



**Physical Science Syllabus  
CHS Science Department**

**Contact Information:** Parents may contact me by phone, email, or visiting the school.

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**Teacher Contact Websites:**

- Google Classroom

**CCSD Vision Statement:** The Chillicothe City School District will provide tomorrow's leaders with a high quality education by developing high expectations and positive personal relationships among students, staff, and community members.

**CCSD Mission Statement:** The Chillicothe City School District empowers students to learn, to lead, and to serve.

**Course Description and Prerequisite(s) from Course Handbook:**

**Physical Science - 305**

**State Course #:** 132220

Prerequisite: None

Required Option

Grade: 10

Graded Conventionally

Credit: 1

Course Description:

Physical Science introduces students to key concepts and theories that provide a foundation for further study in other sciences and advanced science disciplines. Physical Science encompasses the systematic study of the physical world as it relates to fundamental concepts about matter, energy and motion. A unified understanding of phenomena in physical systems is the culmination of all previously learned concepts related to chemistry, physics, and space science, along with historical perspective and mathematical reasoning. **There is a \$15 lab fee.**

**Learning Targets:** Defined below for clarity are the Unit Titles, Big Ideas of every Unit taught during this course, and the Essential Questions to be answered to better understand the Big Ideas. A student's ability to grasp and answer the Essential Questions will define whether or not he or she adequately learns and can apply the skills found in Big Ideas. This will ultimately define whether or not a student scores well on assessments administered for this course.

- **1st Quarter**
  - **Unit I Title: The Process of Science**
    - **Big Idea #1:** I can identify the scientific method and explain how it supports theories
      - *Essential Question #1: How do I identify the steps in the scientific method?*
      - *Essential Question #2: How do I explain the difference between a hypothesis and a theory?*
      - *Essential Question #3: How can I explain how a hypothesis becomes a theory?*
    - **Big Idea #2:** I can use the scientific method as a process of inquiry, observation, experimentation, and analysis.
      - *Essential Question #1: How do I make observations and calculate data involving metric units?*
      - *Essential Question #2: How do I design a controlled experiment to appropriately test a hypothesis?*
      - *Essential Question #3: How do I use graphs to recognize patterns and trends to draw conclusions?*
  - **Unit II Title: Matter**
    - **Big Idea #1:** I can organize matter into groups based on properties and composition.
      - *Essential Question #1: How do I use physical and chemical properties to identify and describe an unknown substance?*
      - *Essential Question #2: How do I classify matter based on its composition?*
      - *Essential Question #3: How do I calculate density of various objects?*
    - **Big Idea #2:** I can explain how energy changes the states and interactions of matter.
      - *Essential Question #1: How do I use the Kinetic Molecular Theory to describe matter's behavior in each state?*
      - *Essential Question #2: How do I describe endothermic and exothermic changes in matter?*
- **2nd Quarter**
  - **Unit III Title: Atoms and The Periodic Table**
    - **Big Idea #1:** I can describe atoms as the building blocks of matter.
      - *Essential Question #1: How do I identify and describe the nature of subatomic particles?*
      - *Essential Question #2: How do I trace the atomic model through history?*
      - *Essential Question #3: How do I interpret data for each element on the periodic table?*
    - **Big Idea #2:** I can use the periodic table to show trends in properties of elements.
      - *Essential Question #1: How do I identify properties and position of metals, nonmetals, and metalloids on the periodic table?*
      - *Essential Question #2: How do I distinguish between a group, family, and period on the periodic table?*

- **Unit IV Title: Chemical and Nuclear Reactions**
  - **Big Idea #1:** I can explain how atoms combine to form compounds.
    - *Essential Question #1: How do I compare and contrast ionic and covalent bonding?*
    - *Essential Question #2: How do I write chemical formulas?*
    - *Essential Question #3: How do I name chemical compounds?*
  - **Big Idea #2:** I can show how rearranging elements in compounds during chemical reactions will form new substances.
    - *Essential Question #1: How do I balance chemical equations to show conservation of matter?*
    - *Essential Question #2: How do I explain the factors that affect the rate and products of chemical reactions?*
  - **Big Idea #3:** I can explain how nuclear reactions break down atoms, create new elements, and release energy in the process.
    - *Essential Question #1: How do I describe the opposing forces in the atomic nucleus?*
    - *Essential Question #2: How do I calculate the radioactive decay of a substance using its half-life?*
    - *Essential Question #3: How do I compare and apply fission and fusion reactions?*
- **MID-TERM EXAM**
- **3rd Quarter**
  - **Unit V Title: The Universe**
    - **Big Idea #1:** I can explain how the Big Bang Theory is an explanation of the origin and history of the universe.
      - *Essential Question #1: What supporting evidence can I use to explain the Big Bang Theory?*
      - *Essential Question #2: How do advancements in technology change theories and discoveries about the universe?*
    - **Big Idea #2:** I can explain how stars and galaxies are the building blocks of the universe.
      - *Essential Question #1: How do I trace the lives of stars based on their classification?*
      - *Essential Question #2: How do I distinguish between different types of galaxies?*
  - **Unit VI Title: Newtonian Physics**
    - **Big Idea #1:** I can describe the motion of an object in terms of distance, time, velocity, and acceleration.
      - *Essential Question #1: How do I calculate speed and velocity of a moving object?*
      - *Essential Question #2: How do I calculate acceleration of a moving object?*
      - *Essential Question #3: How do I construct and interpret velocity and acceleration graphs?*



- Students should come prepared to class each day with their necessary materials, including their Chromebook. The students will be expected to complete their assignments on time and completely. Students will also be expected to participate in class activities and discussions. Your active participation and productivity in class are the most significant commitments you can make to yourself and me during this course. Students will not be able to use cell phones during class time, unless instructed by me.

### **Grading:**

Unit Exams	50%
Assessments (Including: Quizzes, Essays, Labs, and Projects)	30%
Class work/Homework	20%

- Each nine week's grade comprises 20% of a student's final grade.
- The Mid-Term Exam and End of Course Exam each comprise 10% of a student's final grade.

### **Grading Scale:**

The grading scale for Chillicothe High School can be found in the student handbook or online at <http://www.chillicothe.k12.oh.us/1/Content2/studenthandbook>.

**Late Work:** Late work will be subject to the Board-adopted policy on assignments that are submitted late (to be reviewed in class).

- Regardless of the absence type (excused, unexcused, OSS, etc.), students are expected to make up work and be held accountable for learning all material they missed.
- Any student who is absent from school will receive one (1) additional day for every day he/she missed to make up his/her work for full credit (100%).
- Any student who exceeds the allotted time to turn in an assignment for full credit may still submit work late for partial credit.
  - Any student who turns in work up to 1 week late must at least be given the opportunity to earn 75% on that assignment.
  - Any student who turns in work between 1 and 2 weeks late must at least be given the opportunity to earn 60% on that assignment.
- The end of the 9 weeks is the cut off point for teachers to accept late work from students for full or partial credit unless the teacher decides to give the student an incomplete for the 9 weeks due to extenuating circumstances.

### **Performance Based Section: Writing**

#### **Assignments/Exams/Presentations/Technology**

One or more of the End of Unit Exams may be Performance Based. According to the Ohio Department of Education, "Performance Based Assessments (PBA) provides authentic ways for students to demonstrate and apply their understanding of the content and skills within the standards. The performance based assessments will provide formative and summative information to inform instructional decision-making and help students move forward on their trajectory of learning." Some examples of Performance Based Assessments include but are not limited to portfolios, experiments, group projects, demonstrations, essays, and presentations.

**CHS Physical Science Course Syllabus**

After you have reviewed the preceding packet of information with your parent(s) or guardian(s), please sign this sheet and return it to me so that I can verify you understand what I expect out of each and every one of my students.

Student Name (please print): \_\_\_\_\_

Student Signature: \_\_\_\_\_

Parent/Guardian Name (please print): \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_

Date: \_\_\_\_\_