Honors Physical Science  
Syllabus 2019-20 school year  
Teacher: Mrs. Bishop  
bishopj@fultonschools.org

Office Hours: Monday 3:30-4:00PM or Wednesday 3:30-4:00PM,  
Other times by appointment.

Class Website: All students will be enrolled in Google classroom. Students will be required to obtain and turn in several assignments to Google Classroom.

Course Description:  
Physical Science is the study of matter and energy. The course is designed as an introductory overview of the major concepts in Chemistry and Physics to provide students with the necessary knowledge and skills in physical science. The course includes concepts such as structure of atoms, motion and forces, conservation of matter and energy, action-reaction principle, and the behavior of waves. Physical Science is covered on the Georgia High School Graduation Test (GHSGT) and ends with a Georgia Milestones Test (EOC).

Outcome Expectations:  
At the end of this course, students should be able to:

1. Use appropriate scientific tools to observe, record, organize, analyze, interpret, write, and present the results of scientific investigations clearly and accurately.
2. Explain the current understanding of the structure of the atom and compare ionic with covalent compounds.
3. Use information, calculations, and observations to explain properties, classification, and conservation of matter.
4. Explain the nature and process involved in radioactive decay.
5. Explain trends in the periodic table and use the knowledge to predict the properties of elements.
6. Compare and contrast the phases of matter as a result of atomic and molecular motion.
7. Describe the nature of solutions and the factors that affect the solubility of substances.
8. Explain the transformation and flow of energy in different mediums relative to the heat capacity of different substances.
9. Use calculations to determine the relationship between force, mass, and motion.
10. Explain the properties of waves and recognize that all waves transfer energy.
11. Explain the nature and production of static electricity and electric currents based on electron movements.
12. Describe the relationship between electricity and magnetism and explain each using applications.

Topics for Year:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Weeks</th>
<th>Georgia Standards</th>
<th>Chapter Covered in Textbook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Safety and Pre-Skills</td>
<td>1</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>
| The Atom and the Periodic Table | 2-3   | SPS1. Obtain, evaluate, and communicate information from the Periodic Table to explain the relative properties of elements based on patterns of atomic structure.  
a. Develop and use models to compare and contrast the structure of atoms, ions and isotopes. (Clarification statement: Properties include atomic number, atomic mass and the location and charge of subatomic particles.)  
b. Analyze and interpret data to determine trends of the following:  
   - Number of valence electrons  
   - Types of ions formed by main group elements  
   - Location and properties of metals, nonmetals, and metalloids  
   - Phases at room temperature  
c. Use the Periodic Table as a model to predict the above properties of main group elements. | 16 & 17 |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Code</th>
<th>Standard</th>
<th>Page</th>
</tr>
</thead>
</table>
| Chemical Bonding and Properties                     | 2-3    | **SPS2. Obtain, evaluate, and communicate information to explain how atoms bond to form stable compounds.**  
  a. Analyze and interpret data to predict properties of ionic and covalent compounds. (Clarification statement: Properties are limited to types of bonds formed, elemental composition, melting point, boiling point, and conductivity.)  
  b. Develop and use models to predict formulas for stable, binary ionic compounds based on balance of charges.  
  c. Use the International Union of Pure and Applied Chemistry (IUPAC) nomenclature for translating between chemical names and chemical formulas. (Clarification statement: Limited to binary covalent and binary ionic, containing main group elements, compounds but excludes polyatomic ions.) | 18   |
| Chemical Reactions and Conservation of Matter       | 2-3    | **SPS3. Obtain, evaluate, and communicate information to support the Law of Conservation of Matter.**  
  a. Plan and carry out investigations to generate evidence supporting the claim that mass is conserved during a chemical reaction. (Clarification statement: Limited to synthesis, decomposition, simple replacement, and double replacement reactions.)  
  b. Develop and use a model of a chemical equation to illustrate how the total number of atoms is conserved during a chemical reaction. (Clarification statement: Limited to chemical equations that include binary ionic and covalent compounds and will not include equations containing polyatomic ions.) | 15 & 19 |
| Fission, Fussion, and Nuclear Decay                 | 2      | **SPS4. Obtain, evaluate, and communicate information to explain the changes in nuclear structure as a result of fission, fusion and radioactive decay.**  
  a. Develop a model that illustrates how the nucleus changes as a result of fission and fusion.  
  b. Use mathematics and computational thinking to explain the process of half-life as it relates to radioactive decay. (Clarification statement: Limited to calculations that include whole half-lives.)  
  c. Construct arguments based on evidence about the applications, benefits, and problems of nuclear energy as an alternative energy source. | 20   |
| Phases of Matter and Gas Laws                       | 2      | **SPS5. Obtain, evaluate, and communicate information to compare and contrast the phases of matter as they relate to atomic and molecular motion.**  
  a. Ask questions to compare and contrast models depicting the particle arrangement and motion in solids, liquids, gases, and plasmas.  
  b. Plan and carry out investigations to identify the relationships among temperature, pressure, volume, and density of gases in closed systems. (Clarification statement: Using specific Gas laws to perform calculations is beyond the scope of this standard; emphasis should focus on the conceptual understanding of the behavior of gases rather than calculations.) | 14   |
| Solutions, Acids, and Bases                         | 2-3    | **SPS6. Obtain, evaluate, and communicate information to explain the properties of solutions.**  
  a. Develop and use models to explain the properties (solute/solvent, conductivity, and concentration) of solutions.  
  b. Plan and carry out investigations to determine how temperature, surface area, and agitation affect the rate solutes dissolve in a specific solvent.  
  c. Analyze and interpret data from a solubility curve to determine the effect of temperature on solubility.  
  d. Obtain and communicate information to explain the relationship between the structure and properties (e.g., pH, and color change in the presence of an indicator) of acids and bases. (Clarification statement: Limited to only the structure of simple acids and bases (e.g., HCl and NaOH) that demonstrates the presence of an H+ or OH-.)  
  e. Plan and carry out investigations to detect patterns in order to classify common household substances as acidic, basic, or neutral. | 21, 22 |
2018 Centennial Recovery Policy
If you have a 79% or below in the course, the recovery policy is as follows:
• Step 1: Student initiates a conversation with the teacher.
• Step 2: Student turns in ALL missing assignments. Late work will be penalized 10 points.
• Step 3: If average remains below an 80%, student will meet with the teacher to choose which assessment(s) they would like to retake. Students MUST attend the teacher’s office hours prior to the assessment retake.
• All work must be completed by the end of the six week grading period.

2018 Centennial Late Work Policy
All assigned work is due at the beginning of class on the assigned due date. Any late assignment will be assessed a 10% penalty. It is up to the teacher’s discretion to decide whether to accept the original assignment or require an alternative assignment for late work.

Weighting: Grades will be weighted as follows. Students are responsible for keeping track of their grades and knowing when they need help. **There will not be any extra credit assignments so keep your grades up.**

- Summative (includes tests, one formal lab report, and major projects) – 40 %
- Formative (includes quizzes, labs, classwork, and homework) – 40 %
- Final Exam – 20 %

MATERIALS NEEDED:
• School provided tablet charged or similar device
• Calculator (scientific, non-graphing) - TI 30A
• Composition Notebook
• Three ring binder, 3 dividers, and lose leaf paper
• Pen (blue or black ink only) & pencil
• Markers
• Donations of: paper towels, hand sanitizer, facial tissues, Clorox wipes, and white board markers are greatly appreciated!

Required Textbook
McGraw-Hill Georgia Physical Science (Glencoe)
Replacement Cost of Book: $99.99

Technology in the Classroom
Some days in this course will be designated as BYOD (Bring Your Own Device) days. I encourage all students to bring their smart devices to Physical Science with the understanding they are to be used only during the appropriate times. Smart phones, tablets, etc. will be used in class for viewing notes, researching information, formative assessments, class reviews, and others. Working with some technology allows us to enrich lessons, any student without a smart device or is unable to BYOD will still receive the same high quality instruction. Students are responsible for their own device.

Tablet Etiquette:
- Students must:
  • Come to class with their device fully charged, with the charger and stylus.
  • Only use devicee for class work/notes.
  • Teacher can monitor the device randomly.
  • You **CANNOT** record or take pictures of anyone or anything in the classroom without expressed permission.
    - **Student Code of Conduct & Discipline Handbook P. 36 Technology Offenses 18 A,B,C,D,E**
      • Technology/computer misuse (inappropriate internet use, disabling, etc.)/computer/tampering/trespass/hacking/altering hard drives.
      • Refusal to comply with school rules or reasonable directions or commands of school staff regarding use of technology and/or visual recording devices without permission.
As always, I can be reached most easily via email. Please feel free to contact me at ANY time with whatever questions or concerns you may have.

bishopj@fultonschools.org

Please note, due to several technical issues with my email account, my access to my email is restricted to on campus accessibility. Therefore, I am not able to check my email after I leave school in the afternoon. Please take this into consideration if you are emailing with an urgent matter.

---

**Please Print, Sign, and Return this Section of the syllabus**

Dear Parents and Guardians,

Please ensure that both you and your child have read and understand the contents of the syllabus and sign below. This section should be detached and returned to me by **Friday, AUGUST 16**. The student should keep the rest of the syllabus in their notebook. The form must be signed and returned and will count as a homework grade.

I have read all of the contents of the chemistry syllabus and understand the contents of the syllabus.

Student Signature _______________________________ Date: ________________

Parent/Guardian Signature _______________________________ Date: ________________

**Parent Contact Information**

Phone number: _______________________________ Email address: _______________________________

Please write email neatly