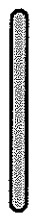
# 3 Stages of Teaching

It does not make much sense to dwell on stages of learning when planning to teach something. The teacher has no control over that because those stages involve a complex brew of genetics, home experiences, and school experiences. Even if there was an agreed upon theoretical framework for defining learning stages across all subject areas, the teacher would have an extremely difficult time trying to determine the stage of learning of each student. For this reason, the perspective here is from teaching rather than learning. A teacher normally has control over the 'what and how' of teaching.

Manitoba Education promotes what can be called three stages of teaching: Activating, Acquiring, and Applying (the three A's). These stages are a planning process for teaching something new to the learner.

The **Activating stage** involves preparing for new learning (an introductory stage). The **Acquiring stage** develops new learning (the critical stage). The **Applying stage** involves deepening the learning (the "keeping learning alive" stage).

The mathematics teaching version of the three A's is:



★ **SET SCENE**

★ **DEVELOP**

★ **MAINTAIN**

These labels indicate what is involved at each stage when planning to teach SOMETHING NEW in mathematics (a new skill and/or new understanding). The three stages are NOT three parts of a lesson. They are three parts of a long-range plan.

## SET SCENE (aka Activating)

The **teacher presents students with an open-ended problem task** that concerns the to-be-learned outcome(s). The context for the task should be part of students' experience base. If it is not, then students are likely to have difficulty relating to the task. Student avoidance and other undesirable things can easily happen.

Students should be able to make reasonable progress with the task, using the mathematical skills and understandings **they already have**. In other words, students should have sufficient prior knowledge that allows them to attempt the task with some kind of success. That success, however, would not yet involve efficiency/sophistication/elegance at this point because that would mean the students already have deep knowledge of the outcome(s) underlying the problem task.

The problem task has FOUR core purposes:

- To begin to engage students with what-is-to-be-learned.
- To interest them in what-is-to-be-learned.
- To provide a reason for learning what-is-to-be-learned.
- To provide a connecting thread for the lesson that follows (a theme).

'Assessing prior knowledge' is NOT one of the purposes. The teacher SHOULD HAVE ALREADY DONE THAT. It would be unwise to develop new learning if students are not ready for it.

Notice also that presenting a problem task and having students work on it is NOT an example of a lesson plan. It is a preliminary ACTIVITY. The lesson follows in the DEVELOP stage.

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## DEVELOP (aka Acquiring)

### The distinction between activity and lesson

This is the critical stage. It is here that the term 'lesson' applies. What is a lesson? It is not a 10 to 20 minute activity. A lesson is a SERIES OF RELATED ACTIVITIES that are intended to develop NEW LEARNING.

The reader may have difficulty with the distinction between activity and lesson, partly because of practicum experiences where the reader is expected to teach a "lesson" during a classroom period of time. What the reader is doing there is implementing **an activity**, NOT a LESSON. This is an important distinction – not just theoretical nitpicking.

A lesson can take days and even weeks to complete. Why this long? Because no single activity will develop new learning in any significant way. All a single activity can do is to scratch the surface. A collection of activities that are focused on what-is-to-be-learned can, however, promote significant learning. The collection of activities is the lesson. An analogy might be helpful. Imagine a book with chapters in it. The book is analogous to the lesson, the chapters to the activities.

The distinction between activity and lesson also makes practical sense when planning and implementing. A lesson is a complex package of stuff. An activity is much simpler to think about. Thus, a teacher can design a single activity much more easily than a lesson. Once sufficient activities have been designed, they can then be sequenced according to what the teacher thinks makes sound pedagogical sense. This approach to planning is much easier than trying to plan a package of stuff all at once. When implementing, what typically happens in 20 to 30 minutes of class time is that one or two activities are implemented. It is much easier for the teacher to remember what to do for a couple of activities than for a lesson – a whole bunch of activities.

## The Characteristics of a DEVELOP lesson

The DEVELOP lesson concerns developing NEW LEARNING, deeply and strongly. Research clearly indicates that explicit guidance is needed for deep learning where the teacher acts as a facilitator. The 'leave them alone and they will learn' approach does not work except for a very small number of special students.

The intent of the DEVELOP stage is to provide explicit guidance by means of active instruction – posing questions and problems, engaging students in dialogue, responding to students' questions, using models, and providing students with a variety of learning tasks and guiding them to complete and learn from the tasks.

An important point needs to be understood. The following characteristics are those of the ENTIRE collection of activities. A single activity cannot have all the characteristics. **It is the lesson that has the following six characteristics.**

### 1. The connecting thread

Recall that one purpose of the SET SCENE activity is to provide students with a reason for learning what-is-to-be-learned. Another purpose is to provide a connecting thread.

The DEVELOP lesson uses the problem task from the SET SCENE stage as a connecting thread for the lesson. This does not mean that the thread has to be evident in every activity of the lesson. That is normally difficult to achieve and unnecessary. Most students do not need to be "hit over the head" again and again by the connecting thread appearing in every activity.

Somewhere close to the end of the lesson, students should revisit the SET SCENE problem task. This time they should deal with it in a more efficient/sophisticated/elegant manner because of what they learned in the lesson. Revisiting provides closure on the problem task.

### 2. A problem-solving climate of learning

In far too many classrooms, the typical mathematics teaching style is the teacher demoing something new (perhaps with a bit of question asking as well but the question asking typically does not promote student "discovery of" what-is-to-be-learned). Demoing is telling, and telling should be avoided as much as possible. The teacher should create situations where students investigate what-is-to-be-learned as a problem to solve by posing/answering questions, discussing and sharing insights, trying out ideas, using concrete models, and so on. One label for this type of teaching and learning is guided discovery. It can also be called scaffolding. Scaffolding and guided discovery are not necessarily the same thing. Too often scaffolding is telling in tiny chunks, instead of telling all of it at once – but small-chunk telling is still telling.

### 3. Sharp focus

The lesson should not be cluttered with unnecessary matters. It should involve the desired outcome (what-is-to-be-learned) in a clear way and only other matters that have direct relevance to the outcome. In other words, do not muddy the waters. For example, if you want students to learn about place value, do not have them learn arithmetic at the same time.

### 4. Practice

Research clearly indicates that practice is needed when learning new concepts and skills. The brain requires sufficient attention to what is being learned to incorporate better the new learning into long-term memory. If new learning is not stored in long-term memory, then learning has not happened. Thinking otherwise is a delusion.

Some activities that are intended as practice are therefore necessary. These activities may not involve a problem-solving climate of learning and/or include multiple modes. They could be simple and somewhat repetitive in nature. The connecting thread is not required.

### 5. Multiple modes

This characteristic pays attention to the reality that students are different. Multiple modes means:

- Using different representations/examples/models of a mathematical notion (e.g. when teaching place, ten strips, pre-packaged place value materials, and student-bundled sticks are different teaching models).
- Engaging students in activities that involve a variety of senses and approaches (e.g. seeing, touching, discussing, group work, individual work, etc.).

### 6. Assessment of teaching

A teacher needs evidence to decide whether a lesson went wl ell or not. He/she normally gathers evidence in **informal ways** as the activity(s) proceeds. For example, a teacher might observe what is happening. If students are "throwing paper airplanes" the teacher should conclude things are not going well. Unless such obvious things occur like the one just mentioned, it is not necessarily simple to make a valid conclusion about things going well or not going because the teacher's main focus is on implementing, not on assessing.

For this reason, a DEVELOP lesson CONCLUDES with an assessment activity. The purpose is to assess teaching. [Please do not think in terms of labels such as formative . . . The PURPOSE here is narrow – TO ASSESS TEACHING.] To assess teaching, evidence must be gathered from students. There are many ways to do this. A small worksheet, an interview, a journal entry, a problem-to-solve are some of the possible sources of evidence that help determine if the teaching went well.

If the assessment indicates successful teaching, then additional practice is needed to facilitate storage into long-term memory. Well-designed worksheets can be used for this purpose.

### Concluding comments

The reader should notice to this point that when designing a DEVELOP lesson there is a complicated and tangled mess of things to keep in mind. Such a lesson takes time to implement as well. For those who say, "But there isn't enough time", consider the alternative. Currently, concepts and skills taught in a previous grade are too often retaught in a later grade. There are at least several reasons for this phenomenon, but one of them concerns "*not getting it right the first time*". Reteaching indicates a FAILURE of TEACHING. It is a significant waste of time for students and teachers. It is far better to spend the needed time on trying "*to get it right*" the first time than to bore and/or frustrate students (and yourself) by reteaching and reteaching . . .

## MAINTAIN (aka Applying)

It is one thing to learn something and another thing to remember it for a long time. We tend to forget what we have learned unless we revisit it periodically in some way. Research suggests that the ongoing maintenance of knowledge should be a fundamental part of teaching. Keeping learning alive occurs "naturally" when old learning (prior knowledge) plays a needed role in new learning. However, that is not sufficient.

Students should engage in MAINTAIN activities from time to time as the weeks go by, with more frequent MAINTAIN activities required for more critical knowledge and less for less critical knowledge. Two types of activities are useful for maintaining knowledge: **mini-tasks** and **rich-tasks**.

**Mini-tasks** are small, basic activities that require only a brief time to do. For example, to maintain the concept of triangle, a teacher can ask students to find triangles in the classroom as part of calendar time.

**Rich-tasks** are complex activities that can be completed in school or at home (homework). One way to create a rich-task is to integrate the desired mathematics with other mathematics and/or other domains of human knowledge. Another way to create a rich-task is to make a problem-solving activity challenging and complex.