



**SOUTH SHORE REGIONAL SCHOOL BOARD  
CURRICULUM UPDATES AND CONTACT INFORMATION  
Last updated: June 29<sup>th</sup>, 2017**

## SCIENCE

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### Contacts

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### Curriculum Guides

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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](http://www.ssrsb.ca) or contact Mark MacLeod at [mmacleod@ssrsb.ca](mailto: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

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-  **Approved Local Courses.** It has been confirmed with PowerSchool staff that all locally developed courses that were approved for the 2016/2017 school year are automatically approved for 2017/2018 unless the board has requested a course be discontinued, which we haven't. Some courses (Psychology 12 for example) still have the Expiry Date as June 2017 in Power School and principals are seeing this and thinking they are not available. A ticket was sent to have those Expiry dates removed and replaced with June 2018.
-  **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](mailto: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](http://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 Curiosity/curiocyte. 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.curiosity.ca](http://www.curiosity.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](http://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](mailto: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**

<http://brainwar.ca>  
[www.virtualsciencefair.ca](http://www.virtualsciencefair.ca)

<http://www.ccpo-occp.ca/index.html>

[www.explorecuriosity.org/](http://www.explorecuriosity.org/)

#### **Annual Science Contests**

Brain War  
Canada Wide Virtual Science Fair (P-12)  
Canadian Chemistry Olympiad (10-12)  
Curiosity

<a href="http://www.discoverycentre.ns.ca/learn/teacher-zone">http://www.discoverycentre.ns.ca/learn/teacher-zone</a>	Discovery Centre Reel Science
<a href="http://www.envirothon.org">www.envirothon.org</a>	Envirothon
<a href="http://www.nsc.ca/explorensc/events/lego.asp">http://www.nsc.ca/explorensc/events/lego.asp</a>	First Lego League (4-9)
<a href="http://www.letstalkscience.ca">www.letstalkscience.ca</a>	Let's Talk Science Challenge (6-8)
<a href="https://dvl.ednet.ns.ca/science-olympics">https://dvl.ednet.ns.ca/science-olympics</a>	Nova Scotia Invitational Science Olympics (4-6)
<a href="http://www.nsfa.ca">www.nsfa.ca</a>	Nova Scotia Provincial Envirothon (10-12)
<a href="http://robots.acadiau.ca/hrc/index.php">http://robots.acadiau.ca/hrc/index.php</a>	Nova Scotia Youth Experiences In Science Team
<a href="http://www.sciencefairinfo.ns.ca">www.sciencefairinfo.ns.ca</a>	Nova Scotia Show case (7-12)
<a href="http://robots.acadiau.ca/hrc/index.php">http://robots.acadiau.ca/hrc/index.php</a>	Regional Science Fairs
<a href="http://www.greenschools.ca">www.greenschools.ca</a>	Robofest (10-12)
	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.

✚ All **fume hoods** must meet fire codes and CSA standards. Gail Sinclair and operations will be in touch with schools in September 2017 to locate the science fume hoods in your school and which ones are being used?

Inspection: Each fume hood will need an initial inspection by an outside group (Siemens is already familiar with these requirements but we may need to tender the work depending on how many hoods need initial inspection). This outside agency inspection will then need to be conducted every 5 years. After the initial inspection, the fume hood will need to be inspected by a qualified person every 6 months (similar to the dust collectors – a description of this semi-annual inspection is in the **attached documents**) and there are also yearly inspection items. The 6 month and yearly inspections are ideally conducted by someone internal to the board (perhaps the same person who inspects the dust collectors?) but it will depend on the expertise available – please see the **attached documents** for more information.

Training: All teachers who use the fume hood will need to be trained on its safe use. It is suggested that this be done using a ‘train-the-trainer’ model. **Attached** here is a PowerPoint that has been used for teacher training. An online training module through Scenario Learning is also being created and more information about this will come from the Safe Schools team.

Documentation: The attached documents should be kept in a binder with tabs for the various sections. This binder should be kept near the fume hood. Inspection

reports can be added to the binder as inspections are conducted. A short, visual inspection of the fume hood should be carried out by a teacher and recorded weekly on the appropriate sheets in the binder (this is a general scan of the overall working order of the hood and would be part of normal fume hood use). If the hood was not used in a certain week, that should also be noted by the teacher. Once finalized, the approved chemical list will replace the section of the binder that requires the teacher to record each chemical after each use. On a yearly basis (ie September), teachers who use the fume hood will need to sign the appropriate page in the binder to indicate that they are familiar with safe fume hood operation. All of this documentation is required by CSA standards and adherence is verified by the fire marshal. In some boards, Operations have done much of this work. In other boards, the work has been more collaborative between OHS and Programs.

- ✚ **Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

- ✚ 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](#)

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### [Grade Eleven](#)

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[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**

**Update on the P-3 Streamlined Curriculum:** Skills and concepts have been updated for P-3 and curriculum guides rejigged and aligned to match the revised SCO's. Teachers wanted better P-3 guides that integrated the subjects, rubrics, etc. The DoE is looking to work with teachers to use/pilot these resources from Sept 2017-June 2018 and gather feedback NGES may be taking part.

**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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition 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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition 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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition 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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition Downlink Event), Sciencosaur 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](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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition Downlink Event), Sciencosaur 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>

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses.** This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the

list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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](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 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition 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](http://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/nsp/nsp26/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 1 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: Using Energy Meters, Science 6 and Science 9, A Curriculum Supplement (2008)
- Energy Around Us: Education for Sustainable Development and the 21<sup>st</sup> 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 4<sup>th</sup>, 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 Expedition 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.

**Update on the Grades 7-8 Curriculum review:** Start date is projected to be October 2017. Will likely start with ELA and Social Studies and will be done over a 2-year period-lesson learned from P-3 and 4-6 rush job!! Curriculum for 7-8 is in great need of revision and change-stay tuned!!

## **Grade Seven Science**

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to

finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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**

- The text, Science Power 9, is now out of print-the course Science 9 will change with the new curriculum review. There is no Science Curriculum guide for Grade 9 so this is why the demand for texts may have been so great. The Grade 7-8 Science text is a little better, Science and Technology, but still not super. No guides for 7-8 Science either so lots of work to do in this area with the new 7-9 Curriculum revision-stay tuned!!! **From the SSRSB Curriculum Site:** 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 21<sup>st</sup> 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](http://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**

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine’s hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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).

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- 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**

- The text, Science Power 9, is now out of print-the course Science 9 will change with the new curriculum review. There is no Science Curriculum guide for Grade 9 so this is why the demand for texts may have been so great. The Grade 7-8 Science text is a little better, Science and Technology, but still not super. No guides for 7-8 Science either so lots of work to do in this area with the new 7-9 Curriculum revision-stay tuned!!! **From the SSRSB Curriculum Site:** 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 Curiosity/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.curiosity.ca](http://www.curiosity.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 21<sup>st</sup> 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](http://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

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly

**reduce the permissible chemicals for senior high science courses.** This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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**

- The text, Science Power 9, is now out of print-the course Science 9 will change with the new curriculum review. There is no Science Curriculum guide for Grade 9 so this is why the demand for texts may have been so great. The Grade 7-8 Science text is a little better, Science and Technology, but still not super. No guides for 7-8 Science either so lots of work to do in this area with the new 7-9 Curriculum revision-stay tuned!!! **From the SSRSB Curriculum Site:** 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 Curiosity/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.curiosity.ca](http://www.curiosity.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 21<sup>st</sup> 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 **curiosity/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.curiosity.ca](http://www.curiosity.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.*

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

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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.

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### **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](mailto: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](http://www.gov.ns.ca/thinkfarm) . NGRHS is offering the Agriculture/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.*

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in [September 2017](#) and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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*

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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. It has been confirmed with PowerSchool staff that all locally developed courses that were approved for the 2016/2017 school year are automatically approved for 2017/2018 unless the board has requested a course be discontinued, which we haven't. Some courses (Psychology 12 for example) still have the Expiry Date as June 2017 in Power School and principals are seeing this and thinking they are not available. A ticket was sent to have those Expiry dates removed and replaced with June 2018.

#### **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.

**Approved Local Courses.** It has been confirmed with PowerSchool staff that all locally developed courses that were approved for the 2016/2017 school year are automatically approved for 2017/2018 unless the board has requested a course be discontinued, which we haven't. Some courses (Psychology 12 for example) still have the Expiry Date as June 2017 in Power School and principals are seeing this and thinking they are not available. A ticket was sent to have those Expiry dates removed and replaced with June 2018.

#### **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.*

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in **September 2017** and Christine (DoE) is hoping to finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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).

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- 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*

**Acceptable Chemicals for Nova Scotia Laboratories** Within the EECD Science Safety Guidelines there is draft addendum of Acceptable Chemicals, which will significantly **reduce the permissible chemicals for senior high science courses**. This will include a protocol for teachers to seek approval for other chemicals not on the list. This list is expected to be approved officially in [September 2017](#) and Christine (DoE) is hoping to

finalize the list soon so **LAST CHANCE** for final feedback from teachers (via the Google Doc) by the end of June 2017. The link to the Google Doc Draft Chemical list is: <https://goo.gl/Lewvde>

The next step will be to assess the feedback to see how the list may be amended to best suit the needs of the lab programs and our desire for safety. It is Christine's hope that the list will be finalized for use next school year with the understanding that it will take some time to cull and dispose of chemicals that are not approved. Clean-up will be coordinated by Operations (Gail Sinclair), DoE (Christine) and our Science teachers.

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.