



What are the steps as you plan for instruction?

+Planning for Assessment

There are 4 key steps as you plan for instruction:

1. Interpret learner outcomes
2. Establish learning goals
3. Consider your students
4. Plan for instruction and assessment

Steps 3 and 4 aren't really linear - teachers continually work back and forth from one to the other. And note that instruction and assessment, especially formative assessment, are so interrelated that it should be almost impossible to identify where one stops and the other begins.

Step 1: Interpret learner outcomes

Teacher clarity: teachers must have a clear understanding of the learning intention based on learner outcomes and must communicate the learning goal to students. Both students and teachers must have a clear understanding of how we will know the learning has occurred.

The focus moves from what are the pupils going to do to what specifically are the students going to learn and how will we/they know when the learning has occurred.

By looking closely at the verbs within the outcome teachers can gain a clearer picture of what is expected when students achieve the outcome. Look at the following grade 2 Shape and Space outcome:

7. Describe, compare and construct 3-D objects, including:

- cubes
- spheres
- cones
- cylinders
- pyramids.

[C, CN,R, V]

While the nouns - cubes, spheres, cones, cylinders, pyramids – provide a context for the outcome, the verbs in the outcome tell us what students are expected to do in relation to these objects: describe compare, construct. These verbs are asking for much more than identification. The activities you plan for teaching and assessing this outcome must reflect these verbs.

In the grade 3 outcome below, the verbs “describe” and “apply” tell us the students have to be able to describe strategies they are applying as they add numbers mentally.

6. Describe and apply mental mathematics strategies for adding two 2-digit numerals, such as:
- adding from left to right
 - taking one addend to the nearest multiple of ten and then compensating
 - using doubles.

[C, CN, ME, PS, R, V]

It is also important for teachers to examine the mathematical processes attached to the outcome. The processes provide information on how the students are expected to achieve/demonstrate their understanding of the content.

Mathematical Processes

There are critical components that students must encounter in a mathematics program in order to achieve the goals of mathematics education and embrace lifelong learning in mathematics.

Students are expected to:

Communication [C]

- communicate in order to learn and express their understanding

Connections [CN]

- connect mathematical ideas to other concepts in mathematics, to everyday experiences and to other disciplines

Mental Mathematics and Estimation [ME]

- demonstrate fluency with mental mathematics and estimation

Problem Solving [PS]

- develop and apply new mathematical knowledge through problem solving

Reasoning [R]

- develop mathematical reasoning

Technology [T]

- select and use technologies as tools for learning and for solving problems

Visualization [V]

- develop visualization skills to assist in processing information, making connections and solving problems.

The program of studies incorporates these seven interrelated mathematical processes that are intended to permeate teaching and learning.

For more information on the mathematical processes go to: http://erlc.ca/resources/resources/seven_mathematical_processes/.

Step 2: Establish Learning Goals

It is essential that teachers address the mathematical processes through both their instruction and their assessment. For example, in the grade 3 outcome above, students may be asked to share their strategy for adding numbers with another student. This addresses the “describe” component of the outcome but also address the mathematical process of communication. The teacher may use an exit slip as a formative assessment strategy in which a student is given a question to solve and is asked to tell how they arrived at their answer. Here, the teacher is addressing communication in her assessment plan.

Step 3: Consider the Students

Once we are clear as to what we are going to teach and to what depth, you will want to consider your students, thinking about strengths they have as well as their learning needs. This allows you to be prepared to provide additional challenges for students who need that as well as supports or scaffolding for students who may not succeed without those in place.

As you consider your students, think about how you might offer choice in the ways in which they demonstrate their learning. I know that some of my students struggle to make their thinking clear in writing, for example, so it would be important to offer those students other ways to explain their thinking. Including open-ended problems like the one shown below can allow students to choose a suitable level of difficulty. Let your students know that they do not have to solve certain problems in certain ways, but rather can choose a strategy that works best for them in a given situation.

3 5 7

19 26 325

Choose one of these numbers and one of these numbers.

Create and solve a multiplication problem using your two numbers.

Use numbers, words, and/or drawings to make your strategy clear.

And in some cases, students may need access to concrete manipulatives or supports such as a hundred chart. The goal is to find out where students are so we can help them move forward in their learning. Providing supports like this can help us do that.

Step 4: Plan for Teaching and Assessment

Determine How Evidence of Learning Will Be Gathered:

How will you determine where students are in their learning at the beginning of the instructional process? How will you elicit evidence of understanding along the instructional process? This cannot be done on the fly; it requires thoughtful planning and consideration for those students who grasp the concept quickly as well as those students who struggle.

How will you gather evidence of student learning?

- Observations of students as they work?
- Conversations with students about their work?
- Products? Performance assessment?
- Student self-reflection?

Note that, while it is critical to help students become effective at reflecting on their work and setting goals for next steps, it is not appropriate to use self-reflection (or peer evaluation) as any part of a summative judgment.

