SOUTH SHORE REGIONAL SCHOOL BOARD
CURRICULUM UPDATES AND CONTACT INFORMATION
Last updated: January 31st, 2017

SCIENCE

Contacts

Department of Education and Early Childhood Development
Christine Christensen, Science Consultant
(902) 424-4272
Email: Christine.christensen@novascotia.ca

South Shore Regional School Board
Mark MacLeod, Coordinator of Programs P-12
Phone: (902) 541-0825
Email: mmacleod@ssrsb.ca

Curriculum Guides

If teachers have not yet downloaded the curriculum documents or Learning Outcomes Frameworks, they can be found (not all) in various stages (final, draft, conceptual, ..) on the **EduPortal.**

The DoE are now housing all the **curriculum guides/documents** in a one-stop place called the EduPortal. Check this central place out at http://edapps.ednet.ns.ca/eduportal You will need your Employee Number as found on your payroll information to enter the site. Go to Resources and then **Educator's Site and/or the Curriculum Cart** to access/download the curriculum documents.

Curriculum guides may also be accessed through their respective **Moodles** such as: Mathematics P-3, 4-6, 7-9, 10, 11, and 12; P-3 Renew, Revisit, Rebuild; An Innovative Curriculum; 4-6 Renew, Refocus, Rebuild. Innovation and Exploration-Grades 4-6 Streamlined Curriculum; Social Studies grades 3-6 and Mi'kmaw Studies 11; some Family Studies courses like Child Studies 9 and Canadian Families 12; Healthy Living 9: Workplace Health & Safety Module; Entrepreneurship 12 and Cooperative Education. Teachers have been given access to these Moodles with a one-time enrollment key. If you need assistance please go to our SSRSB Curriculum site located on www.ssrsb.ca or contact Mark MacLeod at mmacleod@ssrsb.ca

Besides updated curriculum guides, EduPortal also has easy access to other resources and links such as: the On-Line Video Library, upcoming events such as Webinars, Digital Video Library, EBSCO, Ednet Cloud, Education Media Library, Evaluation Services / Provincial Assessment info, FSL Program Services, IB Program, NSVS, NSSBB Online (ALR), ….

Information Items of Interest

- **Get involved in our SSRSB Regional Science Fair. Science Fair** Support for Students and Teachers: http://www.sciencefairinfo.ns.ca/index.php and http://ssrsbstaff.ednet.ns.ca/sciencefair/index.html. **Contact Information:** Jane Berrigan (jjoudrey@staff.ednet.ns.ca)
  Science fairs encourage student interest for scientific inquiry on topics of personal interest to them. Investigating a selected topic in detail can help develop further interest in that field and cultivate additional appreciation for scientific advances in our ever-changing world. The links between science fairs and project-based learning and inquiry-based learning are an added bonus as well.

- **How countries worldwide engage students in science** There are common features of science programs around the world that specialize in student engagement. One is a culture of collaboration and caring for others on the team; another is having teachers guide students, whether in kindergarten or high school, to consider questions that interest them and test out their hypotheses. "Just give the children the room, the time and the possibility," says a teacher in the Little Scientists' House in Germany. "Believe that they will work it out, and they will." High school science teams in China have been twinned with schools in the US. The result has been both collaboration and a shared sense of commitment to team-members: one group will complete an experiment in time for another group's exams. "It makes you rethink the boundaries you put on things," says one science student of the student-based, interdisciplinary-led, global approach to science. http://www.nature.com/news/reading-writing-and-high-energy-physics-1.17964

- MaKey MaKey's are now being used in schools and may be of interest to your **Science teachers**. They are not on the book bureau list yet, so if teachers want to purchase them they could do so by going directly to the company. They run for around $45 a piece. Here is a link to the MaKey MaKey site for more information about this product: http://www.makeymakey.com

- Looking for an out-of-this-world science experiment for your class? **Tomatosphere** uses the excitement of space exploration as a context for teaching **P-12 students** the skills and processes of science experimentation and

inquiry. They have opened the registration for teachers who are interested in the Tomatosphere™ program and would like to receive seeds in February/March 2017. They are excited to offer space seeds this year that visited the International Space Station back in the summer! NEW - this year, they launched their brand new Tomatosphere website!

Visit tomatosphere.letstalkscience.ca to take a look at the new, and free, educator resources we offer to go along with the program-it's free and in both English and French..

In case you are new to Tomatosphere™, here is a quick snapshot of the program:

- Uses the excitement of space exploration as a context for teaching students the skills and processes of science experimentation and inquiry
- Compares the percent germination of tomato seeds which have been treated in space or space-like conditions with a control set of seeds
- Available to Kindergarten to Grade 12 students and their educators at no cost
- Applicable to curriculum topics across many disciplines including living things, plants, soil, habitats, space, nutrition, weather, environment along with scientific processes

- A **fantastic resource** for students and teachers from grades 8-12 is the Curiocity/curiocite. This Canadian website has action projects, relevant articles, career information and much, much more! When you log in as an educator, you get access to more information such as graphic organizers that complement a topic or theme. It is the BEST!!! Check it out at www.curiocity.ca
- **A Closer Look: Let's Explore Trees Curriculum Document**
  This resource was sent to all elementary schools. There is an accompanying backpack called Pack to Nature that contains equipment to support the booklet. The Department of Natural Resources (DNR) supported this project. Thank you to DNR for their wonderful support. It is hoped that this will encourage teachers and students to go outside to explore trees and engage in nature.
- For fun science and technology related educational activities visit the five Science.gc.ca Activity Books available at www.science.gc.ca/ab. The latest edition features **34 science activities for all skill levels and age groups (primary, intermediate, and secondary)**. All activities can be easily incorporated into classroom projects and will give students another perspective on how science is present in our daily lives. The Activity Books help make learning about science fun and interactive! Science.gc.ca is the official Government of Canada source for science and technology information. The website offers an interactive and fun approach to learning with Games, Videos, Ask a Scientist, and educational resources.
- The Atlantic Science Links Association runs a variety of programs to support grades primary to 12 science curricula in Nova Scotia. These include Scientists and Innovators in the Schools, Ask-A-Scientist, and the Climate Change Action Pack. The programs are completely free and run all year long! For example, The Climate Change Action Pack (CCAP) is a collection of lesson plans for grades 4-6 teachers on the underlying concepts of climate change, specifically in Nova

Scotia, and is based on the Atlantic Science Curriculum. They have both English and French versions of CCAP in CDs to be distributed to science teachers in Nova Scotia. For more information about these programs, or to request a visit by a scientist, please contact them by email at sits@dal.ca or by phone at 902-494-2831 (toll free 1-800-565-7487). Their website is also a great source of information, and has links to other resources and activities. http://atlanticsciencelinks.dal.ca

- **Science Celebrations and Contests**: Every year in Canada students from grades primary to 12 have the opportunity to participate in science contests. The main focus of the events is to stimulate interest in science. Celebrations and contests are an excellent way to provide students with a challenging and engaging scientific experience that can be both competitive and educational. The format and structure vary from in class projects to video submissions to a team competition that emphasizes problem solving skills and effective group work. Teachers may find some investigations in databases posted on various organization's web sites. Using these materials to help students prepare for the events is an exciting way to support the curriculum and help students to develop problem-solving strategies. Some teachers may prefer to use these materials to supplement classroom work, while others use them with their extracurricular activities. Setting up some problem-solving displays is an effective way to engage students and parents during open houses, curriculum nights, or science exhibitions. Some contests are scored internally while others provide opportunity for interschool competitions in which students can compare their results with those of other students in the province or other parts of Canada. Below are some useful web sites and a list of the most popular celebrations contests with registration deadlines and competition dates.

Website	**Annual Science Contests**
http://brainw ar.ca	Brain War
www.virtualsciencefair.ca	Canada Wide Virtual Science Fair (P-12)
http://www.ccpo-occp.ca/index.html	Canadian Chemistry Olympiad (10-12)
w w w .explorecuriocity.org/	Curiocity
http://www.discoverycentre.ns.ca/learn/teacher-zone	Discovery Centre Reel Science
www.envirothon.org	Envirothon
http://www.nscc.ca/explorenscc/events/lego.asp	First Lego League (4-9)
www.letstalkscience.ca	Let's Talk Science Challenge (6-8)
https://dvl.ednet.ns.ca/science-olympics	Nova Scotia Invitational Science Olympics (4-6)

www.nsfa.ca	Nova Scotia Provincial Envirothon (10-12)
http://robots.acadiau.ca/hrc/index.php	Nova Scotia Youth Experiences In Science Team Nova Scotia Show case (7-12
www.sciencefairinfo.ns.ca	Regional Science Fairs
http://robots.acadiau.ca/hrc/index.php	Robofest (10-12)
www.greenschools.ca	Seeds/Green Schools (P-6)

- The Department of Education was pleased to support the **Nova Scotia Invitational STEAM Olympics (replaces the Science Olympics).** Space was available for 24 teams across the province for grades 4-5 and 16 teams for grades 7-8. This invitational event provides proportional representation by school boards, all boards are invited to send teams.
- Our board is moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016 in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms. Gail Sinclair and Mark have been meeting with our high school Chemistry and the clean-up is underway.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

other considerations

- from 400 acceptable chemicals to about 150 chemicals-so new update from July 2015 will be coming out to reflect this
- DoE will help with disposal of non-acceptable chemicals
- there can be exceptions-must have flammable cabinet to have a flammable liquid, ducted Fume Hood, storage cabinets
- has gone out to OHS people-need to follow communication lines
- electronic versions will be sent out to teachers-get feedback-then back to DoE for approval

Select a grade and/or category for more curriculum/course support & resources

Primary
Grade One
Grade Two
Grade Three
Grade Four
Grade Five
Grade Six
Grade Seven
Grade Eight
Grade Nine
Grade Ten
- Science 10

Grade Eleven
- Agriculture / Agrifood 11
- Advanced Biology 11
- Biology 11
- Advanced Chemistry 11
- Chemistry 11
- Forestry Management 11
- Human Biology 11
- Oceans 11
- Advanced Physics 11
- Physics 11

Grade Twelve
- Advanced Biology 12
- Biology 12
- Advanced Chemistry 12
- Chemistry 12
- Food Science 12
- Geology 12
- Advanced Physics 12
- Physics 12

Renew, Refocus, Rebuild
An Innovative Curriculum Primary-Grade 3

NEW for the 2015-16 school year. There is a **revised** Time to Learn Strategy for **Grades Primary-Three**. Some of the important points are:

- Increased time for Language Arts instruction for P-2 (from 90 mins/day to 123 mins/day) and Mathematics instruction for P-2 (from 45 mins/day to 75 mins/day) and increased time for Language Arts instruction for Grade 3 (from 115 mins/day to 158 mins/day) and Mathematics instruction for Grade 3 (from 60 mins/day to 90 mins/day).
- An integrated model where outcomes from one or more subject areas (Social Studies, **Science**, Health, Visual Arts and Information Communication Technology) are addressed within Language Arts and/or Mathematics for active and interactive learning.
- The number of SCO's for each subject area of ELA, Social Studies, **Science**, Health, Visual Arts**,** Physical Education and Music has been drastically reduced. The SCO's for Mathematics will remain as is.
- Learning packages were developed to assist teachers in offering daily Physically Active Time (PAT), which is general classroom activity distinct from Physical Education classes. The PAT is set at 10 mins/day.
- Teacher resources were developed to support teachers with combined classes (i.e. 3/4 split).
- Teachers will report only on Integrated Mathematics and Integrated Language Arts for all three terms with Physical Education and Music reported on beginning with reporting period #2.
- All the above information and lots more can be found on the **Renew, Refocus, Rebuild-An Innovative Curriculum Moodle**-to get there:
  - ✓ Visit https://nsvs.ednet.ns.ca
  - ✓ Click on Professional Communities of Practice
  - ✓ Log in using your full staff email.
  - ✓ Enter required information (First time users only)
  - ✓ Locate Professional Communities of Practice at the bottom of the page
  - ✓ Scroll down and locate Renew, Refocus, Rebuild; An Innovative Curriculum
  - ✓ You will be prompted to Enrol Me in course. You are now a participant in the course and it will be displayed under "My Courses" each time you log into NSVS.

Primary Science

Provincial Guide

- The number of SCO's for each subject area of ELA, Social Studies, **Science**, Health and Visual Arts has been drastically reduced.
- An integrated model where outcomes from one or more subject areas (Social Studies, **Science**, Health, Visual Arts and Information Communication Technology) are addressed within Language Arts and/or Mathematics for active and interactive learning.
- Atlantic Canada Science Curriculum: Science, Grade Primary (2004)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Sci-Tech Connections Primary-science investigations integrating with other subject areas and stressing communication and teamwork
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Primary class received one Table Top Tri-Pod magnifier and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.
- A Handbook for Teaching Combined Classes: Science Primary / Science 1 (Draft Oct 2012)
- Science Links: Primary-2 Combined (Draft, May 2012)

Grade One Science

Provincial Guide

- The number of SCO's for each subject area of ELA, Social Studies, **Science**, Health and Visual Arts has been drastically reduced.
- An integrated model where outcomes from one or more subject areas (Social Studies, **Science**, Health, Visual Arts and Information Communication Technology) are addressed within Language Arts and/or Mathematics for active and interactive learning.
- Atlantic Canada Science Curriculum: Science, Grade 1 (2005) -contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Sci-Tech Connections 1-science investigations integrating with other subject areas and stressing communication and teamwork
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 1 class received one Floaters & Sinkers Kit and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.
- A Handbook for Teaching Combined Classes: Science Primary / Science 1 (Draft Oct 2012)
- A Handbook for Teaching Combined Classes: Science 1 / Science 2 (Draft Oct 2012)
- Science Links: Primary-2 Combined (Draft, May 2012)

Grade Two Science

Provincial Guide

- The number of SCO's for each subject area of ELA, Social Studies, **Science**, Health and Visual Arts has been drastically reduced.

- An integrated model where outcomes from one or more subject areas (Social Studies, **Science**, Health, Visual Arts and Information Communication Technology) are addressed within Language Arts and/or Mathematics for active and interactive learning.
- Atlantic Canada Science Curriculum: Science, Grade 2 (2005)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- A Closer Look: Energy and Me, Science 2 and Science 3, A Curriculum Supplement (2009)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Sci-Tech Connections 2-science investigations integrating with other subject areas and stressing communication and teamwork
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 2 class received one Early Simple Machines Set (Lego) and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.
- A Handbook for Teaching Combined Classes: Science 1 / Science 2 (Draft Oct 2012)
- A Handbook for Teaching Combined Classes: Science 2 / Science 3 (Draft Oct 2012)
- Science Links: Primary-2 Combined (Draft, May 2012)

Grade Three Science

Provincial Guide

- The number of SCO's for each subject area of ELA, Social Studies, **Science**, Health and Visual Arts has been drastically reduced.

- An integrated model where outcomes from one or more subject areas (Social Studies, **Science**, Health, Visual Arts and Information Communication Technology) are addressed within Language Arts and/or Mathematics for active and interactive learning.
- Atlantic Canada Science Curriculum: Science, Grade 3 (2005)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- A Closer Look: Using Microscopes. Science Grades 3-6: A Curriculum Supplement (2003)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- A Handbook for Teaching Combined Classes: Science 2 / Science 3 (Draft Oct 2012)
- A Handbook for Teaching Combined Classes: Science 3 / Science 4 (Draft Oct 2012)
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- A Closer Look: Energy and Me, Science 2 and Science 3, A Curriculum Supplement (2009)
- A Closer Look: Let's Explore Plants and Soils, Science 3, A Curriculum Resource (2010)
- Booklet called "What on Earth? A Resource for Plants and Soils"
- Sci-Tech Connections 3-science investigations integrating with other subject areas and stressing communication and teamwork
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 3 class received one Magnetism Kit and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.
- A Handbook for Teaching Combined Classes: Science 3 / Science 4 (Draft Oct 2012)

Grade Four Science

Planning for grades 4-6 took place in 2015-2016 for a streamlined, coordinated, and innovative curriculum with implementation in 2016-2017. Science 4 is now taught via an Integrated Learning Block/Explicit Subject Instruction with opportunities to integrate Language Arts and/or Mathematics outcomes.

To access the site for the NEW Renew, Refocus, Rebuild. Innovation and Exploration-Grades 4-6 Streamlined Curriculum, go to the following URL, use your NSVS password, and enroll. The site below will also give access to a streamlined /revised curriculum document (in most cases, fewer SCOs) along with other Teaching Learning Supports and other resources.
http://nsvs.ednet.ns.ca/nsps/nsps26/course/view.php?id=4102

Provincial Guide

- Atlantic Canada Science Curriculum: Science, Grade 4 (2006)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- A Closer Look: Using Microscopes. Science Grades 3-6: A Curriculum Supplement (2003)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- A Handbook for Teaching Combined Classes: Science 3 / Science 4 (Draft Oct 2012)
- Science 4 / Science 5: A Handbook for Teaching Combined Classes (2011)
- The video, Doing and Thinking Science: Olympic Freestyle is available for download at http://www.ednet.ns.ca/science_olympics_video.shtml and the Nova Scotia Science Olympics Booklet: Science 4 and Science 5: Activities is also available for download at https://sapps.ednet.ns.ca/Cart/description.php?II=301&UID=20031024095517142.227.51.61
- Sci-Tech Connections 4-science investigations integrating with other subject areas and stressing communication and teamwork
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school

received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 4 class received one Light Kit and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.

- A "Rocks Kit was sent out to all schools with a grade 4 component in March 2012. Can be shared with the Grade 7 Science teachers also. The Science 4 Curriculum has great investigations that may be used with this rock kit as stations.

Grade Five Science

Planning for grades 4-6 took place in 2015-2016 for a streamlined, coordinated, and innovative curriculum with implementation in 2016-2017. Science 5 is now taught via an Integrated Learning Block/Explicit Subject Instruction with opportunities to integrate Language Arts and/or Mathematics outcomes.

To access the site for the NEW Renew, Refocus, Rebuild. Innovation and Exploration-Grades 4-6 Streamlined Curriculum, go to the following URL, use your NSVS password, and enroll. The site below will also give access to a streamlined /revised curriculum document (in most cases, fewer SCOs) along with other Teaching Learning Supports and other resources.
http://nsvs.ednet.ns.ca/nsps/nsps26/course/view.php?id=4102

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs

- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Atlantic Canada Science Curriculum: Science, Grade 5 (2008)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- A Closer Look: Using Microscopes. Science Grades 3-6: A Curriculum Supplement (2003)
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Science 4 / Science 5: A Handbook for Teaching Combined Classes (2011)
- Diversity of Life and our Basic Needs: Grade 5/6 Combined Science-Year 1
- Sci-Tech Connections 5-science investigations integrating with other subject areas and stressing communication and teamwork
- The video, Doing and Thinking Science: Olympic Freestyle is available for download at http://www.ednet.ns.ca/science_olympics_video.shtml and the Nova Scotia Science Olympics Booklet: Science 4 and Science 5: Activities is also available for download at https://sapps.ednet.ns.ca/Cart/description.php?II=301&UID=20031024095517142.227.51.61
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 5 class received one Forces and Simple Machines Kit and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.
- Combining Science 5 and Health Education 5: Curriculum Supplement (2010). This curriculum supplement includes sample year-long plans for combining Science 5 Life Science: Meeting Basic Needs and Maintaining a

Healthy Body unit with the Health Education 5 My Body, My Self: Body Function, Growth and Care unit.

- Check out the "You Be the Chemist" program for grades 5-8 through the use of the website www.youbethechemist.ca . This educational tool is designed to engage students in the science of chemistry. 32 educator-reviewed and simply structured lesson plans with detailed activity sheets for class assessments

Grade Six Science

Planning for grades 4-6 took place in 2015-2016 for a streamlined, coordinated, and innovative curriculum with implementation in 2016-2017. Science 6 is now taught via an Integrated Learning Block/Explicit Subject Instruction with opportunities to integrate Language Arts and/or Mathematics outcomes.

To access the site for the NEW Renew, Refocus, Rebuild. Innovation and Exploration-Grades 4-6 Streamlined Curriculum, go to the following URL, use your NSVS password, and enroll. The site below will also give access to a streamlined /revised curriculum document (in most cases, fewer SCOs) along with other Teaching Learning Supports and other resources.
http://nsvs.ednet.ns.ca/nsps/nsps26/course/view.php?id=4102

Provincial Guide

- Atlantic Canada Science Curriculum: Science, Grade 6 (2008)-contains activities linked to SCO's, materials required, suggested assessments, etc

Core Resources

- **Grade 6 Science** has a Nova Scotia Science Teacher's Resource (2008) and a Student text to supplement the curriculum guide.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- A Closer Look: Using Microscopes. Science Grades 3-6: A Curriculum Supplement (2003)
- Sci-Tech Connections 6-science investigations integrating with other subject areas and stressing communication and teamwork
- Diversity of Life and our Basic Needs: Grade 5/6 Combined Science-Year 1Science Safety Guidelines Grades P-12 (2005).
- The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- Science Equipment: Grade Primary-6 (April 2007)
- A Closer Look: Using Energy Meters, Science 6 and Science 9, A Curriculum Supplement (2008)
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- One teacher from each elementary school attended a Science workshop on February 4th, 2011. Participants explored science concepts with connections to literacy, mathematics, visual arts, movement and social studies. Assessment

and technology were embedded in the workshop. Each participant/school received an excellent selection of learning resources that are designed to promote hands-on, minds-on learning, including: P-6 Science collection of books (15 titles), science equipment (lab coats, science bag, goggles, aprons,..), measuring tools, science videos/CD's (Hands-On, Minds-on-Science, Doing and Thinking Science: Olympic Free-Style, First Canadian Expeditition Downlink Event), Sciencesaurus book and other print resources/guides (outcome cards). In addition, each school with a Grade 6 class received one Electricity Kit and a Stereo Microscope. All the activities discussed at this workshop will be on a Moodle site in the near future.

Grade Seven Science

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- **Science 7-9**-some teachers may be using the older science curriculum guides but the new outcomes in PowerSchool (been there since 2009) are fine and new direction will follow based on the Minister's Action Plan. Sections of the student and TR texts (Science and Technology 7, Science and Technology 8, Science Power 9) are outdated and may contain too much content-new guides to include digital resources, activities and investigations-stay tuned!
- To use the new SCO's -Use the 7-9 Learning Outcomes Framework found on the Educators site-log on to the EduPortal, then click on Resources then Educators Site and scroll down for Learning Outcomes Framework 7-9, then scroll down for Science.

Core Resources

- Science and Technology 7 Text / TR

- Science 7 Textbook (2012-2013)
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Gail Sinclair sent A Health & Safety Bulletin-Science Safety to all schools** / Jan 2015-please pay attention to these guidelines, in particular: Regular inspection, organization and disposal of chemicals should take place. All chemicals should have a designated location and be stored appropriately.
- Literacy Links: Science 7 and Science 8 (Draft, Nov 2005)-go to the protected site depot
- Sci-Tech Connections 7-science investigations integrating with other subject areas and stressing communication and teamwork
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- Check out the "You Be the Chemist" program for grades 5-8 through the use of the website www.youbethechemist.ca . This educational tool is designed to engage students in the science of chemistry. 32 educator-reviewed and simply structured lesson plans with detailed activity sheets for class assessments.
- A "Rocks Kit" will be sent out to all schools with a grade 4 component in March 2012. Can be shared with the Grade 7 Science teachers also.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Grade Eight Science

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- **Science 7-9**-some teachers may be using the older science curriculum guides but the new outcomes in PowerSchool (been there since 2009) are fine and new direction will follow based on the Minister's Action Plan. Sections of the student and TR texts (Science and Technology 7, Science and Technology 8, Science Power 9) are outdated and may contain too much content-new guides to include digital resources, activities and investigations-stay tuned!
- Atlantic Canada Science Curriculum: Science 8 (2001).
- To use the new SCO's -Use the 7-9 Learning Outcomes Framework found on the Educators site-log on to the EduPortal, then click on Resources then Educators Site and scroll down for Learning Outcomes Framework 7-9, then scroll down for Science.
- A fantastic resource for students and teachers from grades 8-12 is the Curiocity/curiocite. This Canadian website has action projects, relevant articles, career information and much, much more! When you log in as an educator, you get access to more information such as graphic organizers that complement a topic or theme. It is the BEST!!! Check it out at www.curiocity.ca

Core Resources

- Science and Technology 8 Text / TR
- Science 8 Textbook (2013-2014)
- Sci-Tech Connections 8-science investigations integrating with other subject areas and stressing communication and teamwork
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Gail Sinclair sent A Health & Safety Bulletin-Science Safety to all schools** / Jan 2015-please pay attention to these guidelines, in particular: Regular inspection, organization and disposal of chemicals should take place. All chemicals should have a designated location and be stored appropriately.
- English Program Services has allocated budget for the purchase of an optics package for each English board school with grade 8. The package is intended to enhance student's learning about optics and the properties of light by providing hands-on, minds-on materials and equipment to address the specific curriculum outcomes for the Optics Unit of Science 8. Approximate value is $175 per package. Schools need this equipment for students to do Science 8 optics investigations re reflection and refraction of light, and we have had many requests from teachers for this package.

Science 8: Optics Package Contents

  - 20 mirrors, plastic, 12cm x 9.5cm
  - 10 triangular prisms, 4.5cm width x 4.5 cm length x 6 cm height

- 20 circular bi-convex lenses, 4 cm diameter, polished glass, ground edges
- 20 circular bi-concave lenses, 4 cm diameter, polished glass, ground edges
- 20 convex mirrors, plastic, 10cm x 10cm
- 20 concave mirrors, plastic, 10cm x 10cm
- One ray box, 15cm x 7.5cm x 7.5cm, metal, battery operated

- Literacy Links: Science 7 and Science 8 (Draft, Nov 2005)-go to the protected site depot
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- Check out the "You Be the Chemist" program for grades 5-8 through the use of the website www.youbethechemist.ca . This educational tool is designed to engage students in the science of chemistry. 32 educator-reviewed and simply structured lesson plans with detailed activity sheets for class assessments.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Grade Nine Science

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- **Science 7-9**-some teachers may be using the older science curriculum guides but the new outcomes in PowerSchool (been there since 2009) are fine and new direction will follow based on the Minister's Action Plan. Sections of the student and TR texts (Science and Technology 7, Science and Technology 8,

Science Power 9) are outdated and may contain too much content-new guides to include digital resources, activities and investigations-stay tuned!

- The SCO's for Chemistry for **Science 9 and Science 10** will be reorganized in more doable clusters and these guides will follow based on the Minister's Action Plan. A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.
- To use the new SCO's -Use the 7-9 Learning Outcomes Framework found on the Educators site-log on to the EduPortal, then click on Resources then Educators Site and scroll down for Learning Outcomes Framework 7-9, then scroll down for Science.
- A fantastic resource for students and teachers from grades 8-12 is the Curiocity/curiocite. This Canadian website has action projects, relevant articles, career information and much, much more! When you log in as an educator, you get access to more information such as graphic organizers that complement a topic or theme. It is the BEST!!! Check it out at www.curiocity.ca

Core Resources

- Science Power 9 Text /TR
- Produce an Energy Around Us kit and resource booklet (2010-2011)
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Gail Sinclair sent A Health & Safety Bulletin-Science Safety to all schools** / Jan 2015-please pay attention to these guidelines, in particular: Regular inspection, organization and disposal of chemicals should take place. All chemicals should have a designated location and be stored appropriately.
- A Closer Look: Using Energy Meters, Science 6 and Science 9, A Curriculum Supplement (2008)
- Energy Around Us: Education for Sustainable Development and the 21st Century-check out the website at http://gov.ns.ca/energy/renewables/energyaroundus/
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Chemistry Data Booklet (2013)-includes the Periodic Table and lots of other goodies…

A reminder that investigations in science laboratories still play a very important role in student learning and that sample labs that students should do will also be in the revised Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use. Students and teachers engaged in chemistry units must follow Occupational Health and Safety (OHS), Workplace Hazardous Materials Information Systems (WHMIS), and other safety regulations and guidelines in the laboratory. Given the requirement of **spending 40% of instructional time in the laboratory**, fume hood, chemical storage/use, and safety information is essential. The

Department of Education and Early Childhood Development, in partnership with multiple partners such as Department of Labour, fire marshalls, Board Safety officers, and OHS officers, is working to consolidate issues that have been discussed on various occasions in the past and to review future requirements regarding science labs. These include OHS requirements for school board safety committees, fume hoods, fire safety planning, and updating and implementing the Science Safety Guidelines. The department has a working group to address these issues. The Department of Education and Early Childhood Development hopes to be scheduling chemistry safety workshops with school boards.

Gail Sinclair sent A Health & Safety Bulletin-Science Safety to all schools / Jan 2015- please pay attention to these guidelines, in particular: Regular inspection, organization and disposal of chemicals should take place. All chemicals should have a designated location and be stored appropriately.

A **fantastic resource** for students and teachers from **grades 8-12** is the curiocity/curiocite. This Canadian website has action projects, relevant articles, career information and much, much more! When you log in as an educator, you get access to more information such as graphic organizers that complement a topic or theme. It is the BEST!!! Check it out at www.curiocity.ca

Grade 10

Science 10 (Acad) SCI10
***** *It is strongly recommended that all students take Science 10. It is a prerequisite to more specialized study in science(s) in grades 11 and 12 such as Physics and Chemistry.*

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Atlantic Canada Science Curriculum: Science 10 (2011)- can be downloaded from the educator's site.
- Science 10: A Teaching Resource (2011), which will supplement the guide and the new Nova Scotia Science 10 textbook (2012). Contains lots of activities -can be downloaded from the educator's site.
- The SCO's for Chemistry for **Science 9 and Science 10** will be reorganized in more doable clusters and these guides will follow based on the Minister's Action Plan. A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.
- **Science 10** is a hands-on, minds-on course for all students. It is student-centered and inquiry-based, focusing on STSE and skills. Science is about doing and thinking, and there are multiple opportunities in Science 10 for students to be engaged in their learning.

Core Resources

- The new Nova Scotia Science 10 textbook (Anderson & Boeknek) to support learning in **Science 10** was distributed to schools in January 2012-excellent text. This new book replaces the old 10 year old one. The student text addresses outcomes in four units—Earth and Space Science: Weather Dynamics, Physical Science: Chemical Reactions, Physical Science: Motion, and Life Science: Sustainability of Ecosystems. Each unit in Science 10 is worth 25 per cent of the course and each unit is compulsory-non-negotiable. The SCO's are addressed with all students' learning styles in mind.
- The Nova Scotia Science 10 Teacher Resource CD-ROM was distributed to schools in March 2012. The teacher's resource offers planning information, assessment tools and techniques, curriculum correlations, teaching strategies, answers to questions in the student text, science background information, notes and support for all activities and investigations, and a focus on project-based learning.
- **Nova Scotia Science 10** CONNECT school digital resources have been moved to http://ns.connectschool.ca .The NS Science 10 CONNECT school site has been upgraded to provide better performance and access to your resources. ConnectSchool (Connect) is available to both teachers and students 24/7 through any web browser and includes full versions of the Student Text and the Teacher Resource. These resources are interactive and offer each user a wide range of tools and functionalities to support and enhance the teaching and learning of Nova Scotia Science 10. InterACTIVE tools such as teaching plans, calendars, notes, study plans, and self-assessment opportunities expand the program. In addition to the core resources, the sophistication of ConnectSchool allows McGraw-Hill Ryerson, where available, to leverage digital assets such as scientific animations and videos from its vast library to support and deepen the teaching and learning of critical concepts. Additional

support videos are available through the Media Library online resources. For further information or questions please contact Marilyn Webster at webstemL@gov.ns.ca.

- **Science 10, Passages:** Online Science 10 passages were created as a literacy project. These resources complement the Science 10 curriculum and are embedded with literacy strategies. Teachers may access these passages at http://science10.ednet.ns.ca.
- **Science 10 Collection** comprises 65 books for classroom instruction and student learning and enjoyment (i.e. Canadian Disasters) was received in Feb 2011 to further support the Science 10 curriculum. This high quality resource supports differentiation of instruction in Science 10 and is intended to engage diverse learners. Each resource has been selected to address curriculum outcomes in Science 10. The straightforward text of the non-fiction titles delivers clear and fascinating information that invites readers to learn about Earth—its fiercest disasters, the impact of global warming, its weather and climate, its energy sources, and much more. Some books include explanatory diagrams, charts, and graphs that support understanding of science concepts. The rich, naturalistic, full-color photographs of the picture books combine with informative text engages students to experience all the wonders of the living, breathing world of science around us.
- Other resources will be put together on a Department Moodle in the future
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Acceptable Chemicals** for chemistry Laboratories (Draft 2015) was sent to schools on August 31, 2015. This list was based on the Science Safety Guidelines (2005) and research to include chemicals relevant to particular grade levels.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Chemistry Data Booklet (2014)-includes the Periodic Table and lots of other goodies… This is useful for all students for everyday work and assessments-every student should have a booklet

Grade 11

Agriculture / Agrifood 11 (Acad) AGRICC11

Recommended Prerequisite: Successful completion of Science 10

Provincial Guide

- Agriculture / Agrifood 11 (Draft 2000)
- **Agriculture/AgriFood 11 is an older curriculum guide (Draft 2000)-** plan is to develop specific learning experiences with new curriculum guide to follow shortly afterwards.
- Meets the second science credit requirement for graduation

Core Resources

- Check out the School Food Garden Moodle under Sciences. Contact Mark for the enrollment key.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Check out the Nova Scotia Department of Agriculture's THINKFARM Project. THINKFARM helps attract new people to careers in agriculture and supports beginning and transitioning farmers. The average age of farmers in NS is 57. The province must attract new people into farming to maintain and increase our current levels of production, as well as to contribute to good jobs and economic growth. Check out the website at **www.gov.ns.ca/thinkfarm .** NGRHS is offering the Agiculture/Agrifoods 11 course.

Advanced Biology 11 (Adv) BIOL11AD
Recommended Prerequisite: Successful completion of Science 10. Students in Advanced Biology 11 are expected to meet all the outcomes in Biology 11. The depth of treatment is the major distinction. It is mandatory for students to complete a significant independent research project, which relies, for the most part, upon experimental investigations.

Provincial Guide

- Atlantic Canada Science Curriculum: Biology 11(Implementation Draft June 2000)-an Advanced Biology guide may be part of the Minister's Action Plan.
- **Biology 11 and 12 (academic and advanced)** Updated outcomes for Biology 11 and 12, including Advanced Biology 11 are in PowerSchool. New curriculum guides are planned-stay tuned. Advanced Biology 11 will see the addition of outcomes, focusing on a literature search, a research project and in-depth treatment of topics.

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Biology 11 (Acad) BIOL11
Recommended Prerequisite: Successful completion of Science 10

Provincial Guide

- Atlantic Canada Science Curriculum: Biology 11 (Implementation Draft June 2000).
- **Biology 11 and 12 (academic and advanced)** Updated outcomes for Biology 11 and 12, including Advanced Biology 11 are in PowerSchool. New curriculum guides are planned-stay tuned.

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Advanced Chemistry 11 (Acad) CHE11AD
Recommended Prerequisite: Successful completion of Science 10 and Mathematics 10. Students in Advanced Chemistry 11 are expected to meet all the outcomes Chemistry 11. The depth of treatment is the major distinction. The three units of In-depth Treatment, Literature Search and Report, and Investigation of a Physical Concept are also required.

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Advanced Chemistry 11 and Advanced Chemistry 12 (Draft 2011). This guide is a supplement to the Atlantic Canada Science Curriculum: Chemistry 11 and Chemistry 12 Guide (2010)
- **Chemistry 11 and 12 (academic and advanced)**-work continues on a refresh to the curriculum guides with digital resources, activities and learning investigations and how chemistry labs are to look and be safe for all-stay tuned. The units will remain the same but outcomes will be clustered in a more efficient way.
- A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.

Core Resources

- Chemistry 11 and Chemistry 12: A Teaching Resource- will follow based on the Minister's Action Plan.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Acceptable Chemicals** for chemistry Laboratories (Draft 2015) was sent to schools on August 31, 2015. This list was based on the Science Safety Guidelines (2005) and research to include chemicals relevant to particular grade levels.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Chemistry Data Booklet (2014)-includes the Periodic Table and lots of other goodies… This is useful for all students for everyday work and assessments-every student should have a booklet

Chemistry 11 (Acad) CHE11
Recommended Prerequisite: Successful completion of Science 10

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Atlantic Canada Science Curriculum: Chemistry 11 and Chemistry 12 (2011)
- **Chemistry 11 and 12 (academic and advanced)**-work continues on a refresh to the curriculum guides with digital resources, activities and learning investigations and how chemistry labs are to look and be safe for all-stay tuned. The units will remain the same but outcomes will be clustered in a more efficient way.

- A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.

Core Resources

- Chemistry 11 and Chemistry 12: A Teaching Resource- will follow based on the Minister's Action Plan.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Acceptable Chemicals** for chemistry Laboratories (Draft 2015) was sent to schools on August 31, 2015. This list was based on the Science Safety Guidelines (2005) and research to include chemicals relevant to particular grade levels.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Chemistry Data Booklet (2014)-includes the Periodic Table and lots of other goodies… This is useful for all students for everyday work and assessments- every student should have a booklet

Forestry Management 11 (Open) FORMAN11

Provincial Guide

- An Approved Local Course –last re-written in CCRSB

Core Resources

- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Human Biology 11 (Grad) BIOHUM11

The Approved Local Courses, **Human Biology 11 and Human Biology 11 IPP** are due to expire as of July 2016 but **have been extended** for the 2016-2017 school year. The DoE are cleaning up some of the many ALC's that exist and their aim is that the current and future PSP courses should suffice.

Provincial Guide

- An Approved Local Course –last re-written in March 2009 / HRSB. Workshop at the DOE on Feb 10-11, 2011 to revise the curriculum.

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Oceans 11 (Acad) OCNS11Y11 (new) & OCNS11 (old)

Provincial Guide

- Oceans 11 (2011)
- Meets the second science credit requirement for graduation

Core Resources

- Oceans 11: A Teaching Resource Volume 1 and Volume 2 (supplement to the guide)-2011.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Advanced Physics 11 (Adv) PHY11AD

Prerequisites: Successful completion of Science 10 and Mathematics 10. Students in Advanced Physics 11 are expected to meet all the outcomes Physics 11. The depth of treatment is the major distinction. Students are required to do Literature Search and Report as well as Investigation: An Independent Study / Experiment.

Provincial Guide

- Advanced Physics 11 and Advanced Physics 12 (2011). This guide is a supplement to the Atlantic Canada Science Curriculum: Physics 11 and Physics 12 guide (2002).

Core Resources

- Physics 11 and Physics 12: A Teaching Resource (2005).
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Physics 11 (Acad) PHY11

Prerequisites: Successful completion of Science 10 and Mathematics 10

Provincial Guide

- Atlantic Canada Science Curriculum: Physics 11 and Physics 12 (2002)

Core Resources

- Physics 11 and Physics 12: A Teaching Resource (2005).
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Grade 12

Advanced Biology 12 (Adv) BIOL12AD

Recommended Prerequisite: Successful completion of Biology 11 or Advanced. Biology 11. Although Advanced Biology 12 is a logical follow-up to Advanced Biology 11, the latter is not considered a prerequisite. The core and optional topics for Advanced Biology 12 are the same as those for Biology 12. It is mandatory for students to complete a significant independent research project, which relies, for the most part, upon experimental investigations.

Provincial Guide

- Atlantic Canada Science Curriculum: Biology 12 (Implementation Draft June 2001).
- **Biology 11 and 12 (academic and advanced)** Updated outcomes for Biology 11 and 12, including Advanced Biology 11 are in PowerSchool. New curriculum guides are planned-stay tuned. Advanced Biology 12 will see the addition of outcomes, focusing on a literature search, a research project and in-depth treatment of topics.

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Biology 12 (Acad) BIOL12
Recommended Prerequisite: Successful completion of Biology 11

Provincial Guide

- Atlantic Canada Science Curriculum: Biology 11 and Biology 12 (2003)
- **Biology 11 and 12 (academic and advanced)** Updated outcomes for Biology 11 and 12, including Advanced Biology 11 are in PowerSchool. New curriculum guides are planned-stay tuned.

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Advanced Chemistry 12 (Acad) CHE12A
Recommended Prerequisite: Successful completion of Chemistry 11 or Advanced Chemistry 11 and Advanced Mathematics 11. Students in Advanced Chemistry 12 are expected to meet all the outcomes Chemistry 12. The depth of treatment is the major distinction. The three units of In-depth Treatment, Literature Search and Report, and Investigation of a Physical Concept are also required.

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what

chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Advanced Chemistry 11 and Advanced Chemistry 12 (Draft 2011). This guide is a supplement to the Atlantic Canada Science Curriculum: Chemistry 11 and Chemistry 12 guide (2010).
- **Chemistry 11 and 12 (academic and advanced)**-work continues on a refresh to the curriculum guides with digital resources, activities and learning investigations and how chemistry labs are to look and be safe for all-stay tuned. The units will remain the same but outcomes will be clustered in a more efficient way.
- A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.

Core Resources

- Chemistry 11 and Chemistry 12: A Teaching Resource- will follow based on the Minister's Action Plan.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Acceptable Chemicals** for chemistry Laboratories (Draft 2015) was sent to schools on August 31, 2015. This list was based on the Science Safety Guidelines (2005) and research to include chemicals relevant to particular grade levels.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- Chemistry Data Booklet (2014)-includes the Periodic Table and lots of other goodies… This is useful for all students for everyday work and assessments-every student should have a booklet

Chemistry 12 (Acad) CHE12
Recommended Prerequisite: Successful completion of Chemistry 11

Our board is looking at moving forward with implementing the **Acceptable Chemicals for Chemistry Laboratories list** (Draft-July 2015) sent to schools in June 2016) in what chemicals should be in Science 5, 7-8, 9-10 and Chemistry 11-12 classrooms-we first want to get feedback from our teachers before moving forward and hope to meet with teachers in early September 2016.

We would also like to propose and discuss a centralized purchasing process to follow the Acceptable Chemicals List (important to note this would not be an exclusive list - if a teacher needed to purchase a chemical not on the list, it could also be approved. As well, the list may go through revisions over time as we determine if there are chemicals not on the list that should be).

The benefits of this change include:

- meeting the Fire Marshall requirement for logging chemicals used in a fume hood
- better control of required Material Safety Data Sheets
- prevention of inappropriate or excessive quantity of chemicals stored in labs
- reduction in costs by purchasing in larger quantities and getting best prices

Provincial Guide

- Atlantic Canada Science Curriculum: Chemistry 11 and Chemistry 12 (2011).
- **Chemistry 11 and 12 (academic and advanced)**-work continues on a refresh to the curriculum guides with digital resources, activities and learning investigations and how chemistry labs are to look and be safe for all-stay tuned. The units will remain the same but outcomes will be clustered in a more efficient way.
- A reminder that labs in science still play a very important role in student learning and that sample labs that students should do will also be in the new Chemistry guides. It is vital that our labs are safe and contain appropriate materials / chemicals that are safe for use.

Core Resources

- Chemistry 11 and Chemistry 12: A Teaching Resource- will follow based on the Minister's Action Plan.
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- **Acceptable Chemicals** for chemistry Laboratories (Draft 2015) was sent to schools on August 31, 2015. This list was based on the Science Safety Guidelines (2005) and research to include chemicals relevant to particular grade levels.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

- Chemistry Data Booklet (2014)-includes the Periodic Table and lots of other goodies… This is useful for all students for everyday work and assessments- every student should have a booklet

Food Science 12 (Academic/Science) FDSCI12

Provincial Guide

- Food Science 12 (Implementation Draft 2003)
- Meets the second science credit requirement for graduation

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Geology 12 (Acad) GEOL12
Replaces Canadian Geology 12 and Earth Science 12

Provincial Guide

- Geology 12 (Implementation Draft 2002)
- Meets the second science credit requirement for graduation

Core Resources

- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)

Advanced Physics 12 (Adv) PHYS12AD
Prerequisites: Successful completion of Physics 11 or Advanced Physics 11; Mathematics 11 or Advanced Mathematics 11. Students in Advanced Physics 12 are expected to meet all the outcomes Physics 12. The depth of treatment is the major distinction. Students are required to do Literature Search and Report as well as Investigation: An Independent Study / Experiment.

Provincial Guide

- Advanced Physics 11 and Advanced Physics 12 (2011). This guide is a supplement to the Atlantic Canada Science Curriculum: Physics 11 and Physics 12 guide (2002)

Core Resources

- Physics 11 and Physics 12: A Teaching Resource (2005).
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety

guidelines for laboratories. Teachers should refer to this when planning their investigations.

- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- DOE Examination sample questions (rec'd Jan 2011 and June 2011). The Department of Education provided schools with examination questions from their physics item bank. The questions have been put in booklet form so that teachers may use the booklet in whole as the final examination or in part to create their own examination for January and June 2011.

Physics 12 (Acad) PHY12

Prerequisites: Successful completion of Physics 11 or Advanced Physics 11

Provincial Guide

- Atlantic Canada Science Curriculum: Physics 11 and Physics 12 (2002)

Core Resources

- Physics 11 and Physics 12: A Teaching Resource (2005).
- Science Safety Guidelines Grades P-12 (2005). The **Science Safety Guidelines** gives clear information about chemical, MSDS, and general safety guidelines for laboratories. Teachers should refer to this when planning their investigations.
- A Closer Look: Doing Project-Based Science. Grades P-12 (2013)
- DOE Examination sample questions (rec'd Jan 2011 and June 2011). The Department of Education provided schools with examination questions from their physics item bank. The questions have been put in booklet form so that teachers may use the booklet in whole as the final examination or in part to create their own examination for January and June 2011.