

Newman Catholic High School Physical Sciences

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Content Objectives and Vocabulary for 9th Grade Physical Science

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Science Standard 1. The student understands the structure and properties of matter, chemical reactions, and the interaction of matter and energy.

C. Understands motion and the principles that explain it.

Unit 12 Matter in Motion

Lesson 12:1 Measuring Motion

- 1) Identify the relationship between motion and a reference point.
- 2) Interpret graphs showing speed, velocity, and acceleration.
- 3) Calculate speed, velocity and acceleration.

Vocabulary:

frame of reference
motion
speed
constant speed
velocity
 $V = d/t$
acceleration
change in v - $a \times$ change in t
deceleration

Lesson 12:2 Force

- 4) Label different kinds of forces acting on a system.
- 5) Determine if the forces acting on an object are balanced or unbalanced by calculating net force.

Vocabulary:

force
 $F = ma$
Newton
net force
balanced force
unbalanced force
action force
reaction force

Lesson 12:3 Friction

- 6) Explain why friction occurs and use a model to explain at a microscopic level how friction occurs.
- 7) List the types of friction and give examples of each.

Vocabulary:

friction
sliding friction
fluid friction
rolling friction

Lesson 12:4 Gravity

8) Explain how the Law of Universal Gravitation is used to predict gravity in different situations.

9) Compare and contrast mass and weight.

Vocabulary:

gravity

weight

mass

Law of Universal Gravitation

Inertia

Benchmarks:

Given data, the student will create and interpret a velocity graph.