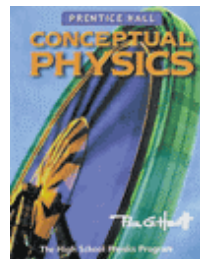


Chapter 4 – Newton’s First Law of Motion - Inertia

Text Readings (Conceptual Physics – Prentice Hall ©2002)

- Chapter 4 (pages 43–58) *Read before, during and after this unit.*



Handout Resources

- Concept Development 4–1 and 4–2
- Chapter 4 Example Problems

Online Resource — www.MrFlint.com

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

- Describe Aristotle’s concepts of natural and violent motion and Nicolas Copernicus’ idea about Earth’s motion.
- Describe Galileo Galilei’s contribution to the science of motion with his thoughts on inertia.
- Explain Newton’s First Law of Motion.
- Distinguish among mass and weight. Be able to calculate mass or weight with the correct SI units.
- Describe what happens to moving objects when forces like gravity and friction suddenly disappear.
- Explain how an inertial balance works.
- Know that friction is a force that reduces the ability for objects to slide along each other. Explain why friction is considered a “necessary evil.”
- Explain why a clothesline or wire that can easily support an object when strung vertically may break when strung horizontally and supporting the same object.
- Calculate the net force on an object when more than one force acts on it. Know that net forces cause acceleration.

Formulas

$$w = mg \quad g = 9.8 \text{ m/s}^2$$

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°

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.
- 3.8.12.C – Evaluate the consequences and impacts of scientific and technological solutions.

Get help if you need it!

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