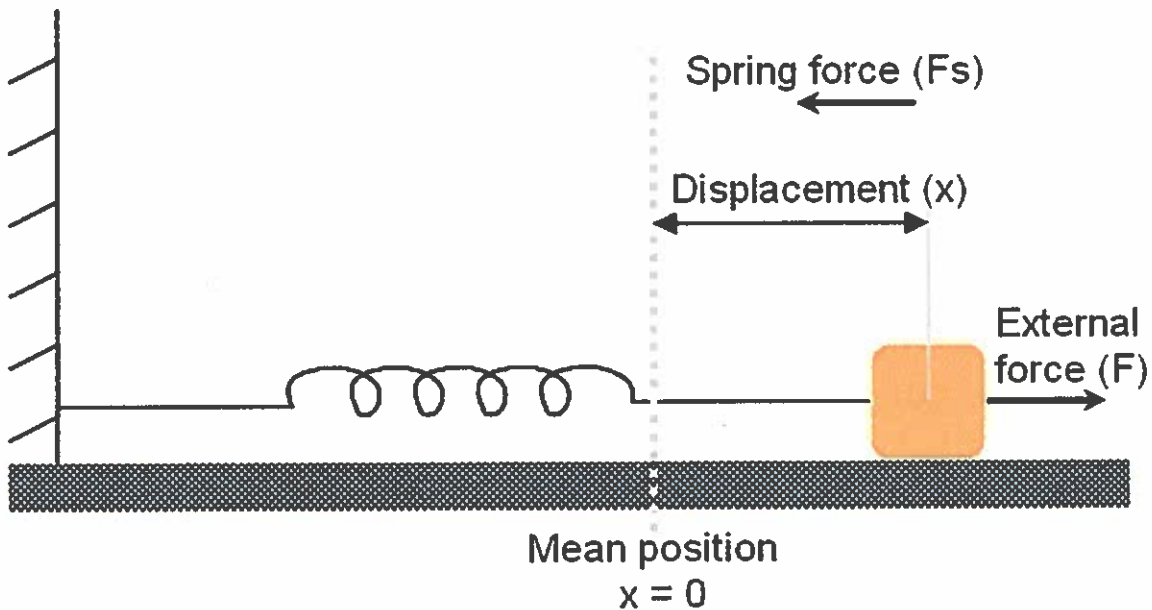


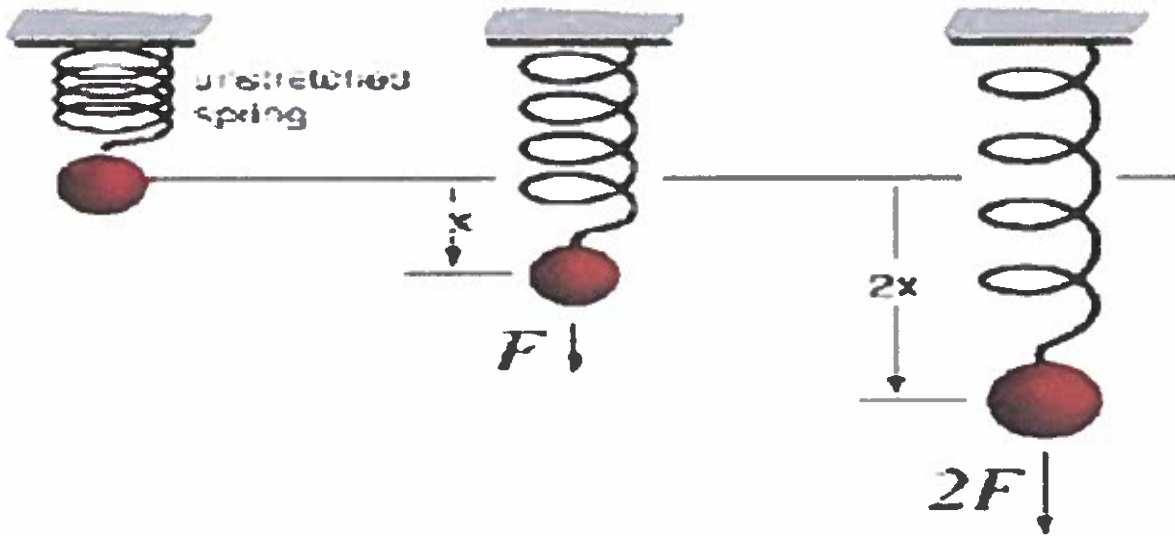
## ➤ Hooke's Law

- the force exerted by a spring is equal to the spring constant  $k$  and the distance  $x$  the spring is stretched or compressed from its equilibrium (or mean) position

$$F = -kx$$



- In other words, the force exerted by a spring is directly proportional to the distance by which the spring is stretched or compressed.
- The value of the spring constant is given by the properties of the spring (material the spring is made of, size etc.)
- Springs that obey Hooke's Law are called elastic springs.
- Units of the spring constant are N/m



Example 1: Find the force exerted by a spring that was stretched by 50cm and its spring constant is 75N/m.

Example 2: What is the spring constant of a spring if attaching a mass of 5.0 kg to the spring stretches the spring by 25 dm?

Example 3: How much will a spring with a spring constant of 80 N/m stretch when it is pulled by a force of 30N?