in the independent variable, in this case the time it takes your car to get down the track.



# Graphing Variables

**Dependent Variable**



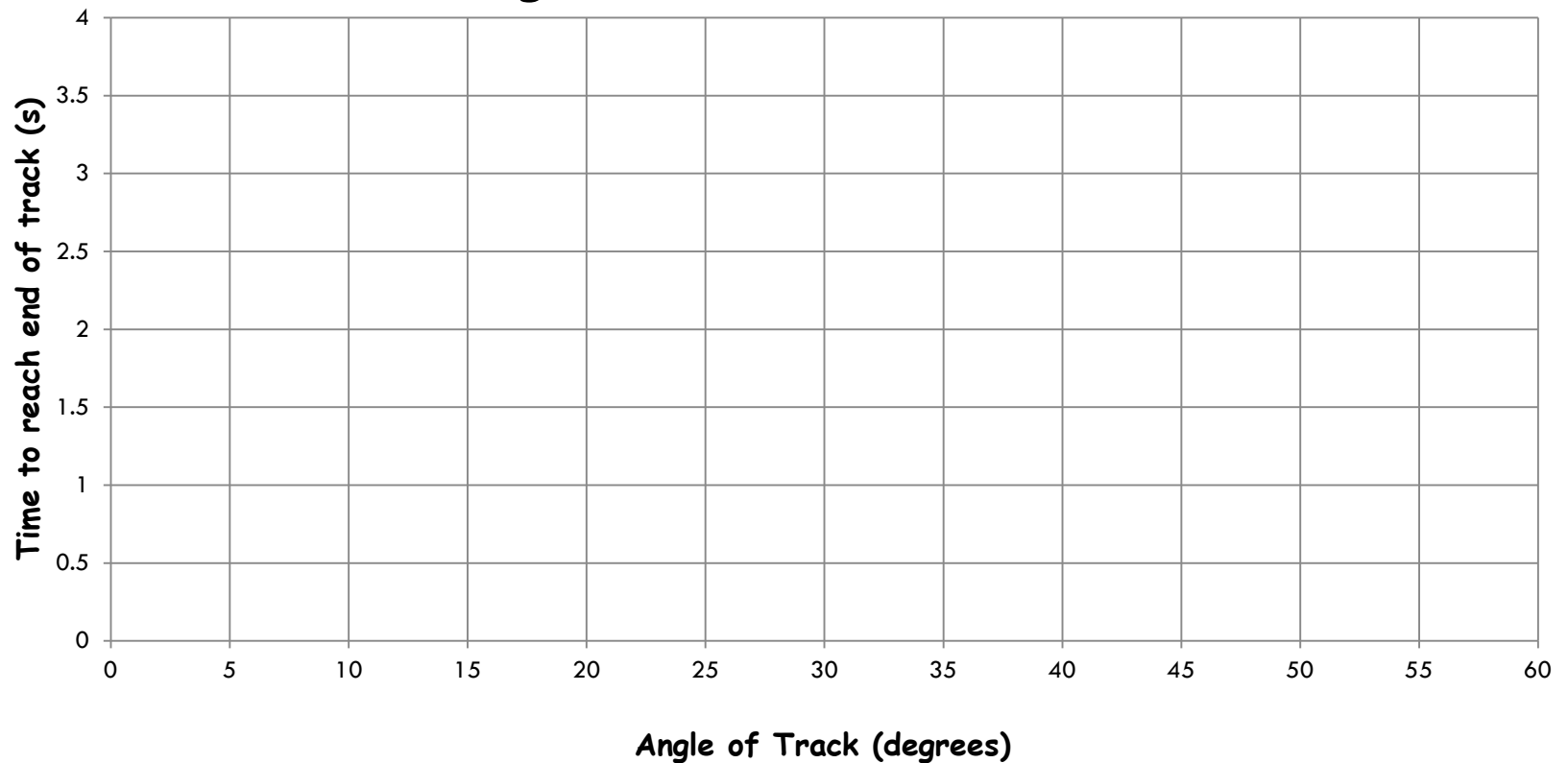
**Independent Variable**

# Working with Variables

- **What are some variables that may change the speed of our cars (dependent variable)?**
- **Engineering Video**  
(<http://pbskids.org/designsquad/profiles/index.html>) ...click on snowboarding video
- **Tests / Experiments**
- **Graph the variables**

# Graph (for display on white board)

## Angle of Track vs. Time



# Graph (for display on white board)

## Weight vs. Time

