# Instruction and Assessment:

## A spiralling approach to how students learn and comprehend mathematics

### What is the spiralling approach?

The spiralling approach focuses on teaching small chunks of skills numerous times throughout the year, rather than using a unit-based approach.

Students are given the opportunity to revisit key concepts and skills throughout the year in order to consolidate, practise and apply learned skills and knowledge in a variety of different contexts.

Skills and concepts are addressed across the school year through activities such as: number strings, number fluency activities, math centres, games, math warm-ups, and open-ended problem-solving questions.

Cross-curricular connections are made allowing students to use math outside of math time and to make connections between the math they are learning and the world around them.

### How is the spiralling approach beneficial to student learning?

Allows students to learn at their own pace/developmental stage and to feel successful.

Gives the opportunity to revisit and practise skills to better consolidate learning.

The opportunity to miss important concepts (e.g, due to illness, family vacations) is less frequent than with a unit approach.

Less time between when concepts are taught from one grade to another (e.g., in a unit-based approach, time could be taught in December of Grade 1 and March of Grade 2 leading to a 15 month gap between when this concept is taught), which reduces chance of students forgetting important concepts due to a lack of practice.

### What does instruction look like in a spiralling approach?

The spiralling approach provides instruction that is more responsive to student needs. Every student is given the opportunity to learn something new each day, based on their current level of mastery of the concept being taught.

This approach provides less of an opportunity for students to be off task, as it is more engaging since all tasks meet students “where they are at” (e.g., students aren’t sitting through lessons about concepts they have already mastered or are too difficult for them at this point in their learning).

Spiralling provides the opportunity for immediate feedback through the use of more small group instruction and mini-lessons that are given as they are needed (e.g., when errors are made in math journals, etc.)

Instruction and purposeful practice happens during number talks, number fluency activities, math journals, math centres, games, math warm-ups, small and large group instruction and open-ended problem-solving activities.

### What does assessment look like in a spiralling approach?

Students are given more opportunity to demonstrate their learning in a variety of ways.

Anything a student completes independently can be used as assessment for learning, assessment as learning or assessment of learning (e.g., math journals, exit tickets, problem-solving, math centre activities, number fluency activities).

There is less of a focus on written tests that everyone completes at the same time.

Student portfolios can be used to demonstrate mastery of concepts (e.g., Sesame, Explain Everything, student work folders, math journals).