**Work, Energy, and the Conservation of Energy**

**Ch 10 & 11**

**Objectives:**

**Describe** the relationship between work and energy.

**Calculate** work done on an object.

**Calculate** work done by an object.

**Calculate** work done by a variable force.

**Describe** power as the rate of work done.

**Calculate** power used

**Use** Models to relate work and energy.

**Calculate** kinetic energy.

**Determine** gravitational potential energy.

**Solve** problems using the law of conservation of energy.

**Vocabulary:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work | Energy | Kinetic energy | Work-energy theorem | Joule |
| Power | Watt | Gravitational potential energy | Reference level | Elastic potential energy |
| Law of conservation of energy | Mechanical energy | Elastic vs inelastic collisions |  |  |
|  |  |  |  |  |

**Formulas:**

W = Fd

KE = ½mv2

W = ∆KE

W = Fd cos Θ

P = W/t

PE = mgh

E = mc2

ET = KEi + PEi = KEf + PEf

**Problems to Study:**

Ch 10 Practice Problems: 1-3, 4-8, 9-12

Ch 10 EoC Problems: 52-67, 89-91, 93, 94

Ch 11 Practice Problems: 1-3, 4-8, 15-18, 19-21

Ch 11 EoC Problems: 32, 34, 35, 54-77