

# Differentiated Instruction - Strategies that Work

## Maximize Learning...

"We know that learning happens best when a learning experience pushes the learner a bit beyond his or her independence level. When a student continues to work on understanding and skills already mastered, little if any new learning takes place. On the other hand, if tasks are far ahead of a student's current point of mastery, frustration results and learning does not."

(Howard, 1994; Vygotsky,

## Readiness...

The student's starting point for learning, relative to the concept being studied.

## Interests...

Attention to a student's interests enhances the relevancy of learning by linking new information to a student's experience and enthusiasm.

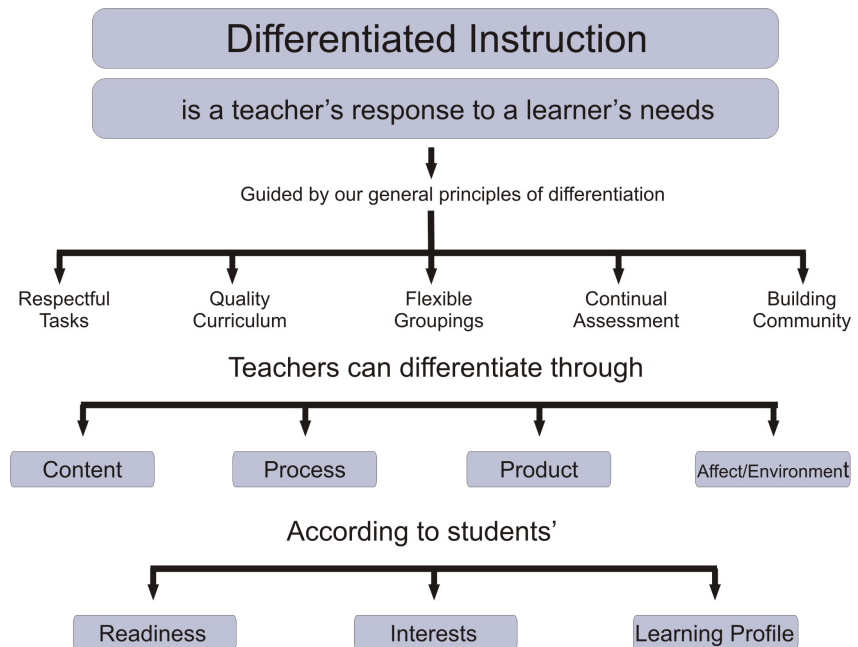
## Learning Profile...

The many different ways in which learners prefer to acquire, process and work with information. These can be influenced by gender, culture, the classroom environment, learning styles and multiple intelligences.

## Reaching Every Student

### What is Differentiated Instruction?

Effective DI is teaching with planned responsiveness to a learner's readiness, interests and learning profile in order to ensure maximum growth of each learner in the classroom. The process of differentiating instruction depends on the ongoing use of assessment to gather information about where students are in their learning and about the approaches that will make a positive difference to how well they are learning. Teachers have to attend to: **readiness** if we expect achievement growth; **interests** if we care about student motivation; and, **learning profile** if we seek efficiency and effectiveness of learning.



Carol Ann Tomlinson, Association for Supervision and Curriculum Development (ASCD); Summer Conference Material, 2008. Reprinted with permission from ASCD (www.ascd.org) as printed in Reach Every Student Through Differentiated Instruction. Ontario Ministry of Education, 2009.

## Conditions for Success

**Building Community** - The quality of the learning environment and student motivation to learn are greatly impacted by teacher's skill and will in building bridges between him/herself and students.

**Continual Assessment** - The teacher who emphasizes assessment to inform instruction understands that it is only by staying close to student progress that he or she can guide student success.

**Quality Curriculum** - Curriculum should focus on big ideas/concepts and principles; skills and knowledge should be used in service of 'owning' those essential understandings.

**Respectful Tasks** - Learning and assessment tasks should be interesting and appealing, focus on the essential understanding and skills and require all students to work at high levels of thinking.

**Flexible Grouping** - Teachers intentionally move students within a relatively short period of time among a variety of contexts related to student readiness, interests, and learning preferences.

# Differentiated Instruction - Strategies that Work

Implementation of differentiated instruction involves a variety of approaches and critical instructional decisions on the part of the teacher. Three of the key factors to consider include:

- Readiness** Are the students ready for learning?  
Where are they in relation to the learning goals and what requires teaching?
- Interest** What are students interests and feelings about different areas of study?  
What can you use to 'hook' students?
- Learning Profile** What are the students' learning preferences?  
How are different learning styles, modalities, multiple intelligences reflected?  
Are a variety of groupings employed?  
Have I considered learning preferences based on gender and culture?  
Is the learning environment suited to the preferences?

## DI Principle

**Differences in how students learn have a significant impact on achievement.**

### Strategies

Open-ended Problems

### Examples

Given a budget, have students research and choose 3 vehicles that they could purchase. (MEL3E)

Technology

Provide access to a variety of technological tools (e.g., graphing calculators, computer software, probes, interactive white boards) for students to select from in order to model and solve problems.

Manipulatives

Provide access to a variety of concrete materials for students to select from in order to model and solve problems.

Study Techniques

Encourage a variety of techniques:

- › unit summary (teacher or student generated)
- › math journals (including key concepts, formulas, glossary, visuals, etc.)
- › formula sheets
- › mnemonics (SOH CAH TOA)
- › student-designed questions
- › study groups

Have students share best practice with peers.

Student Diversity

Refer to students' Individual Education Plans for specific strategies and accommodations.

Acknowledge and embrace cultural and gender differences.

Be cautious of using colloquialisms (e.g., fork in the road)

Design activities that appeal to the multiple intelligences.

## DI Principle

**Learning begins from a student's point of readiness.**

### Strategies

Graffiti

### Examples

On separate pieces of chart paper, write the headings: Ratio, Rate, Proportion, Equivalent Ratios, and then have groups rotate through stations and record what they remember about each topic. (MFM1P, MAT1L)

Placemat

(see *Think Literacy, Mathematics Gr. 10-12*)

Give a 3-dimensional trigonometry problem based on concepts from grade 11. (MCV4U)

Concept Cards

Match various representations (e.g., graph, table, model, verbal description, equation) of a linear pattern. (MFM1P, MFM 1D)

Checklist

"Clicker" assessment technology could be used for this.

Pose questions addressing *big ideas*, such as 'The sine law can be used to solve any triangle. True or false?' (MCR3U, MCT4C, MAP4C).

Diagnostic Assessment

Give a quiz that addresses prerequisite skills.

Accessing Support

Make use of support systems for students that have learning gaps including: SERT; Student Success Teacher; peer tutor; EA; or, Just-in-Time tutorials. (Camtasia, CLIPS: <http://oame.on.ca/CLIPS/index.html>)

## DI Principle

**High expectations of success by all are matched by tasks that provide a high degree of challenge for the individual.**

### Strategies

Rich Tasks

### Examples

Provide tasks that have flexible entry points to: engage all students; build confidence in struggling students; and, challenge strong students. For example, see The Painted Cube activity, OMCA Support Materials, Unit 1, Activity 1.3.3 - (MCF3M) [http://www.oame.on.ca/main/index1.php?code=OMCA\\_MCP3M](http://www.oame.on.ca/main/index1.php?code=OMCA_MCP3M)

Games

Use games such as Concentration, Jeopardy, etc., to consolidate and/or review concepts.

Parallel Questions

Give students four patterns of varying difficulty, and ask them to choose one and build the various representations.

## DI Principle

**A safe, non-threatening and respectful learning environment is vital to student achievement.**

### Strategies

### Examples

Student Cards

Have students provide personal information (e.g., hobbies, interests, favourite musical groups, attitudes about math, etc.) on cards. These can be used to weave student interests throughout instructional and assessment activities.

Write 'n Wipe Boards

Individual white boards, markers and erasers.

Discreetly check for individual student understanding. (e.g., ask students to 'sketch a parabola that opens up and has no zeroes', and display boards for teacher to check. Teacher can then ask students to explain responses. (MFM2P, MFM 2D).

Non-verbal Cues

Make eye contact to check for student engagement. Check body language including facial expressions for student understanding. Learn to recognize individual signs of frustration, disengagement, confusion, etc.)

Teacher Modeling

Encourage a diversity of strategies. Invite and listen to student thinking. Promote risk taking. Be enthusiastic.

## DI Principle

**Essential concepts can be effectively presented in a variety of forms.**

### Strategies

### Examples

Multiple Representations

Pose problems in different ways.

Math-Talk Learning Communities

Have students solve problems by:  
> working in groups  
> think-pair-share  
Have students share and discuss various solution strategies.

Performance Activities

Have students explore distance-time relationships using motion probes (e.g., CBRs) and graphing calculators. (MFM1P, MFM1D)

Multiple Tools and Strategies

Illustrate multiple methods for converting a quadratic function from standard form to vertex form, using  
> algebra tiles  
> a graphing calculator  
> a computer algebra system  
> algebraic reasoning (MPM2D, MBF3C, MCF3M, MCR3U, MAP4C)

Choice in Demonstration of Learning

Allow students to demonstrate their learning in a variety of ways. For example, when completing the Bicycle Trip (TIPS4RM - 9 Applied Activity 5.5.1) students can present their story in written form, as a recorded play-by-play, or in an interview.