

# **Science 21 Resource Package**

## **Introduction**

## Introduction

The purpose of this course outline is to provide school divisions with a common framework to support the instruction of students enrolled in Science 21. School divisions may use this course outline after submitting Form M-1 and receiving approval from the Ministry of Education.

Most of the objectives for Science 21 have been chosen from Biology 20, Chemistry 20, and Physics 20. This course outline was designed to be used with students who: 1) receive credit for Science 21 while in the same classroom as students who receive credit for other secondary science courses, or 2) students who are enrolled in a classroom that consists solely of modified students (Science 11, Science 11/21, or Science 11/21/31).

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## Locally Modified Courses

A Locally Modified Basic Course of Study is defined as a course where the Ministry of Education determines 50% of the objectives from the provincial curricula, in this case from Biology 20, Chemistry 20, and Physics 20. The remaining 50% of the course is determined by the school division.

The 50% of the objectives determined by the school division may be addressed in a variety of ways. For example, teachers may choose to spend more time addressing learning objectives from previous grades or developing students' skills to prepare them to attain the objectives of the Science 21 course. Depending on the individual students, as well as the class, the 50% locally determined content could be developed by using additional learning objectives found in the Biology 20, Chemistry 20, or Physics 20 curricula.

## Using this Course Outline

The course will consist of three units selected from the following four units of study:

1. Biology (Human Body Systems)
2. Chemistry (Our Liquid World – A Focus on Water)
3. Physics (Waves and Optics in Everyday Life)
4. A unit of study determined by local interest and selected by the teacher and the student.

This course outline for Science 21 includes an introduction and three units. The teacher may use the three units selected from this course, or any two of these units along with a locally determined unit of study. Each unit consists of a series of suggested lessons that are designed to meet the foundational objectives for the unit. Each lesson contains the learning objectives covered in the lesson, an overview of the lesson, a list of instructional documents that are included within the unit, and a list of supporting resources. The supporting resources may include reading materials to support the lesson or additional lesson ideas and activities that meet the objectives that are outlined for the lesson.

The units within this course outline are not intended as a complete Science 21 course. Teachers should integrate some of the suggested lessons within their own unit plans and modify the suggested lessons to meet the diverse needs of their students. Some of the objectives are addressed in more than one of the suggested lessons within a unit; therefore, not all of the suggested lessons need to be used. Teachers may request an electronic version of this course outline from their school division office so that they can modify the instructional documents to meet diverse needs.

## **Who is the Science 21 Student?**

The Science 21 (Basic) course is intended for students who have moderate to severe learning difficulties. Academically, Science 21 students operate one or more grade levels behind their chronological peers. These students often have difficulty with skills such as reading comprehension, information gathering and processing, making connections, and organizing and completing assignments. These students often experience the most success through concrete learning and real-life applications.

If a student is being considered for a Science 21 course, or any other modified course of study, the student and the parents/caregivers of the student must be consulted prior to the enrolment of the student in a Locally Modified Course of Study. Consult *Policy and Procedure for Locally Modified Courses of Study* (Saskatchewan Learning, 2007) for further information.

## **General Suggestions for Teaching Science 21**

Students in Science 21 courses may be capable of completing the same activities as students in Biology 20, Chemistry 20, or Physics 20, but may require appropriate adaptations to meet individual learning needs. For example, students may need additional time to complete a particular activity, may require more guidance while performing the activity, and/or may require additional assistance with reading through a lab and interpreting the procedure to carry out the steps of the investigation.

Students in modified courses, such as Science 21, often experience success with assignments when they are given some guidance, or a template with which to work. For example, doing a complete lab write-up beginning with a blank sheet of paper may be too much of a challenge. However, if a student is given a partial lab write-up and required to fill in information as they carry out the investigation, they will likely experience more success with the task. Note that throughout each of the units in this course outline teachers will find some lessons where the instructional documents (Student Handout) are designed this way. Teachers may also want to look at incorporating additional lessons structured in the same manner.

Incorporating educational videos into lessons may facilitate the learning of some concepts in any course. Teachers need to pay attention to student learning styles when using video, particularly in a modified course. Some suggestions for use of video would be to watch the video in short clips, as well as provide the students with sufficient guidance (including handouts) to assist them with gathering important information from the video.

## **Scheduling Science 21**

In the past, Science 21 students have often been scheduled into Biology 20 classes, which resulted in a greater emphasis on Biology than on Chemistry or Physics. Because this course is a modified science course with units selected from each of the three sciences, it may be appropriate for the student to be scheduled with any of the Biology, Chemistry or Physics classes. Alternatively, the student could work on a flexible schedule to be able to join any of the science classes when the unit of study is the same as the unit of study in the modified course.

## Resources

Many of the lessons in the units of study which are part of this course already contain the resources, outlines, hand-outs and activities for students. Teachers can use these resources as provided, or adapt them to meet the needs of the students.

For additional support, some of the resources used in Biology 20, Chemistry 20 or Physics 20 could also be used in Science 21. The teacher may need to adapt and modify these resources to meet the diverse needs of the students.

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