3 Diagnostic, Formative, and Summative Assessment

Diagnostic Assessment

Teachers use diagnostic information to make choices about the nature and extent of the learning experiences they provide. Teachers have to consider the varying mathematical knowledge and skills of the whole class as well as individual students.

Purpose

- Help teachers identify students who have difficulty acquiring the necessary concepts, procedures, and strategies.
- Develop insights into particular needs to adjust instruction to ensure at-risk children have the best possibility to succeed.

Diagnostic Opportunities in Addison Wesley Math Makes Sense 3

- The Student Book begins with a group *Cross Strand Investigation* designed to give teachers and students an opportunity to revisit some key concepts and procedures from prior knowledge, and document any gaps or misconceptions. Each unit in the Student Book begins with a *Unit Launch*, designed to activate and build upon students' prior knowledge.
- The notes for the *Unit Launch* in the Teacher Guide include diagnostic questions, and a Diagnostic Assessment feature that cues teachers about what to watch for and what to do. The lesson teaching notes include prompts and questions to help teachers activate prior knowledge to determine whether a student has the skills and understanding required to work on the lesson content.

Generic Tools

The generic tools are available in the *Grade 3 Planning and Program Masters* module.

Helping Teachers Plan

The Planning for Assessment chart at the beginning of each unit in the Teacher Guide includes a section on diagnostic assessment.

Planning for Assessment

Purpose	Tools and Process	Recording and Reporting
Diagnostic	*Unit Launch* Question; conference; scaffold problems throughout the unit	PM 8: Conference Prompts
Formative	*Explore* – Ongoing Assessment: Observe and Listen	Master 8.2 Ongoing Observations: Exploring Fractions PM 1: Inquiry Process Check List PM 6: Observation Record 1 PM 7: Observation Record 2 PM 8: Conference Prompts
	Prompt student's self-assessment	PM 2: Self-Assessment PM 3: Self-Assessment: Problem Solving
	Practice – Assessment Focus Questions	PM 9: Work Sample Records
	Review student work; provide feedback; scaffold as needed; select key pieces	
Summative	*Show What You Know* *Unit Problem* – Performance Assessment Unit Test	Master 8.1 Unit Rubric: Exploring Fractions Master 8.3 Performance Assessment Rubric: Pizza Lunch Master 8.4 Unit Summary: Exploring Fractions
	Review assessment records; add unit results to ongoing records	PM 10: Summary Class Records: Strands PM 11: Summary Class Records: Achievement Categories PM 12: Summary Record: Individual
Learning Skills/ Mathematical Dispositions	Observe and record throughout the unit	PM 4: Learning Skills Check List PM 5: Mathematical Dispositions and Learning Skills

Program Masters (PM) are in the *Grade 3 Planning and Program Masters* module.
Extra Practice Masters are on the CD-ROM.

Formative Assessment (Assessment *for* Learning)

> *"Assessment for learning 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 2002)

Assessment *for* learning, at the heart of *Addison Wesley Mathematics Makes Sense*, is designed to help students learn. A comprehensive research summary concluded that *formative assessment* (assessment for learning) improves student achievement substantially, particularly for low achievers (Black and Wiliam, 1998). The research indicated that implementing effective formative assessment could be one of the most powerful intervention techniques ever identified, and estimated it could improve average student achievement between 1 to 2 levels.

Purpose

- Provide feedback to students so they know how they are doing, and how they might improve their learning.
- Gather information to adjust instruction for the group, and to provide additional scaffolding to students who need it.
- Engage students in their own learning, goal-setting, and self-assessment.
- Help teachers ensure students are provided with purposeful practice.

Formative Opportunities in Addison Wesley Math Makes Sense 3

Teachers can use the Planning for Assessment chart at the beginning of each unit to create a manageable and purposeful formative assessment plan.

- The Teacher Guide provides specific questions to probe student understanding at various stages of a lesson. Each lesson *(Explore/Show and Share)* engages students in *actively exploring* the key concept. This gives teachers opportunities to observe what students are able to do. *The Explore/Ongoing Assessment*: *Observe and Listen* sections of the Teacher Guide provide specific cues and questions.
- *Practice* in the Student Book provides opportunities for teachers to observe, probe, and provide feedback about student development. The *Assessment Focus* question in each lesson allows teachers to check various levels of achievement. Numerical and written answers in the Teacher Guide help teachers provide feedback. *Reflect* in the Student Book directs students to focus on what they have learned, and how well they understand the math. Teachers may choose to use these to prompt discussion, demonstration, or journal entries.
- In the Teacher Guide, *Assessment for Learning: What to Look For; What to Do* cues teachers' attention on specific behaviours in students' oral, concrete, or written work. It provides direct, practical instructions about what to do to provide extra support, extra practice, or extensions. *Reaching All Learners* helps teachers identify common misunderstandings and how to alleviate them.