# Physical Science 10
# Course Outline 2014 - 2015

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**Part I – Course Content**

**Unit 1: The World of Science**
- Scientific Theories & Laws
- Brief History of Science
- Research & Technology
- Significant Digits

**Unit 2: Motion**
- Kinematics
- Dynamics

**Unit 3: Weather Dynamics**
- Global Weather Dynamics
- Forecasting
- Extreme Weather Events

**Unit 4: Chemistry**
- Review of Grade 9
- Ionic & Molecular Compounds
- Chemical Equations
- Acids & Bases

**Unit 5: Ecosystems**
- Diversity
- Change & Stability
- Terrestrial Ecosystems
- Aquatic Ecosystems

**Part II – Experimental Research & Labs**

In this part of the course you will develop your own laboratory experiment. These experiments (3 or 4) will take place throughout the semester. Details TBA.

This semester there will be two science skills assessments taking place. The first will be a provincial assessment in May and the second will be a JMH assessment in early June. The assessments have a value of 5% on your overall grade. You will prepare for these assessments throughout your class.

**Evaluation:**

| | |
|---|---|
| Part I | 45% |
| Part II | 20% |
| Assessments | 5% |
| Final Exam | 30% |

**Materials:**
Binder & Paper
USB Memory Stick
Scientific Calculator

Additional Resources: http://jmh.nbed.nb.ca/teacher/note/digital-resources-spring-2015-courses

*"…high schools face intense criticism from college educators, policymakers, education reformers, and the public for graduating a significant number of students who are not well prepared for college and do not possess needed technological and problem-solving skills to enter the workplace*." – Physics Today, May 2002.

**Focus on General Physics & Science Skills**

Physics is the study of nature, of matter and energy and their interactions. Mastery of physics happens through the use of concepts and calculations. The ability to predict what will happen in nature given changes in certain quantities is conceptual and mathematics is the language used to communicate those concepts through calculations. The skills you will develop and strive for are summarized below, and in general they apply to all disciplines of science.

- **Proficiency in mathematics**
  - You don't need to know everything; however, strong equation solving, algebra, and graphing skills are a necessity.
  - Review skills needed for a particular problem.
- **Problem Solving & Scientific Reasoning**
  - The ability to apply logic reasoning to arrive at a solution.
  - Familiarity with the scientific method.
  - Study other science courses.
  - Science Fair participation.
  - Keep your brain sharp through logical activities (reading, puzzles, chess, video games with a problem solving element, etc.)
- **Technical Knowledge**
  - Become comfortable with computers (tablets, smartphones, etc.) and their software. That includes exposure and use of new computer programs frequently used in science and general strategies of how to learn any new computer program.
  - Strong emphasis on learning to use spreadsheet programs for problem solving/data analysis (Excel).
  - Basics of how machines and electronic devices work.
- **Excellent Study Habits**
  - Pay attention; stay focused – especially during the transition from lecture to class work.
  - Review notes and text daily (especially any new vocabulary and concepts).
  - YouTube videos while you work on similar problems.
  - Do assigned work.
  - Efficient use of time (nearly all assigned tasks can be completed in allotted class time).

**Rethinking High School Physics/Science**

- Deepen understanding and knowledge of Science and Mathematics.
- Contextual and conceptual understanding of Physics.
- Promote scientific inquiry/thinking and logic.
- Important Physics does not come from facts.
- Successfully problem-solve your way through unfamiliar situations.
- Stimulate student question generation.
- Accommodate student interests.
- Awareness and self-monitoring of learning.
- Go from a "hands-on" to a "minds-on" approach.