### Science and Technology/Engineering Curriculum Map Grades Six – Eight

By the conclusion of each grade most students will:

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<thead>
<tr>
<th>Strands</th>
<th>Grade Six</th>
<th>Grade Seven</th>
<th>Grade Eight</th>
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<tbody>
<tr>
<td>Earth and Space Science</td>
<td>Further develop skills of observation, hypothesis formation, data analysis, and mathematics in general, and as they relate to Earth Science in particular. Investigate and demonstrate methods of scientific inquiry and experimentation. Understand metrics, mass, volume, and density as they relate to the Earth System. Apply fundamental principles of Earth Science in order to solve problems and relate them to the changes in the earth and our environment over time. Understand the Earth as a complex system through the four Earth Sciences: Geology, Astronomy, Meteorology, and Oceanography. Identify the internal and external make-up of the Earth as a planet, it’s atmosphere and hydrosphere. Understand Earth's internal processes and learn the composition and changes that Earth undergoes. Acquire a general understanding of the characteristics and mechanics of the solar system, its principal members and the interrelationships that exist, especially between those members and the Earth itself. Investigate stars and star systems, along with accepted scientific theories of their origin. Study geological topics such as earth structure, origin and diastrophism, volcanoes, earthquakes and plate tectonics, minerals, rocks and geologic time are studied. Relate and interconnect meteorological (weather, climate and the atmosphere) and oceanographic sciences.</td>
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### Life Science (Biology)

- Develop skills of observation, prediction, decision-making, data analysis, and research.
- Investigate and demonstrate methods of scientific inquiry and experimentation.
- Understand the role of the cell as the building block of all living things.
- Understand the interdependence of all the systems of the human body.
- Understand the variety of ecosystems, and the impact of humans on them.
- Apply the fundamental principles of the life sciences in order to solve problems and relate them to life experiences.
- Understand cell biology, biomes, and the environment.

### Physical Sciences (Chemistry and Physics)

- Develop skills of observation, prediction, decision-making, data analysis, and research.
- Investigate and demonstrate methods of scientific inquiry and experimentation.
- Understand the role of measurement in the physical and biological worlds.
- Understand the Periodic Table.
- Apply the fundamental principles of the physical sciences to solve problems and relate them to life experiences.
- Understand measurement, energy, the atom, matter, sound, and light.

### By the conclusion of each grade most students will:

- Life Science (Biology)
  - Continue to develop skills of observation, hypothesis formation, data analysis, and math applications.
  - Investigate and demonstrate methods of scientific inquiry and experimentation.
  - Understand cell processes.
  - Understand the basic principles of evolution.
  - Understand the basic principles of heredity.
  - Recognize the role of genetics in heredity.
  - Apply the fundamental principles of the life sciences in order to solve problems and relate them to life experiences.
  - Understand the relationship between flora and fauna in an ecosystem dictates the ecosystems sustainability.

- Physical Sciences (Chemistry and Physics)
  - Continue to develop skills of observation, hypothesis formation, data analysis, and math applications.
  - Investigate and demonstrate methods of scientific inquiry and experimentation.
  - Understand and apply the relationship between force and motion to Newton’s Laws of Motion, Archimedes Principle, and simple machines.
  - Understand motion, force, and energy.
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<tr>
<td>Use scientific tools and other forms of technology to develop inquiry skills. Use technology as a tool in the studying of science. Continue to develop skills in word processing to create documents, edit and format text, save and print files. Use search engines and the Internet to develop research skills.</td>
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<tr>
<td><strong>Robotics- Lego Mindstorm</strong> Explore technical and design experiences related to robotics systems. Understand the basic operation of robots. Understand the advantages of the six Simple Machines. <strong>Examine</strong> the impact of technology on society. Identify and explain the steps of the engineering design process, i.e., identify the need or problem, research the problem, develop possible solutions, select the best possible solution(s), construct a prototype, test and evaluate, communicate the solution(s), and redesign.</td>
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<td>Identify and explain the safe and proper use of measuring tools, hand tools, and machines (e.g., band saw, drill press, sanders, hammer, screwdriver, pliers, tape measure, screws, nails, and other mechanical fasteners) needed to construct a prototype of an engineering design.</td>
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Use scientific tools and other forms of technology to develop inquiry skills. Use technology as a tool in the studying of science. Use search engines and the Internet responsibly in order to develop research skills.