

Roanoke Valley Governor's School for Science and Technology

RVGS Physics

Syllabus 2018-2019

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I. Course Information

a. Course Description

RVGS Physics is the introductory science course for all first-years students. Topics include motion, forces, momentum, work, and energy. A focused approach allows students to develop a deep factual, conceptual, mathematical, and procedural knowledge of fundamental physics concepts. Skills in technology, statistics, data collection, and experimentation are reinforced by labs and activities throughout the course. The primary goals of the course are to improve problem solving skills, correct basic preconceptions about physics, and build a “big picture” foundational model for future higher level science courses.

b. Gifted education strategies

- i. An Emphasis on Learning Concepts.** The curriculum emphasizes ideas deemed most appropriate for students to know and is grounded in the view of the disciplines held by practicing physicists. We allow students to learn at a deeper level the fundamental ideas central to understanding and doing physics in the real world.
- ii. An Emphasis on Higher-Level Thinking.** Students learn about important physics concepts and manipulate those concepts in complex ways. Having students analyze the relationship between variables reinforces the cause and effect nature of science.
- iii. An Emphasis on Inquiry, Especially Problem-Based Learning.** The more that students can construct their understanding about physics for themselves, the better able they will be to encounter new situations and apply appropriate scientific processes to them. Through guided questions by the teacher, collaborative dialogue and discussion with peers, and individual exploration of key questions, students can grow in the development of valuable habits of mind found among physicists.
- iv. An Emphasis on the Use of Technology as a Learning Tool.** The use of technology to teach science offers some exciting possibilities for connecting students to real world opportunities.
- v. An Emphasis on Learning the Scientific Process, Using Experimental Design Procedures.** Students are asked to construct experiments and tests on their own to develop models of understanding.

c. Text, Printed Resources, and Media Resources

- i. University of Texas Quest Learning and Assessment Online Tools. The subscription cost is paid for by RVGS, students are not responsible for purchase.
- ii. WebAssign from Cengage is an online assessment toll. The subscription cost is paid for by RVGS, students are not responsible for purchase.

Note: No textbook is issued for the course, but a copy of Physics, Serway and Faughn, 2012, can be made available for personal use upon request.

II. Grading Policy

a. Grading Scale

100-90%	A
89-80%	B
79-70%	C
69-60%	D
59-0%	F

Grades are calculated at the end of each semester. Semester averages equal to or above five tenths of a percent are rounded to the nearest whole number.

b. Types of Evaluations

- i. **Tests:** Approximately five tests will be administered each semester, one at the end of each unit. The tests will be comprehensive for that unit and may include a small number of questions related to previous foundational topics.
- ii. **Semester Exam:** At the end of each semester, a comprehensive, cumulative exam will be given on scheduled Exam Days. These exams will cover all material covered during the semester.
- iii. **Quizzes:** Quizzes will be given to assess for connections between objectives or retention of prerequisite material. They will be given approximately once every one to two weeks throughout the semester.
- iv. **Labs and Classwork:** Some lab assignments will require writing lab reports or answering related questions. Mistakes are part of the learning process, so depending on the assessment, participation and effort may be a larger factor than correctness to prevent penalizing the learning process. In the event of absence due to illness or extra-curricular activities, an alternative assignment may be given in lieu of the classwork or lab. The onus is placed on the student to learn the material covered in class during his/her absence and perform well on the following quiz or test. The instructor also reserves the right to exempt the grade so that it is not calculated as part of the average.

- v. **Homework:** Homework will be assigned throughout the course and students will be expected to complete these assignments on time. Online homework assignments are a regular part of the class. The calendar on the RVGS teacher site should be used by students and parents/guardians to track assignments. Often times a large homework assignment that may take several hours to complete is assigned several days in advance with the expectation that students are to manage their time and spread the work over an appropriate number of days. Homework deadlines for work assigned more than two days in advance will not be extended if the notice is given the day of the deadline. The lowest homework grade is automatically dropped each semester. Therefore the grade that appears on the online gradebook *already* reflects the lowest HW grade being dropped.

c. **Semester Grade Determination**

Category	Weight
Tests	35%
Exam	15%
Quizzes	25%
Homework	15%
Labs	5%
Classwork	5%

d. **Final Grade Determination**

Grades are calculated at the end of each semester. Semester averages equal to or above five tenths of a percent are rounded to the nearest whole number percentage point. The final end of the year course grade is the average of the two, rounded semester grades. Students who failed to earn a 79.5% B average or above at the end of the course from the average of the two semester grades be subject to the RVGS probationary policy.

III. **Class Policies and Procedures**

- a. **Absences and Tardies:** The policy in the RVGS student handbook will be followed.
- b. **Make-up Work:** If an absence is unplanned, students will be allotted the same number of days to make up the work as they were absent (i.e., if a student was absent for 2 days, the student would have 2 days to make up the work.) If a student is absent the day prior to an assessment of any kind (i.e. quiz, test, exam), **including review days**, the student will be expected to take the assessment on the scheduled day. Note this includes absences due to extra-curricular activities. If a student is absent the day of an assessment of any kind (i.e. quiz, test, exam), the student will be expected to take the assessment the day he/she return to school. This policy applies to quizzes, tests, and exams. In class absences do not excuse online homework deadlines. Homework to be turned in in class is expected the day the following class day.

- Certain lab or classwork assignments may not be made up. See above policy under *Types of Evaluations* for clarification on labs and classwork policies.
- c. **Late-work policy:** For each day an assignment is turned in late, the max credit will be lowered by one letter grade. After 4 days late, the assignment will not be accepted for credit.
 - d. **Cheating:** The policy in the RCPS student code of conduct will be followed.
 - e. **Technology Policy:** The RCPS Acceptable Use Policy and the RVGS student handbook policy will be followed.
 - f. **Extra help:** It is inevitable that there will be times when a student may not grasp a concept the first time. Extra help is always available, but it is up to the student to seek help as soon as possible. The following options are available to the student for extra help with the instructor, but the student should be sure to make arrangements with your instructor to make sure that she/he is available at a given time:
 - i. Before School (arrangements must be made the previous day, not all days are possible)
 - ii. During Lunch (arrangements must be made the previous day, not all days are possible)
 - iii. After School (arrangements must be made the previous day, not all days are possible)
 - iv. E-mail: ***This is our preferred method of communication.*** We will typically respond very quickly via this method and will answer your question or set up a later time where we can discuss your question by telephone.
 - v. Telephone
- Outside tutoring can be very beneficial to some students.
- g. **StudentVUE/ParentVUE:** Grades are available at all times through the link on the RCPS Website. When viewing grades, understand that:
 - i. A blank in the grade book means that the assignment has not yet been graded. Teachers will have all assignments graded within 5 school days of the due date (with the exception of very long assignments which will be graded within 10 school days). You may have a blank because the teacher has not graded the class set or because your assignment was turned in after the due date. Blanks do not count as zeros in your average.
 - ii. A zero in the grade book means that you have earned a zero on the assignment. Cases in which this might occur include submitting incorrect answers to an assignment or submitting an assignment past the due date.
 - iii. An excused (EX) in the grade book means that you are excused from the assignment without penalty.
 - h. **Interim Reports:** A hard-copy of your current grade will be given to you to take home three times during each semester (see dates on the school calendar). The interim report is a snapshot of the current class average. Please feel free to discuss your report with your instructor.
 - i. **Student Performance Strategy:** Interventions will be implemented at the teacher's discretion or in the event that the student's grade falls below an 80.

j. General Classroom Procedures:

- i. Cell Phone Policy:** The policy in the RVGS student handbook will be followed.
- ii. Calculator Policy:** A calculator is a necessary part of the physics class and it is expected for the student to have a calculator for each day in class.