

Freefall

A free-falling object is an object which is falling under the sole influence of gravity. There are two important motion characteristics which are true of free-falling objects:

- * Free-falling objects do not encounter air resistance.
- * All free-falling objects (on Earth) accelerate downwards at a rate of -9.80 m/s^2

Because free-falling objects are accelerating downwards at a rate of 9.8 m/s/s , a ticker tape trace or dot diagram of its motion would depict an acceleration.

**Demonstrate two different objects falling*



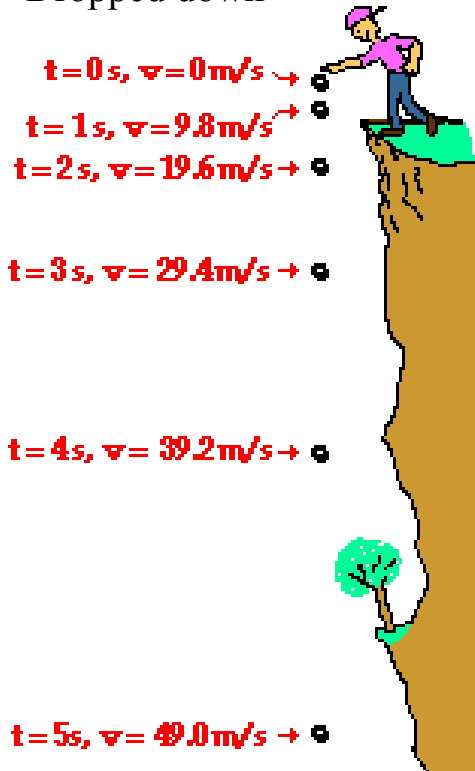
Because of air resistance, this can be hard to observe on earth.

Demonstrate paper and tape dropped from a desk

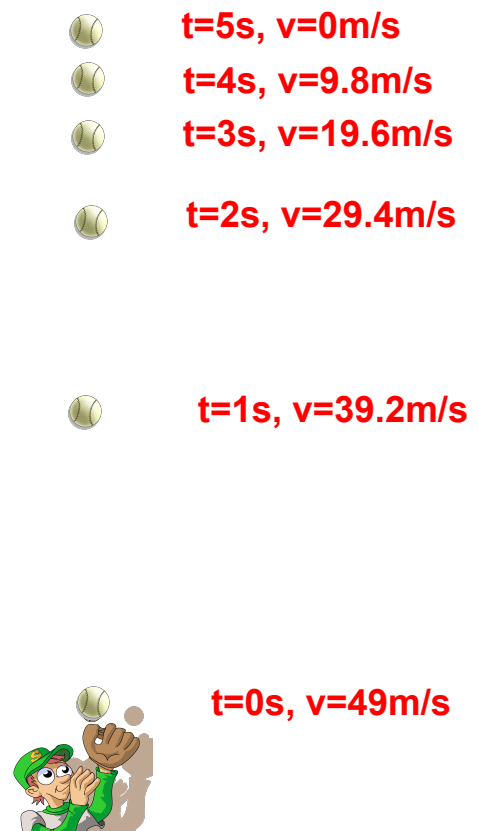
Demonstrate video on the moon

 <http://video.google.com/videoplay?docid=6926891572259784994>

Dropped down



Thrown Upwards



1. Upton Chuck is riding the Giant Drop at Great America. If Upton free falls for 2.6 seconds, what will be his final velocity and how far will he fall? [REDACTED]

2. A baseball is popped straight up into the air with an initial velocity of 14.5 m/s.
- a) Determine the height to which the ball rises before it reaches its peak.
 - b) Determine how long the ball takes to fall back down to the same position?

