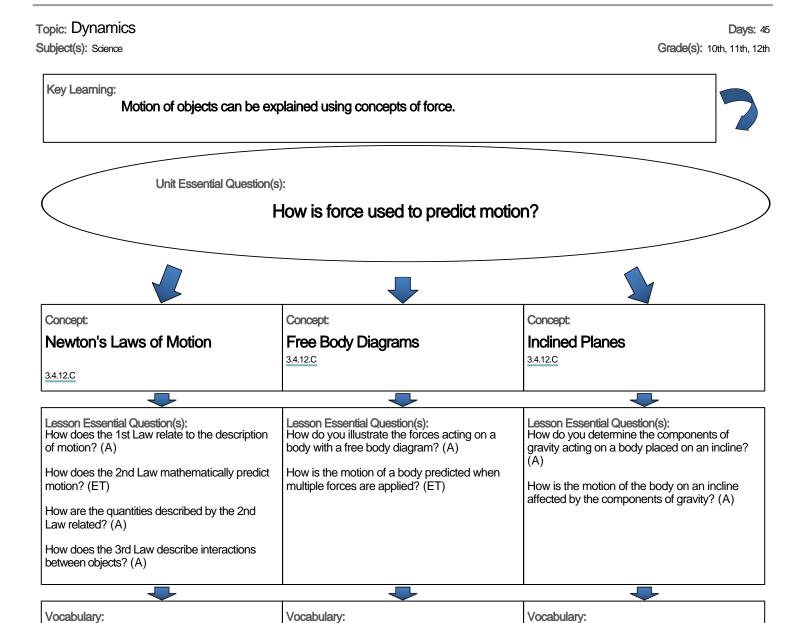
Date: July 21, 2014 ET



PENNSYLVANIA Date: July 21, 2014 ET

Topic: Dynamics

3.7.12.C

Days: 45

Grade(s): 10th, 11th, 12th

Subject(s): Science Concept: Concept: Gravitation Momentum and Collisions

Lesson Essential Question(s): How is the attractive force between two objects

related to their masses? (A)

How is the force of attraction between two objects related to their distance of separation? Lesson Essential Question(s): How does force cause a change in momentum?

How does the conservation of momentum help to predict results of collisions and interaction?

How do you distinguish between elastic and inelastic collisions using conservation of kinetic energy? (A)

Vocabulary:

Vocabulary:

Additional Information:

Curriculum: Chambersburg Area SD Curriculum #2

Course: Science Honors Physics 10-12

Topic: Electricity and Magnetism

Subject(s): Science

Days: 10

Grade(s): 10th, 11th, 12th

Key Learning: Describe electricity and magnetism as two aspects of a single electromagnetic force. Unit Essential Question(s): How are electricity and magnetism described as a single force to predict the motion of charges? Concept: Concept: Concept: **Electrostatics** Current Magnetism 3.4.12.C 3.4.12.C 3.4.12.C, 3.4.12.A Lesson Essential Question(s): How are bodies charged electrically? (A) Lesson Essential Question(s): How is current related to charge? (A) Lesson Essential Question(s): How is magnetism a result of the alignment of many magnetic domains in a metal? (A) What factors determine electric force? (A) What is the relationship between current, voltage, and resistance? (A) How is a current induced by moving a magnetic What are the relationships between electric field through a conductor? (A) force, distance, and charge? (ET) How is electric power related to voltage and current? (ET) How do electric and magnetic fields interact? (A) How is power transmitted to reduce energy flow? (A)

Vocabulary:

Additional Information:

Vocabulary:

Attached Document(s):

Vocabulary:

Topic: Kinematics- 1 Dimensional

Days: 29 Grade(s): 10th, 11th, 12th

Subject(s): Science

Key Learning:

One dimensional motion of objects can be described in mathematical relationships.



Unit Essential Question(s):

How can we use mathematical relationships between the specific descriptions of motion to predict one dimensional motion?







Translational Motion

Concept:

3.4.12.C

Graphical Analysis

Concept:

Concept:

Vectors (1 Dimensional)

3.4.12.C

Lesson Essential Question(s): What quantities and their units are needed to describe motion? (A)

How are the descriptions of translational motion mathematically manipulated to predict motion? (A)

What are the characteristics of an object's motion in freefall? (A)

Lesson Essential Question(s): How is the motion of an object determined from a position versus time graph? (A)

How is the motion of an object determined from a velocity versus time graph? (A)

Lesson Essential Question(s): How is direction important in predicting

motion? (A)

How are vector quantities different from scalar quantities? (A)

How are perpendicular vectors added? (A)

How are non-perpendicular vectors added? (A)

Vocabulary:

Vocabulary:

Vocabulary:

Additional Information:

Motion sensor lab is included in this topic.

Topic: Kinematics- 2 Dimensional

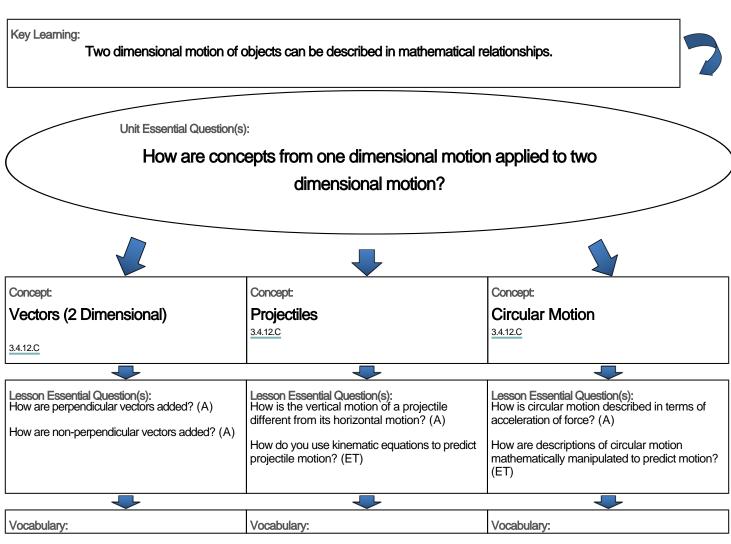
Subject(s): Science

Additional Information:

Attached Document(s):

Days: 25

Grade(s): 10th, 11th, 12th



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Curriculum: Chambersburg Area SD Curriculum #2

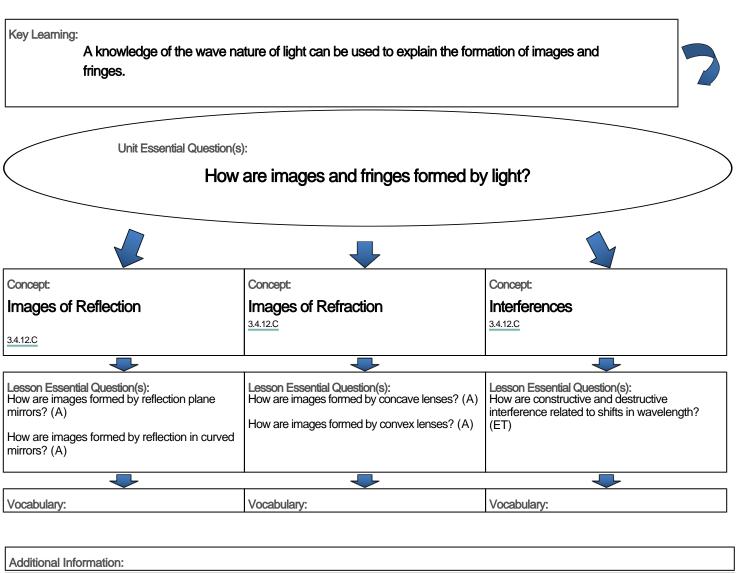
Course: Science Honors Physics 10-12

Attached Document(s):

Date: July 21, 2014 ET

Days: 20

Topic: Light Subject(s): Science Grade(s): 10th, 11th, 12th



Topic: Measurement and Methods I

Days: 13

Grade(s): 10th, 11th, 12th

Key Learning:

Subject(s): Science

A knowledge of various methods of scientific measurement and data analysis used with physical systems.



Unit Essential Question(s):

Why are precision, accuracy, and units important in physics?







Concept:

3.1.12.A, 3.2.12.D

(A)

Units of Measurement

Concept:

Concept:

Measuring Instruments

3.7.12.B

Data Analysis

3.2.12.B, 3.1.12.C

Lesson Essential Question(s): What are SI fundamental units in mechanics?

How do you distinguish between SI fundamental units and derived units? (A)

What are the values of the prefixes from micro to mega? (A)

How is the factor label method used to make unit conversions? (ET)

Lesson Essential Question(s): What degree of precision is used with each instrument? (A)

What are possible sources of error in taking measurements? (ET)

Lesson Essential Question(s): What are the rules for applying significant figures and rounding during calculations? (A)

What is the scientific reasoning for using significant figures? (ET)

What is the meaning of accuracy and precision as applied to a data set? (ET)

How are mathematical relationships determined from graphs? (A)

How is percent error calculated and what is its meaning? (A)

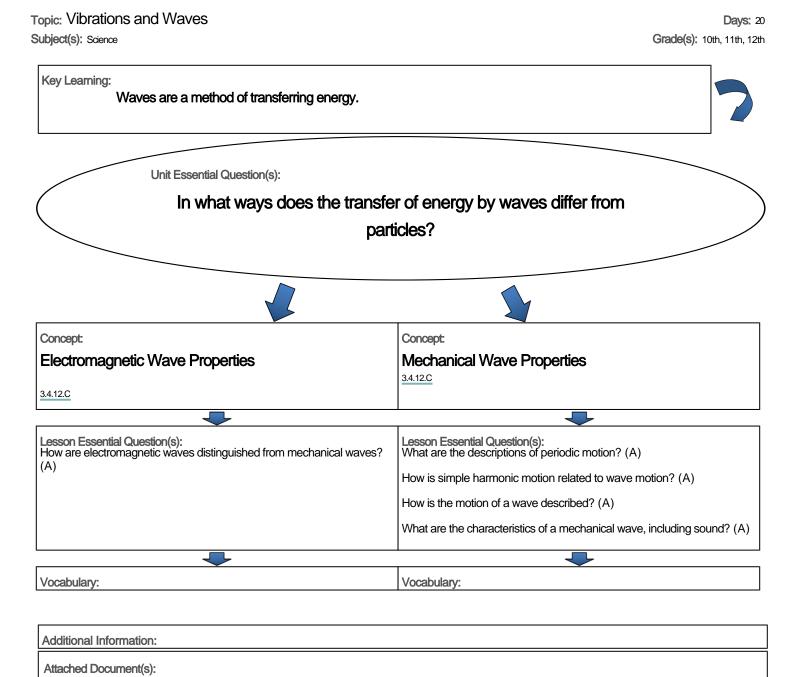
Vocabulary:

Vocabulary:

Vocabulary:

Additional Information:

Date: July 21, 2014 ET



Curriculum: Chambersburg Area SD Curriculum #2

Course: Science Honors Physics 10-12

Topic: Work and Energy

Days: 17

Grade(s): 10th, 11th, 12th

Subject(s): Science

Key Learning:

Work is the process by which energy is transformed. Understanding the energy of an object is useful in predicting its motion.



Unit Essential Question(s):

How does work transfer energy and how does this enable the prediction of the motion?







Concept:

Work

Energy
3.4.12.B

Concept:
Power
3.4.12.B

Lesson Essential Question(s): What is the relationship between force, work,

What is the relationship between force, work and displacement? (A)

Under what conditions is work performed? (A)

How does the angle of the force applied affect the work performed? (ET)

Lesson Essential Question(s): How do you distinguish between kinetic and

How do you distinguish between kinetic and potential energy? (A)

How does work bring about a transfer of energy? (A)

How can conservation of energy be used to predict the motion of an object? (ET)

Lesson Essential Question(s):
How is power defined in terms

How is power defined in terms of work and energy transfers? (A)

How is power related to time? (A)

Vocabulary:

Vocabulary:

Vocabulary:

Additional Information:

Two days of this topic are devoted to the Bungee Egg.