
Introduction

In 1999–2000, the Ministry of Education published a new curriculum for Ontario secondary school students. This curriculum is more specific than previous curricula with respect to both the knowledge and the skills that students are expected to develop and demonstrate in each grade. In the curriculum policy document for each discipline, teachers are provided with the curriculum expectations for each course within the discipline and an achievement chart that describes four levels of student achievement to be used in assessing and evaluating student work. Assessment and evaluation are based on the provincial curriculum expectations and the achievement levels outlined in the curriculum policy documents.

The ministry provides a variety of materials to assist teachers in improving their assessment methods and strategies and, hence, their assessment of student achievement. The present document is one of the resources intended to provide assistance to teachers in their assessment of student achievement. It presents samples (“exemplars”) of student work that was done in response to specific tasks in three Grade 12 science courses, one each in biology, chemistry, and physics. The samples represent work at each of the four levels of achievement.

Teams of subject specialists from across the province developed the assessment materials for the Grade 12 exemplar project. They designed the tasks and scoring scales (“rubrics”) on the basis of selected Ontario curriculum expectations, and developed the teacher instructions. They field-tested the tasks in classrooms across the province. They then revised the tasks, rubrics, and instructions, using information gathered from the field-tests as well as suggestions for improvement from subject validation sessions. After the final administration of the tasks took place, a team of teachers for each subject scored the student work and chose samples of work that exemplified three degrees of achievement within each of the four levels of achievement.

The selection of student samples that appears in this document reflects the professional judgement of teachers who participated in the exemplar project. No students, teachers, or schools have been identified.

The tasks, rubrics, and teacher’s notes and comments developed for this exemplar document can serve as a model for boards, schools, and teachers in designing assessment tasks within the context of regular classroom work, developing rubrics, assessing the achievement of their own students, and planning for the improvement of students’ learning.

The samples in this document will provide parents¹ with examples of student work to help them monitor their children's progress. They also can provide a basis for discussions regarding student achievement and progress between teachers and parents and between teachers and students.

It should be noted that staff members of the Ministry of Education, with the assistance of teachers across the province, have endeavoured to ensure that the samples of student work in this document are original pieces and are not plagiarized from any source. However, the ministry and its staff assume no liability should any piece of work in this document be shown not to be original either in whole or in part.

Purpose of This Document

This document was developed to:

- show the characteristics of student work at each of the four levels of achievement for Grade 12;
- promote greater consistency in the assessment of student work across the province;
- provide an approach to improving student learning by demonstrating the use of clear criteria applied to student work in response to a clearly defined assessment task;
- show the connections between what students are expected to learn (the curriculum expectations) and how their work can be assessed using the levels of achievement described in the curriculum policy document for the subject.

The samples in this document represent examples of student achievement obtained using only one method of assessment, called performance assessment. Teachers will also make use of a variety of other assessment strategies – such as tests, portfolios, and conferences – in evaluating student achievement in a course over a term or school year.

Features of This Document

This document contains the following, for each of the three Grade 12 science courses:

- a description of the performance task and of the final product that was handed in to the teacher for submission to the ministry
- the curriculum expectations related to the task
- the task-specific assessment chart, or rubric
- three samples of student work for each of the four levels of achievement (e.g., for level 3, samples illustrating a “low” level-3, a “solid” level-3, and a “high” level-3 performance)
- Teacher's Notes for each sample, which indicate why the sample is assessed at a particular level for each criterion outlined in the four categories of knowledge and skills (i.e., Knowledge/Understanding, Inquiry, Communication, and Making Connections)
- Comments, which provide overall statements about the student's work

1. In this document, *parent(s)* refers to parent(s) and guardian(s).

- Next Steps, which offer suggestions for improving performance
- the Teacher Package that was used by teachers in administering the task

This document does not include any student samples that were assessed using the rubric and judged to be below level 1. However, a list of characteristics of student work assessed at “below level 1” is provided, and precedes the student samples. The characteristics of these students’ work should be reviewed in relation to the criteria outlined in the rubric. Teachers are expected to work with students whose achievement is below level 1, as well as with their parents, to help the students improve their performance.

The Tasks

The performance tasks for science were based directly on curriculum expectations selected from three Grade 12 courses outlined in the curriculum policy document for science. These courses are Biology (University Preparation), Chemistry (College Preparation), and Physics (University Preparation). The tasks encompassed the four categories of knowledge and skills (i.e., Knowledge/Understanding, Inquiry, Communication, and Making Connections), requiring students to integrate their knowledge and skills in meaningful learning experiences. The tasks also gave students an opportunity to demonstrate how well they could apply the knowledge and skills they had acquired in the course in a new context.

The Rubrics

In this document, the term *rubric* refers to a scoring scale used to assess student work that is done in response to a specific task. Task rubrics are developed in relation to the achievement chart in the curriculum policy document.

The task rubrics consist of a set of achievement criteria related to the four categories of knowledge and skills, as well as descriptions of the levels of achievement for each of the criteria. The rubrics contain the following components:

- an identification (by number) of the expectations on which student achievement in the task was assessed
- the four categories of knowledge and skills
- the relevant criteria for evaluating performance of the task
- descriptions of student performance at the four levels of achievement (level 3 on the achievement chart in the curriculum policy document is considered to be the provincial standard)

The teachers who administered the tasks for this exemplar project were required to explain the scoring criteria and descriptions of the levels of achievement (i.e., the information in the task rubric) to the students before they began the task.

Use of the Student Samples

Teachers and Administrators

The samples of student work included in this document will assist teachers and administrators by:

- providing student samples and criteria for assessment that will assist them in helping students improve their achievement;
- providing a basis for conversations among teachers, parents, and students about the criteria used for assessment and evaluation of student achievement;
- facilitating discussions regarding the curriculum expectations, levels of achievement for the course, and the criteria and standards for high-quality performance;
- promoting fair and consistent assessment within subjects and courses.

Teachers may choose to:

- use the task, rubric, and teaching/learning activities in this document with their classes;
- use the samples of student work at each level as reference points when assessing student work;
- use the task and rubric provided as models for other tasks and rubrics, to be developed independently or in collaboration with colleagues in the same school and/or in other schools.

Administrators may choose to:

- encourage and facilitate teacher collaboration regarding standards and assessment;
- provide training to ensure that teachers understand the role of the exemplars in assessment, evaluation, and reporting;
- establish an external reference point for schools in planning student programs and for school improvement.

Parents

Parents may wish to use the samples of student work as a source of information to help their children monitor their achievement and improve their performance. They may also use the exemplars as a basis for discussing their children's progress with their teachers.

Students

Students can use the document to:

- develop their understanding of the relationship between curriculum expectations and specific tasks;
- learn how a rubric can be used to improve their performance on a task;
- develop the ability to discuss their achievement with their teachers and parents more effectively, and to ask more focused questions about their progress;
- learn how to better assess their own performance and identify the steps needed to improve their performance.