

**Science 9 Course Outline
Springbank Community High School
Spring Semester 2015/2016**

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Major Focus: The main focus of the Science 9 program is for all students to develop proficiency in the scientific method of problem solving.

Students are encouraged to:

- Recognize a problem
- Initiate a hypothesis
- Use materials creatively
- Develop procedural steps
- Use all senses for observation
- Record relevant data
- Synthesize conclusions
- Discuss applications
- Recognize the role of society and technology in science
- Make connections to other areas of knowledge
- Use creativity and a variety of learning methods to explore science

Term Evaluation:

Component:	Weight:
Homework: Assignments and Labs	35%
Unit Exams	27.5%
Topic Quizzes	17.5%
Projects	10%
Final Exam (PAT)	10%

Units of Study:

We will be studying the units in the order listed below:

Unit E: Space Exploration (~February 3 – March 2)

Overview:

Technologies have played an essential role in the study of space and in the emerging use of space environments. Our modern understanding of space has developed in conjunction with advances in techniques for viewing distant objects, for transmitting images and data through space, and for manned and unmanned space exploration. A study of space exploration provides an opportunity for students to examine how science and technology interact and to learn how one process augments the other. Students become aware that technologies developed to meet the challenges of space are applied

to new purposes.

Focusing Questions:

How have humans attained a presence in space? What technologies have been developed and on what scientific ideas are they based? How has the development of these technologies contributed to the exploration, use and understanding of space and to benefits on Earth?

Unit B: Matter and Chemical Change (March 3 – March 31)

Overview:

Different materials have different properties. The ability to distinguish between different substances and make sense of their properties, interactions and changes requires the development of ideas about chemical substance. In this unit, students are introduced to the formal study of chemical substance through laboratory investigations and introductory studies of chemical theory. In the laboratory, students observe and compare chemical substances and, with guidance on safety, investigate the properties of materials and the ways they interact. In conjunction with these studies, students are introduced to ideas about elements and compounds, and corresponding structural ideas about atoms and molecules. Theoretical ideas are introduced as means for explaining, interpreting and extending their laboratory findings; these ideas include a general introduction to the periodic table, chemical nomenclature and simplified ways of representing chemical reactions.

Focusing Questions:

What are the properties of materials, and what happens to them during chemical change? What evidence do we have of chemical change; and what ideas, theories or models help us explain that evidence?

Unit D: Electrical Principles and Technologies (~ April 1 – May 2)

Overview:

Electricity provides the means to energize many devices, systems and processes that are part of our technological environment. Electrical devices are used to transfer and transform energy, to provide mechanisms for control and to transmit information in a variety of forms. In this unit, students learn the principles that underlie electrical technologies, by studying the form and function of electrical devices and by investigating ways to transfer, modify, measure, transform and control electrical energy. Using a problem solving approach, students create and modify circuits to meet a variety of needs. Students also develop skills for evaluating technologies, by comparing alternative designs and by considering their efficiency, effectiveness and environmental impact.

Focusing Questions:

How do we obtain and use electrical energy? What scientific principles are involved? What approaches can we use in selecting, developing and using energy consuming devices that are efficient and effective in their energy use?

Unit A: Biological Diversity (~ May 3 – May 25)

Overview:

Biological diversity is reflected in the range of species found in local and global environments and by subtle variations in characteristics found within individual species. In this unit, students learn that diversity is maintained through natural processes of sexual and asexual reproduction, though the survival of individual species—and variations within those species—may be influenced by ecological and human caused factors. Students examine trends toward loss of diversity and examine related issues concerning environmental quality and the impact of technologies.

Focusing Questions:

What is biological diversity, and by what processes do diverse living things pass on their characteristics to future generations? What impact does human activity have on biological diversity?

Unit C: Environmental Chemistry (~ May 26 – June 8)

Overview:

Environments are often viewed from a physical and biological perspective, but to fully understand how they function, it is important to view them from a chemical perspective as well. A study of environmental chemistry helps students understand that chemical substances make up the underlying fabric of the world and are part of the process in all natural cycles and changes. Through this unit, students also become aware of human produced chemical substances that enter and interact with environments, and they investigate potential impacts of different substances on the distribution and abundance of living things.

Focusing Questions:

What substances do we find in local and global environments? What role do they play, and how do changes in their concentration and distribution affect living things?

General Science Expectations

Supplies Required for Class:

- **Textbook: Science:** Focus 9 (Replacement Cost \$100.00)
- **Suggested Study Guide:** The Key: Science 9
 - which can be picked up at most Chapters, Indigo or Coles.
- **Materials:** Computer, Science Focus 9 Textbook, Pens, Pencils, Eraser, Looseleaf and Binder/Notebook and Ruler, Scientific or Graphing Calculator

*****Come prepared with all materials to EACH class*****

Expectations:

- Cooperation is expected at all times and in all activities.
- Respect for people, their materials and school equipment is mandatory.
- Punctuality is essential. A late policy will be strictly enforced. After 5 unexcused lates a phone call will be made to your parents and after 10 unexcused lates, you will be referred to administration.

- Attendance is required for success. Any unexcused absences will result in a phone call home and a referral to administration. If you must be absent, it is your responsibility to catch up on all missed work and assignments.
- To enable successful review, previous and current work must be organized. All unit work must be kept in a neatly organized duo tang or binder or your computer files must be organized into folders.
- Homework and assignments must be completed in full, on time and to the best of one's ability.
- When assignments are assigned, they must be submitted on time. Late assignments will be assigned an NHI designation immediately. The NHI will be removed once the assignment has been submitted.

Exam Policy:

1. Students are expected to use scientific or graphing calculators for exams and quizzes. ***You will not be allowed to use a graphing calculator on the PAT exam, however. It is best to buy a scientific calculator early in the semester so that you can practice using it before the PAT exam.***
2. Students may not share calculators in test situations. Calculator memory must be cleared for all tests and the final exam. If you forget your calculator, you may borrow one in exchange for collateral, such as your phone or computer. Phones CANNOT be used as calculators on exams.
3. There will be no rewrites of unit tests. Practice quiz rewrites will be negotiated based upon circumstance.
4. In the case of missed unit tests due to an excusable absence the student must make arrangements with the teacher to write an alternate unit test. Generally, this makeup unit test will be written on the day the student returns to class.
5. In the case of missed unit tests or quizzes due to unexcused absences students will be required to write the exam at the teacher's discretion.
6. Please refer to the student handbook for school policy and procedures related to the appeal of grades.

Academic Dishonesty

Any assignment submitted that is copied in whole or in part from either another student's work or outside resource (ie. magazine, website, newspaper, etc.) without direction from the teacher will receive a designation of Academic Dishonesty (AD). All referenced resources must also be cited in the proper APA format. Failure to properly cite all referenced resources will also result in Academic dishonesty. An academic dishonesty designation is assigned a mark of zero. The academic dishonesty will remain in place until the assignment is redone properly and submitted for marks