Assessment

Math Toolkit Masters

Study Toolkit Masters

Assessment Checklists and Rubric Blackline Masters

Assessment Checklists

Assessment Process Skills Rubrics

Assessment Rubrics

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BLM A-38 Science Notebook Rubric
BLM A-39 Co-operative Group Work Rubric
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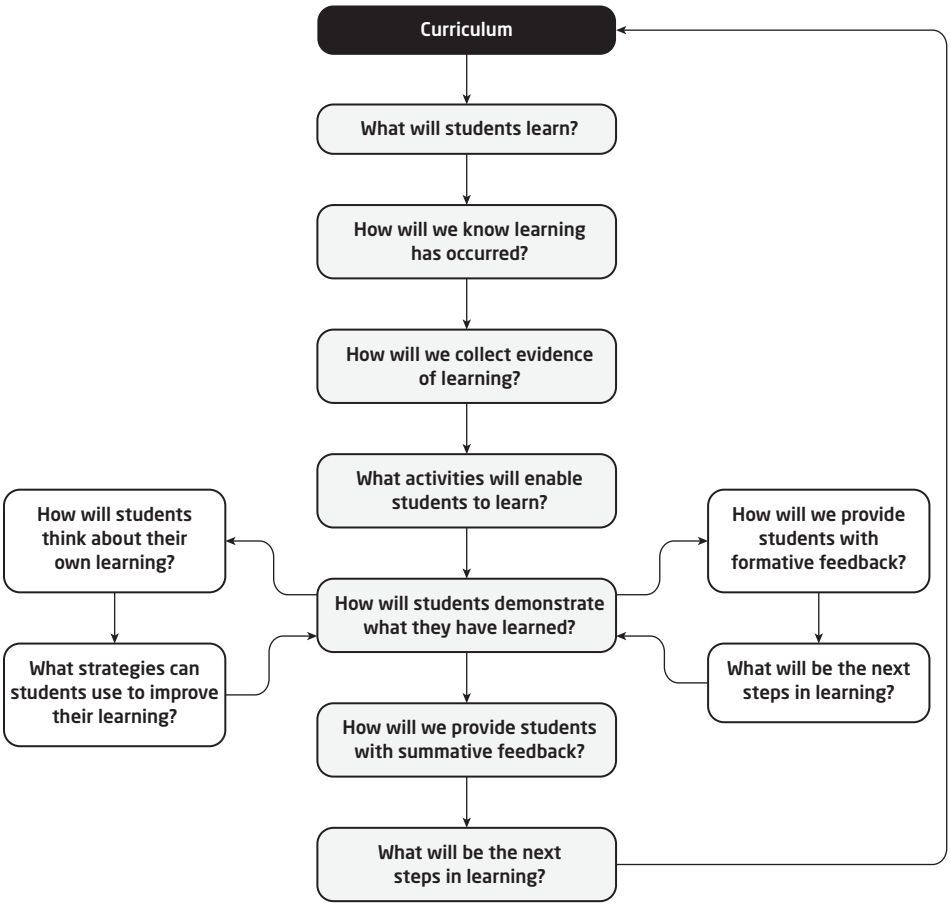
Assessment

Introduction

To teach effectively in this current assessment culture it is essential to understand and embrace the paradigm shift in assessment and evaluation. Assessment and evaluation is the process of collecting, analyzing, interpreting and reporting information to improve student learning. Evaluation refers to the process of judging the quality of student work on the basis of established criteria, and assigning a value to represent that quality. Assessment serves a number of general purposes: ***diagnosis*** of students' learning (ability, attributes or achievement) and ***formative assessment***, the continuous process of gathering information on student progress to inform teaching and learning. Assessment is the process of gathering evidence from a variety of sources (including observations, conversations and products) that accurately reflects how well a student is achieving the curriculum expectations in a course. As part of assessment, teachers provide students with descriptive feedback that guides their efforts towards improvement.

Conceptual Framework



How to Use This Section

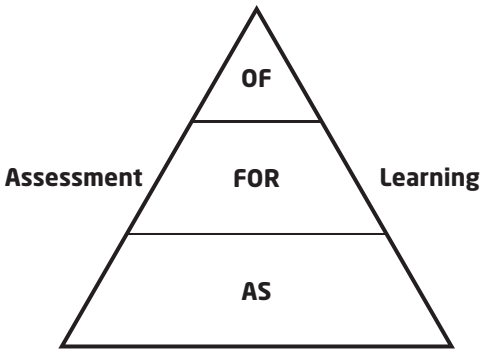
This section is a resource to which you can refer for a guide to a variety of assessment and evaluation strategies and tools, photocopy-ready assessment masters, and ideas about how to record assessment data. This section:

- Discusses the different types of assessment and their purposes
- Describes the principles and practices of assessment for learning (AFL)
- Provides suggestions for recording assessment data and for consolidating data to provide information for reporting purposes

Assessment FOR Learning, Assessment As Learning, and Assessment OF Learning

Assessment works best when its purpose is clear and when it is carefully designed to fit that purpose. There are three different purposes of assessment:

1. Assessment for learning
2. Assessment as learning
3. Assessment of learning



A different kind of balance in our assessment practice … emphasizes assessment for and as learning. In this scenario, assessment of learning has a role to play when decisions must be made that require summative judgments, or when teachers and students want to see the cumulative effect of their work, but this role is relatively small. The major focus is on classroom assessment that contributes to student learning, by the teacher (for learning) and by the student (as learning).
(From, Earl, Lorna (2003) Assessment as Learning: Using Classroom Assessment to Maximize Student Learning. Thousand Oaks, CA, Corwin Press)

Assessment FOR Learning

Assessment for learning or formative assessment is the *process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go, and how best to get there*. – Assessment Reform Group, 2001

In classrooms where assessment for learning is practised, learners:

- are involved in establishing and using success criteria
- are provided feedback and suggestions on how they might improve
- are engaged in self assessment and taking responsibility for their own learning
- are producing a evidence in a variety of formats that demonstrate achievement of curriculum expectations

Involving Students in Setting and Using Criteria

When we ask students what is important in creating a graph, writing a scientific laboratory report, doing a research report, or presenting to a small group they get a chance to share their ideas. When teachers involve students in setting criteria they learn more about what students know and students come to understand what is important as they're learning. When students are engaged and involved it builds ownership and helps teachers identify the needs of the group so they can tailor next teaching steps.

Increasing Specific, Descriptive Feedback

The more specific, descriptive feedback students receive while they are learning, the more learning is possible. Descriptive feedback provides opportunities for the learner to make adjustments and improvements towards mastery of a specified curriculum expectation. Strategies to provide more specific descriptive feedback to students can include the following:

- Involving students in setting criteria and providing opportunities for students to give themselves feedback.
- Providing models, samples or exemplars to show what success looks like. Sometimes teachers show a range of quality by providing samples that show what the journey to quality looks like and other times they show only samples which illustrate quality. In Science, a teacher may choose to show only outstanding lab reports because there is a single destination and it needs to be made very clear so all students can be successful.
- Asking students to peer assess in relation to criteria and models. The quality of peer assessment increases dramatically when it is informed by clear criteria and models or samples.

Engaging Students in Self-Assessment

Self-assessment encourages students to take the time to process—to learn—during teaching time. Self-assessment ensures that the focus stays on learning. Self-assessment teaches students how to self-monitor, especially when it is informed by clear criteria and samples or models. Students who self-monitor are developing and practicing the skills needed to be life-long, independent learners.

What do teachers gain from self-assessment?

- They have an opportunity to learn what students are thinking, and the kinds of understandings that are developing.
- They can listen to students and use their ideas as starting points for lessons.

Collecting Evidence of Learning

In the spirit of assessment for learning teachers aim to collect a variety of evidence from multiple sources over time to ensure validity and reliability. This evidence includes both qualitative and quantitative data. Sources might include observations (what we see our students doing), conversations (what we hear our students saying) and products.

Assessment AS Learning

Assessment as learning involves students becoming active participants in their learning journey. Students come to understand the purpose of their work; generate personal learning goals that align to the curriculum standards they are working towards, actively reflect on their progress, and regularly engage in self and peer assessment.

Self-assessment is the process by which students gather information about and reflect on their own learning. It may involve tools such as the following:

1. Probing Questions
   - What did I do?
   - How did I do it?
   - How can I improve upon it?
2. Recording Templates
   - Three stars (what I did well) and a wish (how I'd like to improve)
   - Participation pie (Group members show their relative participation)
3. Exit Slips (sentence starters such as the following)
   - One thing I learned to do today was…
   - One thing I am not sure of is…
   - I did my best work today when I…
   - One way I can improve is…
   - The most important thing I did to improve my learning was…

Peer assessment is a reflective activity that requires students individually or in groups to reflect upon and make informed comments about the performance of one or more peers. It may involve responding to questions such as:

- What do you think the piece of work shows that your partner can do?
- What do you think is good about your partner's work sample?
- What do you think your partner learned?
- What is one thing your partner might change the next time?

Assessment OF Learning

Assessment of learning is traditionally carried out at the end of unit or course. Assessment of learning is used to make judgments about students' performance in relation to curriculum expectations. Summative assessment is the assessment that involves an evaluation of student achievement for reporting purposes.

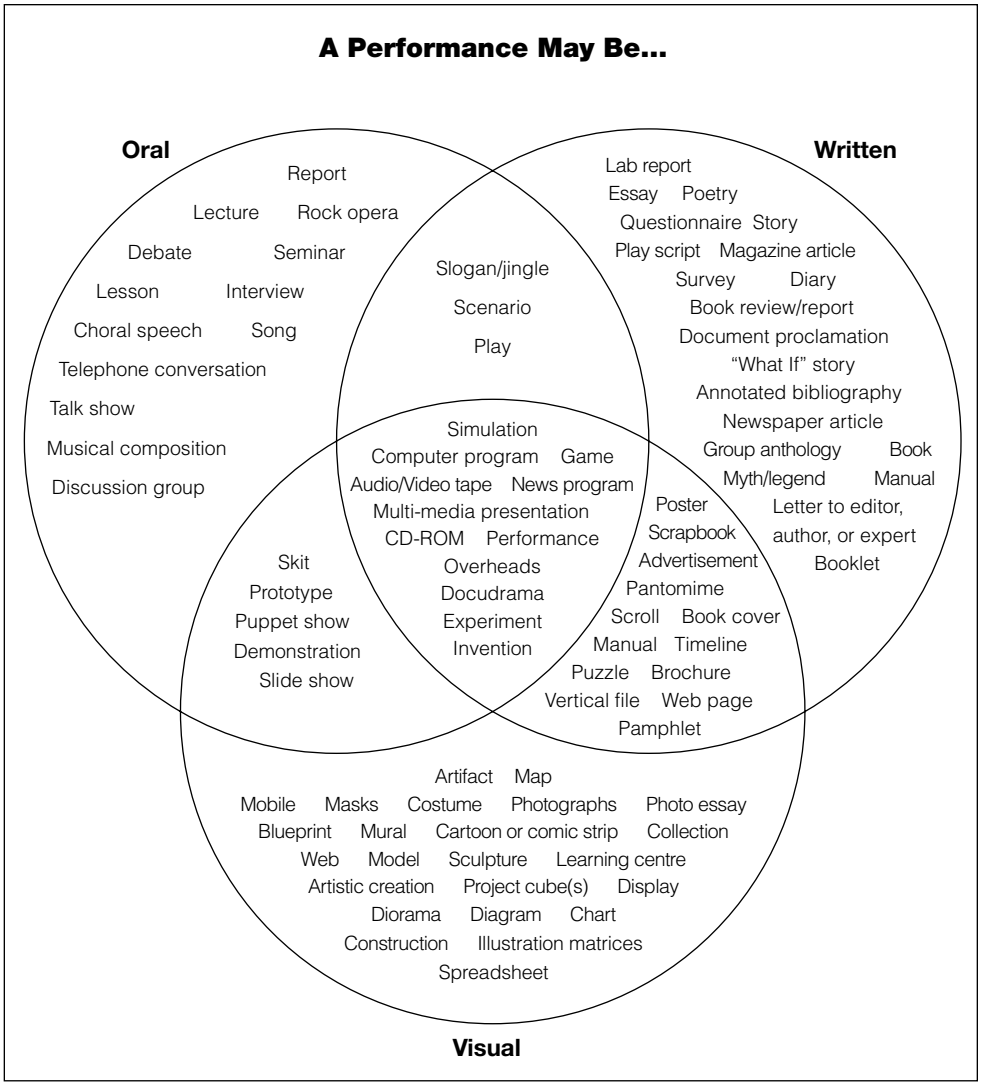
Performance Assessment and Authentic Assessment

A balanced assessment plan is the goal of all teachers. Performance assessment and authentic assessment are classroom assessment practices that honour different types and levels of learning.

Current emphasis in assessment is on authentic assessment and holistic assessment. Authentic learning emphasizes learning that is relevant to students and their experiences in the world outside the classroom; it is concerned more with process than with product, and students are assessed in the same manner they were taught.

Performance Tasks

What exactly is a performance task? The current emphasis on authentic assessment might suggest a realistic problem-solving situation. But performance tasks can and do encompass a very broad variety of activities, as illustrated in the figure below. Like formative and summative assessment, whether a task is or is not a performance task often depends on the context and the intent of the task.



Source: K. O'Connor, *The Mindful School: How to Grade for Learning* (Skylight Publications, 1999).

Examine the figure above. Select several tasks that you have never used and think about how you might use them. Note especially tasks that are suitable for English language learners and other students for whom reading might be difficult.

How can you develop or improve the performance tasks you use in your classroom? You need first to know exactly what characterizes a performance task and then follow some clear steps, as discussed on the following pages, to develop one.

Defining a Performance Task

A performance task should:

- be aligned with the specific expectations in the curriculum
- provide students with opportunities to communicate their thinking and understanding of a science experience and not just provide a single answer
- provide an opportunity for an evaluation of the processes involved in the task
- be realistic, interesting, and thought-provoking
- be representative of the specific expectation being evaluated so generalizations can be made about a student's achievement

- stress depth more than breadth and mastery more than speed
- be more open-ended than tightly structured
- be divergent (that is, not have one clear path of action specified at the beginning)
- raise other questions or lead to other problems

The following steps will help you develop an effective performance task.

1. Be clear about the skills and knowledge students will be expected to demonstrate.
2. Ensure that you know the traits and key concepts of a strong performance (e.g., what moves a piece of writing from *fully meets expectations to exceeds expectations?*).
3. Create a context for the task that will make it more meaningful and engaging.
4. Write a short description of the task.
5. Rewrite the task in a clear, concise manner.
6. Assign the task to the students.
7. Develop a step-by-step work plan.
8. Provide work samples to show students what *fully meets expectations* looks like.
9. Provide instruction.
10. Score the task and then make the necessary revisions for its use another time.

What Should Performance Assessment Do?

Current practice is shifting the focus of assessment from the exclusive use of written tests to a more balanced and realistic assessment of performance, an assessment that will help teachers deal effectively with the new curriculum expectations. In thinking about performance tasks, keep in mind the following ideas.

Performance assessments in science should:

- be introduced by using some simple but useful tasks
- focus on specific expectations
- be used at all grade levels
- involve natural extensions of sound methodology for teaching science
- not be complex or difficult to implement
- be an integral part of the assessment process
- engage teachers in discussing the specific expectations and how to achieve them
- lead to the development of sets of various assessment tasks that are aligned with the specific expectations
- develop ongoing criteria to evaluate performance tasks
- allow students a realistic way to show their in-depth understanding of a subject

Authentic assessment requires the use of performance tasks, but it is not always possible to use them—they aren't always appropriate. For example, would you use a performance task rather than a pencil and paper test to assess a student's ability to multiply numbers or recall specific events? Performance tasks are inappropriate for such assessment. It is important to add performance tasks to your existing array of tests rather than try to force performance tasks to assess situations in which they do not work.

Assessment Methods

Assessment Method	Description of Use	Categories of Process Skills Addressed	Example(s) from ON Science 10
Science notebooks	• Used for reflection, expressing preferences or opinions, assessing attitudes, and assessing strengths and weaknesses	• Communicating • Applying specific knowledge • Scientific problem solving • Predicting	• Learning Check • Study Toolkit
Portfolios	• Include student work and their reflections on it • Often used for a specific focus (e.g., problem solving, review)	• Communicating • Learning skills	• Investigations • Case Studies • Projects • Reviews • Graphic organizers
Observation	• Used during text-reading strategies, problem-solving activities, student presentations, and to monitor progress in the use of technology	• Problem solving • Learning skills • Observing • Classifying	See Teacher's Resource for suggestions.
Pencil and paper tests	• Focus on knowledge but could include some thinking skills	• Knowledge	Section Reviews and Chapter Reviews
Projects	• Apply knowledge to a real situation • Used for soving a "big" problem in a realistic context	• Designing experiments • Measuring and reporting • Problem solving • Modelling	• End-of-unit projects • Design Your Own Investigation
Interviews/ Conferences	• Monitor progress • Used during large projects, portfolio work, other work in progress	• Communicating • Knowledge • Learning skills	See Teacher's Resource for suggestions.
Activities/ Investigations	• Allow students to state and test hypotheses, carry out procedures, analyze data and outcomes, and state conclusions • Extensions allow students to design and report on their own investigations. • Many activities and investigations involve group work.	• Inquiry • Problem solving • Classifying • Modelling • Hypothesizing • Communicating • Designing experiments • Controlling variables • Fair testing	Throughout student textbook and Teacher's Resource

Assessment Tools

Just as there are several strategies that help you assess what your students know, can do and can articulate, there are also a number of assessment tools. Assessment tools include anecdotal records, checklists, rating scales and rubrics.

Assessment Tool	What is it?	How it might be used
Anecdotal Records	• Capture and describe student performance • Provide information on specific "look fors" that have been co-constructed by teacher and students • Enable the teacher to observe students in action • Should be dated and recorded accurately during an event or shortly thereafter	• To make observations that might not necessarily be obtained through other assessment tools • To have a written record of students' strengths, interests and areas of need • To be used as part of an ongoing file for a student
Rating Scales	• Assess performance on a point scale that may be numeric (1–5) or descriptive (low to high)	• To judge the quality of a single performance • To provide diagnostic information • To assess the extent to which specific skills, facts, attitudes and/or behaviours are observed in students' performance
Checklists	• Provide a record of the presence or absence of a skill, process, attitude or concept • Provide a list of criteria for the completion of the task	• To judge the process or product of students' performance
Rubrics	• Include a description of specific, observable criteria in the four achievement chart categories • Include brief statements based on criteria that describe the level of achievement	• To assess a complex tasks in a detailed specific manner linked to the four achievement chart categories

An Assessment Checklist can be an effective means of involving students in their own assessment. Select or design an assessment checklist that details the specific things you feel a student needs to demonstrate in order for you to make an assessment of his or her ability. Then have students complete the self-assessment section.

To make the transition from your informal assessment checklists to more formal rubrics as easy as possible, develop your rubrics with the checklists in mind, and tailor the rubrics to your own and your school's needs. There is nothing absolute about assessment; it is an evolving process in which you, your students, and your school ought to participate. Make use of the Assessment Rubric blackline masters and Assessment Checklists (modifying them as you see fit; they are available in a modifiable digital format on the accompanying CD) or develop your own. Whatever you decide to do, share your ideas with colleagues from your own school and others. The more you can work with and refine the rubrics, the more precise and useful they become. Once you get into the habit of working with rubrics, you will quickly see their advantages. Rubrics are not abstract numbering systems; they are classification systems that provide specific assessment guidelines for teachers and students alike. They help to clarify for everyone

what is being assessed and why one sample of work is better than another. They also help students to assess their own work. If you and a student disagree on the evaluation, the rubric provides a framework that each of you can use in discussing a fair grade. You can also use the rubrics as back-up when discussing your student evaluations during parent/teacher meetings.

Benefits of Using Rubrics for Evaluation

There are two issues to think about here. First, instead of your evaluation of student work being based on a comparison with the work of other students, it will be based on the expectations and performance standards presented in the curriculum. In other words, your evaluation will be criterion-referenced. With the help of your colleagues and your students, you will come up with exemplars against which the work of students can be measured, and against which they can measure their own work. By using the rubric, it should be clear to you and to your students how a piece of work was evaluated.

The second issue is the subjectivity of your rubrics. How can you modify your rubrics so that they can be used by anyone and be fair to your students? Developing appropriate and useful rubrics takes time and experience. This is where teamwork comes in. As you work with existing rubrics, or begin developing them, you and your colleagues use, react to, and modify them until you have rubrics that work for all of you, including your students, who will understand why they received the marks they did.

Tips for Developing Great Rubrics

- Use clear, concrete terms to clarify examples—avoid use of *nice, good, many, more,* and *appropriate* without actual examples to clarify.
- State criteria in positive terms (e.g., *Used eye contact 50% of the time*).
- Use criteria that are observable—avoid use of terms such as *appreciate, value, believe,* and *enjoy*.
- Use checklists for criteria that are expected, "the givens"; examples of this are the length of the project, the number of words, and spelling errors.
- When at all possible, show students examples of what is expected.

Record Keeping and Reporting

Recording Student Work

As mentioned previously, you will need to collect a wide variety of exemplars so that you and your students are very clear about what is expected. You might want to have students keep a folder of their ongoing work, such as essays or projects that have been handed in and then returned to them. They will also have their science notebooks, from which you should be able to select exemplars for writing out investigations, scientific drawings, graphs, etc. If you encourage your students to keep a science journal, you will have another excellent source for examples of their work.

Probably the best source of exemplars is a student's portfolio. Like an artist's portfolio, a student's portfolio should contain samples of work that represent the best that the student can do at different stages, showing how the student has developed the work from the idea stage. The portfolio shows the overall picture of the development that is taking place in the science notebook or journal. Whereas in the science notebook or journal, the student describes and reflects on day-to-day challenges, triumphs, failures, and struggles, the science portfolio encapsulates the results. Encourage students to use material from their science notebooks and their ongoing work folders to add to their

portfolio. The work should always be the best they feel they can do at a particular time. Set a time every few weeks when students have an opportunity to go through their portfolios, discarding some work and adding other samples that they feel show major improvement or that they feel they did particularly well. During the periods of time that students are re-assessing their portfolios, take some time to discuss the portfolio with individual students, encouraging them to express their reasons for including or discarding a piece of work.

Recording Tools

As you begin to use alternative forms of assessment, your record-keeping methods will need to be adapted accordingly. You will need more than a mark book. You might want to consider:

- a card file, with one (or perhaps several) card(s) for each student
- a binder page for each student, with the page divided into different categories
- a folder for each student, containing marks, anecdotal comments, checklists, etc.
- a database

Reporting

As noted earlier, the most consistent level of achievement should be reported. The standard software program to calculate average marks will probably not be adequate. Use software that addresses the most consistent level of achievement.

Assessment data consist of formative and summative data, numeric and anecdotal data, and percentages and levels. Work to develop consistent plans for combining these in a percentage mark.

Assessment Checklists and Rubrics

The assessment checklists and performance indicator rubrics in this section may be used in whatever ways work best for you and your students. Most of the checklists contain two assessment columns, one for the student and one for the teacher. You may choose to assign a point system for some or all of the checklists, or you may simply choose to assess on the basis of the 4-point scale (4–1) used in the rubrics. As you discuss and assess tasks the students complete, you can develop the specific and detailed criteria for each item that you and your students will be able to use to defend your evaluation of the task.