Unit 1: Kinematics in 1D

Acceleration Due to Gravity

- In the absence of air friction…
- Near Earth's surface the acceleration is

Example: A student drops their homework down a wishing well. After 2.4 s it hits the water at the bottom. How deep is the well?

Example: A football is kicked straight up in the air at 15 m/s.

a) How high does it go?

b) What is its total hangtime?

Example: A student stands on the edge of a 45.0 m high cliff. They throw their physics homework straight up in the air at 12.0 m/s.

a. How long does it take to come back down to the same height as the student?

b. If it falls all the way to the bottom of the cliff, how fast is it traveling when it hits the ground?