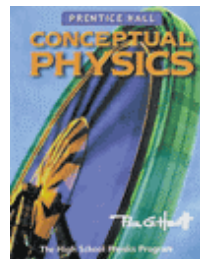


Chapter 5 – Newton’s Second Law of Motion – Force and Acceleration

Text Readings (Conceptual Physics – Prentice Hall ©2002)

- Chapter 5 (pages 59–73) *Read before, during and after this unit.*



Handout Resources

- Concept Developments 5–2, 5–3, 5–4
- Chapter 5 Example Problems
- Example Pressure Problems

Online Resource — www.MrFlint.com

Objectives (This is exactly what will be on the test)

- State and explain Newton’s Second Law in terms of force, mass and acceleration.
- Use Newton’s Second Law to solve problems involving force, mass and acceleration
- Know what it means for an object to be in equilibrium. Understand how to calculate a net force on an object.
- Describe the effect of friction on stationary and moving objects. Be able to figure out the frictional force or coefficient of friction between two surfaces. Explain the difference between static friction and kinetic friction.
- Distinguish between force and pressure. Solve problems involving force and pressure
- Explain why the acceleration of an object in free fall does not depend on the mass of an object.
- Describe the effect of air resistance on a falling object

Formulas

$$F=ma$$

$$w=mg$$

$$g= 9.80 \text{ m/s}^2$$

$$P=F/A$$

$$F_f = \mu F_N$$

$$F_N = w = mg \text{ for level surfaces}$$

$$F_{\text{tot}} = F_{\text{net}} + F_f$$

$$F_{\text{net}} = F_{\text{tot}} - F_f$$

3–4–5 right triangles have angles of 90°, 37.5° and 52.5°

1–1–1.414 right triangles have angles of 90°, 45°, and 45°

$$\mu = \frac{F_f}{F_N}$$

Pennsylvania Standards addressed in this unit:

Reading & Writing 1.1–1.8

Mathematics 2.1–2.9

Science:

3.1.12.B – Apply concepts of models as a method to predict and understand science and technology.

3.1.12.C – Assess and apply patterns in science and technology.

3.1.12.D – Analyze scale as a way of relating concepts and ideas to one another by some measure.

3.1.12.E – Evaluate change in nature, physical systems and man made systems.

3.2.12.A – Evaluate the nature of scientific and technological knowledge.

3.2.12.B – Evaluate experimental information for appropriateness and adherence to relevant science processes.

3.4.12.C – Apply the principles of motion and force.

3.7.12.B – Evaluate appropriate instruments and apparatus to accurately measure materials and processes.

Get help if you need it!

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IM screen name: ljflintstone

I arrive at school by 7:00AM and can stay after school most any day with one day of prior notice.

Get a pass from Mr. Flint if you want to come to F223 before 7:15. You can come to ELO without a pass—I’ll write one when you arrive.