Cocke County High School
***Physics**
***2022-2023**
Syllabus

Instructor Information
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Course Description

Physics is a course that deals with the relationship between matter and energy and how they interact. The following major areas will be investigated: Matter and its Interactions; Motion and Stability; Energy; and Waves and Their Applications in Technologies for Information Transfer.

Prerequisite

- It is recommended that students complete Biology I and Math II or higher before enrolling in Physics.

General Education/High School Pathway Area

- In order to graduate, students are required to take either Physics or Chemistry.

Textbook & Course Materials

Required Text:Tennessee Physics. Serway & Faughn. 2019 Edition. Houghton Mifflin Harcout Company. ISBN 978-1-328-83309-9 Textbook may be accessed online at https://my.hrw.com (Students must obtain login information from instructor)

Recommended Texts & Other Readings or Resources.

- Other readings

may be made available either online or in print during the course.

Course Requirements

- composition book

- Pencil or Pen
(dark blue or black ink)

- Calculator with
Trigonometric Functions

- Colored Pencils

Course Structure

Course content will be delivered through lecture,
discussion, textbook assignments, multimedia presentations, library and internet research, laboratory investigations, student presentations, and other methods.

It is very important that students in physics complete
all homework in a timely manner.
Students will be given class time to work on problems and ask for assistance. Physics is a very math
intensive subject and students who do not work assigned problems will have difficulty succeeding in the course.

Online Resources

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Online

textbook: https://my.hrw.com

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Physics
Fundamentals: http://www.gpb.org/physics-fundamentals/episodes/physics/all

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PhET
labs: https://phet.colorado.edu

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Annenberg
Learner: http://www.learner.org

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Science
News for Students: https://www.sciencenewsforstudents.org

.
The Physics
Classroom: https://www.physicsclassroom.com/

.
The Mechanical
Universe on YouTube

.
Physics
in Motion: http://www.gpb.org/physics-in-motion

Part 2: Student Learning Outcomes

PS1: Matter
and Its Interactions

Properties of matter give rise to fields and
forces. Students should understand that

there are only a few properties of matter at a fundamental level and that these properties (charge, mass, spin) give rise to the fields and forces that exist as we understand them.

PS2: Motion and Stability: Forces and Interactions

An understanding of the forces and interactions between objects is important for describing an object's motion determining the stability in a system. Students should understand that forces between objects arise from four types of interactions (gravitational, electromagnetism, and strong and weak nuclear interactions) and that some physical systems are more stable than others.

PS3: Energy

The concept of the transfer of energy in or out of a system can be explained and predicted. Students should understand the conservation of energy, how it is stored and transferred, the relationship between forces and how they are related to energy, and how we use energy in our everyday life.

PS4: Waves and Their Applications in Technologies for Information Transfer

Optics is the study of the interaction of optical photons (within the human visible range) with matter. These standards encompass the speed of light in a vacuum and other media, as well as diffraction, refraction, and the interference properties of light.

You will meet the objectives listed above through a combination of the following activities in this course:

Lecture, class discussion, laboratory activities, library and Internet research, student presentations, and other group and individual activities. In order for

students to succeed in this course it is vital that they participate in all class activities and complete all assignments.

Part 3: Topic Outline/Schedule

The Science of Physics

Chapter 1

Lecture, Safety test, SI
Quiz, Ch 1 Quiz, Measurement lab, Intro to Physics Vi

Motion in one dimension

Chapter 2

Modeling Displacement,
Velocity & Acceleration, Ch Quiz, Chapter 1 &2 Test

Vectors and motion in two
dimensions

Chapter 3

Vector Treasure Hunt,
Chapter 3 Quiz, Lecture, Motion Video,

4

Forces and the Laws of
motion

Chapter 4

Force Diagrams, 2nd
& 3rd Law Labs, quiz, Ch 3 & 4 Test

08/29

5

Work and Energy

Chapter 5

Mouse trap car; pHet
Conservation of Energy Lab; Ch 5 Quiz

09/06

6

Momentum and Collisions

Chapter 6

Lecture; Egg Drop Project; Momentum
& Collisions Lab; Conservation of Linear Momentum Lab, Ch 6 Quiz, Ch 5
& 6 Test

09/13

7

Circular motion and
gravitiation

Chapter 7

Lecture, Rollercoaster lab,
video, ch quiz,

09/20

8

Fluid Mechanics

Chapter 8

Lecture, Density Challenge,
ch quiz,

Ch 7 & 8 Test

09/27

9

Heat and Thermodynamics

Chapters 9 & 10

Lecture, Changes in
Temperature Lab, Physics in Motion Video, Chapter Quizzes, Ch 9&10 Test

10/04

10

Vibrations and Waves

Chapter 11

Lecture, video, Hooke's Law lab, pendulum lab, ch 11 qz

10/18

11

Sound

Chapter 12

Lecture, video, resonance
demo, ch quiz ch 11 & 12 test

10/25

12

Light and reflection

Chapter 13

Lecture, video,
characteristics of light demos, ch quiz

11/01

13

Refraction

Chapter 14

Lecture, problems, video,
lens demo, stem lab, ch quiz, ch 13 & 14 test

11/08

14

Interference and
diffraction

Chapter 15

Lecture, video, interference
& diffraction demo, Diffraction Lab, Ch quiz

11/15

15

Electric Forces and Fields

Chapter 16

Lecture, problems, video,
charges & electrostatics lab, Ch quiz Ch 15 & 16 test

11/22

16

Electrical energy and
current

Chapter 17

Lecture, video, Simple
circuits lab, series & parallel circuits lab, ch quiz

12/04

17

Magnetism & Electromagnetic Induction

Chapter 19 & 20

Lecture, video, magnetism
lab, electromagnetic induction lab, ch
quiz, Test Ch 17,19 & 20

12/11

18

Review and Semester Exam

12/17

Part 4: Grading Policy

Graded Course Activities

Assignments for details about each assignment listed below.

1st 9 Weeks	**Points**	**Description**
Daily work (notes, note taking worksheets, homework, video worksheets)	100 points each	

100 points each

Laboratory and hands-on activities

100 points each

Quizzes (notebook quizzes, chapter quizzes)

100 points each

Tests and projects (career presentation)

2nd 9 Weeks

Points

Description

100 points each

Daily work (notes, note
taking worksheets, homework, video worksheets)

100 points each

Laboratory and hands-on
activities

100 points each

Quizzes (notebook quizzes,
chapter quizzes)

100 points each

Tests and projects (Famous
Physicist presentation)

Late Work Policy

Students should be able to complete all work during
class time. Students who do not complete
assignments during class time may attend tutoring. Laboratory work is an
important part of this class. Students
with unexcused absences on lab days will receive a zero for their lab
grade. Also students who violate any lab
safety policy will receive a zero for that day's lab.

Be sure to pay close attention to deadlines—there will
be no makeup assignments or quizzes, or late work accepted without a serious
and compelling reason and instructor approval. Students who know they will be absent on a project date, should present
their project prior to the assignment date to avoid receiving a zero. Students have 3 days after an excused absence
to make up any missed work.

Viewing Grades in
ASPEN (optional)

Points you receive for graded activities will be

posted to the ASPEN Grade Book. Click on the My Grades link on the left navigation to view your points.

Your instructor
will typically update the online grades 5 days following the completion of an activity. You will see a visual indication of new grades posted on your ASPEN home page under the link to this course.

Letter Grade Assignment

Student
assignments will be weighted as follows:

40 %

Chapter Tests and Projects

20%

Daily classwork and
homework

20%

Laboratory activities and
hands on activities

20%

Quizzes

Final grades assigned for this course will be based on
the percentage of total points earned and are assigned as follows:

Letter Grade

Percentage

Performance

A

90-100%

Excellent Work

B

80-89%

Good Work

C

70-79%

Average Work

D

60-69%

Poor Work

F

0-59%

Failing Work

Part 5: Course Policies

Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

Participate

Students are encouraged to participate in all classroom activities. Failure to participate in class activities will adversely affect a student's grade.

Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

Complete Assignments

It is very important that students in physics complete all homework in a timely manner. Physics is very math intensive and students who do not work assigned problems will have difficulty succeeding in the class. Homework must be turned in promptly. Laboratory work is an integral part of this class. Students with unexcused absences on lab days will receive a zero for their lab grade. Also students who violate any lab safety policy will receive a zero for that day's lab. Students who know they will be absent on a project date should present their project prior to the assignment date to avoid receiving a zero. Students have **3** days after an **excused** absence to make up any missed work.

Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned in the event of an emergency. All incomplete course assignments must be completed within a time period to be

determined based upon the number of missing or incomplete assignments. An emergency may include illness or accident or
the death of an immediate family member. A family or school trip WOULD NOT BE CONSIDERED AN EMERGENGY. Students should complete assignments BEFORE such an event.

Academic Dishonesty Policy

Academic dishonesty includes such things as cheating,
inventing false information or citations, plagiarism and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.

A student suspected of academic dishonesty may receive
an oral reprimand. Parents may be contacted. A grade of zero may be given in which case the student may be allowed to retake a different version of the test or redo the assignment. A student may also be referred to administration for disciplinary action.

Student Testing Code of Ethics
and Security

It is important for you as a student to
know that the following guidelines are to be strictly followed. <u>This year the TNReady EOC test will count
at least 15% of your final semester grade.</u>
Your work on this test is very important and it deserves your best effort.

I understand that during
testing on the days of the assessment, I am responsible for:

- Not having any
electronic devices on me or in my purse/backpack/pockets

- Including but not limited to cell phones, smart phones, smart watches, etc. **during testing or during breaks.**
- Best practice is for students to leave devices at home or in their lockers on the day of testing.
- If I am caught with a device during testing or during breaks, my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.

- Trying my best on the test
  - If I do not attempt to test (I give **no answers or randomly answer** questions) my test score may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.
  - The testing administrators and proctors in the testing environment will determine if no answers or random answering is taking place.
  - I will focus and put forth effort on the test .

- Being honest and not cheating

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If I am caught
cheating (taking pictures of the test, writing down and passing answers, talking to other students, looking on other computers, using software outside the testing platform), my test may be nullified, resulting in a zero as at least 15% of my semester grade, and any school level disciplinary action as deemed appropriate by the administration.

Important Note: Any form of academic
dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Course policies are subject to change. It is the student's responsibility to check for corrections or updates to the syllabus. Any changes will be posted in the classroom.

Add class comment…