## Acceleration

• Acceleration:

 $a = \frac{\text{change in velocity}}{\text{change in time}} = \frac{\Delta v}{\Delta t}$ 

Standard units of acceleration : m/s<sup>2</sup>

 If there were no air resistance, all objects in Earth gravity would fall with the same acceleration, g=9.81 m/s<sup>2</sup>

(directed downward)

Galileo Galilei's experiment in Pisa (possibly, a legend)



## Homework 6

## Problem 1.

The largest passenger airplane, Airbus A380, has acceleration  $a=2 \text{ m/s}^2$  during its take-off. How much time it needs to reach the take off speed, v=280 km/hr?

## Problem 2.

A ball is thrown vertically upwards with initial speed  $v_0$ =30m/s. Gravitational acceleration can be approximated as g = 10 m/s<sup>2</sup>, and is directed downward. What will be the velocity of the ball after time t=2s?