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ANDOVER PHYSICS

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Physics Course Description:

This is a two-trimester course that will focus on physics concepts such as energy, motion, light, sound, electricity, and magnetism. This course is technology-based which uses computers, scientific sensors, and other technology devices that help students learn the course concepts.

ANOKA-HENNEPIN COURSE OUTCOMES

Motion:

Students will be able to:

- Interpret a distance vs. time graph
- Interpret a speed vs. time graph
- Discriminate between constant and changing motion
- Define a mathematical equation for speed
- Interpret an acceleration vs. time graph
- Define a mathematical equation for acceleration

Forces:

Students will be able to:

- Define Newton's Three Laws of Motion
- Calculate combined forces
- Determine how friction affects motion
- Quantify Force interactions

Energy:

Students will be able to:

- Determine the relationship between braking distance and braking force.
- Define work and kinetic energy
- Quantify energy changes between kinetic and gravitational potential energy
- Quantify energy changes between kinetic and elastic potential energy

Waves, Sound, and Light:

Students will be able to:

- Define wave properties
- Define wavelength, frequency, and speed
- Discriminate between frequency and amplitude
- Define math model describing waves
- Define different wave types
- Qualitatively define wave phenomena
- Define the wave of reflection

Projectiles:

Students will be able to:

- Use Video Analysis to quantify motion
- Calculate the two-dimensional force components of a projectile
- Qualitatively define a projectile

Electricity and Magnetism:

Students will be able to:

- Define the parts of electric circuit
- Calculate current using Ohm's Law
- Explain how motors, generators and transformers work.
- Describe how moving electric charges produce magnetic forces and moving magnets produce electric forces.

Grading Policy:

Grading Scale:

A	100 - 93.0 %
A-	92.9 - 90.0 %
B+	89.9 - 88.0 %
B	87.9 - 83.0 %
B-	82.9 - 80.0 %
C+	79.9 - 78.0 %
C	77.9 - 73.0 %
C-	72.9 - 70.0 %
D	69.9 - 60.0 %
F	Below 59.9 %

Grading Criteria:

Assessments: 55%

(tests and quizzes)

Final Exam: 15%

Performance: 22%

(Investigations and Projects)

Daily Participation: 8%

(homework, group work)

The course is not limited to these outcomes, and can be adjusted by instructor.

ANDOVER HS PHYSICS: 2017-18

Classroom Expectations:

Behavior

1. BE ON TIME. In class, seated, materials out, and working on your "Warm-up" work when the bell rings.
2. BE PREPARED for your daily learning. Bring all materials to class.
3. RESPECT YOURSELF AND OTHERS (including the instructor).
4. We are a **FOOD FREE CLASSROOM**. Because this is a science classroom that has no lab stations, food is prohibited. Water in spill-proof containers are allowed. Any damage or mess made by student disobeying this expectation will be the responsibility of the student.
5. It is the responsibility of the student to obtain any make-up work. You have two days to make up excused absence homework, and one week to make up excused absence laboratory work.
6. **NO CELL PHONES or ELECTRONIC DEVICES** that will be disruptive to the class. If they are seen or heard, the first time you will be asked to put them away. The second time, they will be taken away by the instructor and returned after class. Continued problems will result in the item being given to an Assistant Principle, who will decide what to do with it. Cell phones are not a substitute for calculators.

Students will need:

- Pencil and pen
- Calculator** (no cell phone or iPod)
- Textbook (provided by instructor)
- 3-ring binder (optional)
- Notebook

Work Time

1. *Work time in class will be given occasionally, not on a regular bases.*
2. *Class time given to complete assignments is to be use for that purpose. Misusing the time will result in less time for completing assignments in class.*
3. *If allowed to work with another student, choose someone who is willing to work as hard as you. If the time is not constructive, instructor has the right to take away the privilege.*
4. *If all your assignments are done, review notes, read a chapter in your book, quiz each other, reflect in your notebook about your days learning, etc.*

Grading Expectations:

Homework:

1. *Will be collected, and should be completed before going over as a class or in groups. These points will go towards participation/daily assignments – late work will not be worth as much participation as work done on time.*
2. *All assignments should be done in pencil, not pen, except for formal laboratory reports.*
3. *Any work that is turned in should have full name written in the top right corner. Any work that does not have a name may be discarded.*

Laboratory Work:

1. *If you are absent, you must make up the lab within one week – this day will be individually arrange ahead of time.*
2. *Inappropriate behavior or failure to observe proper safety precautions will result in loss of points.*
3. *Laboratory write-ups should be done neatly, with well thought out sentences, and detailed descriptions of procedures, observations, and conclusions. Teacher may choice to have you use a laboratory notebook.*
4. *All laboratory work should be done in pencil (except formal reports) and full name written in the top right hand corner.*

Test/Quizzes:

1. **DO NOT MISS TEST DAYS!** *If you miss a test due to a deathly illness, you will be expected to make up the test before school within one week.*
2. *If you are gone for multiple days, just prior to an exam, you will have one week from the day returned.*
3. *Any cheating on tests will result in a zero for the test. Any tests with similar responses to essay questions will be questioned, and may result in a zero or a second (more difficult) version of the exam.*
4. *Exams and quizzes must be done in pencil.*
5. Because this is an elective, there will only be retakes on **formative assessments (quizzes) and not on summative assessments (exams)**, unless you are on an IEP or 504 that states exam retakes as a modification.