

**Boston Collegiate Charter School**  
**9<sup>th</sup> Grade Physics**

**Teacher:** Meredith Leavitt

**Phone Number:** (617) 265-1172 ext. 292  
Best time to call: after 4pm

**Email:** mleavitt@bostoncollegiate.org

**Tutoring:** 3:00 - 4:00 Tuesdays and Thursdays

**Course Overview**

This course will give students a foundation in conceptual physics knowledge and skills. Topics covered will include scientific thought, forces and Newtonian laws of motion, energy, work, electricity, magnetism, and waves. Students will explore the physics curriculum through daily activities and demonstrations, labs, large and small group discussions, and lectures. Students will demonstrate their mastery of these concepts with a culminating paper car design project. Students will also be required to take the physics MCAS in June of 2011.

**Blog**

PowerPoints for all lessons, as well as a calendar of major assignments will be posted regularly on my blog: [www.sciencerulesmylife.blogspot.com](http://www.sciencerulesmylife.blogspot.com)

**Special Materials/Supplies**

- Students **MUST** have a **scientific calculator** for physics class; a graphing calculator, such as a TI 83, 84, or 89, is ideal.
- Students should have a binder with paper or a notebook to keep notes and handouts in.
- Students should have one pocket folder to keep tests, quizzes and lab reports in.
- Students should bring both a pencil and blue/black pen to class each day.

**Assessment**

Students will be assessed through homework, labs, class work, quizzes and tests, as well as participation and completion of projects. Students will be responsible for taking notes, practicing problems, and completing lab reports and reading assignments. Students are expected to come to class prepared, organized and ready to work each and every day.

**Grading Policy**

For each quarter, the grading breakdown is as follows:

- |                                 |     |
|---------------------------------|-----|
| • Homework / Class work         | 15% |
| • Unit Tests (2 per quarter)    | 35% |
| • Quizzes (roughly 2 per month) | 20% |
| • Labs / Projects               | 30% |

- It is the **STUDENT'S** responsibility to ensure that missed work is rescheduled with Ms. Leavitt.

## General Syllabus and Big Ideas

*Scientific Thought:* The scientific method is a process for experimentation that is used to explore observations and answer questions.

- Scientific Thinking
- The Scientific Method

*Motion and Forces:* When two objects interact with each other, by direct contact or at a distance, all three of Newton's Laws describe and explain that interaction.

- Inertia and Friction
- Newton's Laws
- The Distance Equation
- Free Body Diagrams
- Momentum
- Circular Motion
- Gravity

*Energy and Work:* Energy is transferred between objects during interactions and is frequently transformed from one type to another. The total amount of energy remains constant in closed systems.

- Work
- Simple Machines
- Mechanical Energy
- Thermal Energy
- Heat Capacity

*Electricity and Magnetism:* All objects are composed of electrical charges. The electric and magnetic forces are the result of the strength and motion of charges. Most interactions in everyday life (other than gravity) are the result of electric and magnetic forces.

- Electric Charge
- Electrostatics
- Circuits
- Ohm's Law
- Magnetism
- Electromagnetism

*Waves:* Mechanical waves are vibrations in a medium that move from source to receiver, carrying energy. Electromagnetic waves transfer energy and information from place to place without a material medium.

- Simple Harmonic Motion
- Wave Properties
- Sound Waves
- Electromagnetic Spectrum
- Behavior of Light