

Strategies From Real Teachers for Real Classrooms

Differentiation That Really Works

Years 6–12

Maths

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CHAPTER 1

INTRODUCTION

Why We Wrote This Book

Many years ago, we were classroom teachers ourselves, and we spent time working with students, trying to understand their needs. We read some of the early work of A. Harry Passow and Sandy Kaplan coming out of the US National/State Leadership Training Institute of the 1970s, and thus began our journey toward learning how to differentiate instruction to meet the needs of all of the learners in our classrooms. We both found early on in our teaching careers that giving all students the same assignment resulted in some students doing well while others were bored or frustrated. Thus, we learned how to differentiate as a means of surviving and allowing students to thrive. We learned that “more” and “faster” were not better for our gifted students, but that we needed qualitatively different work that centred on broad-based themes, issues and problems. We learned that, in order to achieve, all of our students required choice and challenge. Now that we have left the school classroom and teach at the university level, we still have to differentiate to meet the needs of our undergraduate and graduate students.

Currently, we work together at the Center for Gifted Studies and Talent Development on a number of projects related to differentiated instruction and meeting the needs of learners in the classroom. The centre is located in Burriss Laboratory School on the campus of Ball State University in the United States. The proximity of the centre to the Laboratory School provides us the opportunity to work with teachers and students on a regular basis so that we do not lose the important connection to what is actually happening in classrooms today. Working in the Laboratory School and in other schools throughout the United States, we have been able to use our practitioners’ and researchers’ lens to identify strategies that work well in the classroom.

The strategies that we have chosen to include in this book had to meet several criteria: (1) be easy to implement, (2) be easy to modify, (3) encourage student engagement, (4) have inherent opportunities for differentiation and (5) be appropriate for multiple year levels. The strategies we've selected are not an exhaustive list of differentiation strategies, but they are the ones that we see most often being used by real teachers who differentiate well. Although there is little empirical evidence to support the use of these strategies, the practice-based evidence is widespread (Coil, 2007; Gregory & Chapman, 2002; Kingore, 2004; Tomlinson, 2003; Winebrenner, 1992). We think these strategies are vital for teachers to have in their bag of tricks if they want to provide choice and challenge for all learners in their classrooms. But quality differentiation requires more than just a simple bag of tricks.

Working with teachers for more than 14 years in the US and internationally, we found some who were differentiating to a high degree and some who were just beginning to differentiate. We found some who did it well and some who struggled. Comparing and contrasting those teachers who differentiated well from their colleagues who struggled allowed us to zero in on classroom components that seemed to make the difference. What we found is that many teachers were using strategies to differentiate instruction but lacked the management to facilitate multiple groups working on different activities. Others had interesting lessons and activities but when some students finished early, chaos was present. Some teachers differentiated a lesson by providing several paths to reach the same goal, but all students were required to complete the same assessment. Those teachers who had the most successful classrooms not only used differentiated learning strategies but also made use of anchoring activities, classroom management and differentiated assessment. Realising that these four components are necessary led to the development of our model, *Creating an Integrated Response for Challenging Learners Equitably: A Model* by Adams and Pierce (CIRCLE MAP; Adams & Pierce, 2006). We have realised that when teachers have all four components clearly articulated and they implement them, the stage is set for successful differentiation.

We learned something else with our teachers: no matter the level of experience or the effectiveness of differentiation, everyone's issue was time. We have had the privilege to come in contact with teachers who differentiate in their classrooms on a daily basis. These classrooms are "pockets of excellence", where teachers embrace the differentiation mindset and look at everything they do through the differentiation lens. We felt other teachers could gain some time by using lessons that practising professionals have already created and tested in their own classrooms. The lessons in this book focus on Years

6–12 mathematics and can be used as written or can be modified to meet the needs of your own mathematics classroom. We have provided templates that can be used to develop your own materials using the strategies included here.

In this volume we have also included an appendix that shows how one teacher created differentiated lessons using only materials from her textbook. Teachers have the textbook on hand and readily accessible; thus, we wanted to provide some examples of textbook-based lessons, rather than exclusively lessons designed using supplemental materials. We hope that you find this additional resource helpful on your differentiation journey.

How Is This Book Different From Every Other Book on Differentiated Strategies?

This book is different because real teachers designed the lessons. Practising professionals (everyday classroom teachers in the trenches) tested them in their own heterogeneous classrooms. These professionals differentiate on a regular basis. We have included comments for each lesson from the teacher who developed it, describing how to use the strategy and how their students responded to the activity. In addition, on many lessons, we have included comments from other teachers who reacted to it.

How to Use This Book

The following steps should be kept in mind as you make your way through the book:

1. Choose the strategy you want to implement.
2. Look at the sample lessons.
3. Don't be afraid to modify a lesson to fit your year level and the needs of your own students.
4. Use the template to design your own lesson.
5. Use it in your classroom and enjoy!

CHAPTER 2

EXIT CARDS

Overview

An exit card is a tool used by teachers to gather data about student learning. Generally, exit cards are used to gather formative data that a teacher can then use to plan the next step. The exit card is provided to students at the end of a lesson and the teacher collects the cards as students either exit the classroom or exit one activity before going on to the next in the same classroom. Exit cards also may be known by other names, such as ticket to leave or door pass. Exit cards generally only have a few questions for students to answer. Sometimes the card may ask students to respond to an overall idea that was discussed in class; at other times students may have two or three maths problems to work on that are similar to problems demonstrated in class.

How and When to Use Exit Cards

Exit cards are used at the end of a class, an activity or a lesson. The teacher collects the completed exit cards and sorts the cards into piles based on the students' responses. There may be a group of students who clearly understand the ideas presented in the lesson and another group of students who clearly have gaps in their knowledge. There may be other students who fall between the two groups. The information from the exit cards allows the teacher to plan the next steps of instruction to address the different learning needs of the students.

CHAPTER 3

CHOICE BOARDS

Overview

A choice board is a tool to provide students with choice and challenge. It has nine squares in a three by three array. Directions are placed in each square. Students choose three squares to complete: three in a row, three in a column or three diagonally – just like in noughts-and-crosses. The directions may be for a product or for extended practice. Choices can provide enrichment, acceleration or additional practice, depending on how the choice board is designed. Generally, students are producing three products, which would provide formative or summative data for the teacher.

How and When to Use Choice Boards

Choice boards can be used at the beginning or end of a unit or anywhere in between. The length of time students have to complete their three choices varies with the teacher's purpose. Some choice boards are designed to be completed in a week (e.g. one that deals with weekly spelling words). Other times, a choice board may last for longer periods of time, depending on the complexity of the choices or the length of time the teacher chooses for activities to be completed. Choice boards may be tiered to accommodate varying learning needs when a wider range of choices and challenge is needed. The completed activities from the choice board can be used by the teacher to plan the next steps of instruction, to assess students' progress or level of understanding, or as a means of assigning marks.

CHAPTER 4

CUBING

Overview

Cubing is an instructional strategy that has its roots in writing. The strategy uses a cube; on each face of the cube are directions using an action verb (e.g. create, compare and analyse) and under each verb is a prompt providing a description of the task. Students roll the cube and complete the activity from the face of the cube that is turned up. They repeat this procedure until they have completed a total of six different tasks. Cubing can be used at any point in a lesson or unit. Like choice boards, cubing is another way to differentiate instruction. Cubing is a novel way to structure a set of activities and to view a topic from multiple angles.

How and When to Use Cubing

Cubing is a versatile strategy that can easily fit into instructional plans at various points – beginning, middle or end. A cube may be used to introduce a topic and find out what students already know. It may be used in sense-making activities or as a means to determine what students learned from a particular lesson or unit. Students may have their own individual cube or each group may be given a single cube. Cubes can be tiered to accommodate a variety of student cognitive abilities, skill levels or knowledge of the topic. Sometimes we have heard questions such as, “Couldn’t you just list the activities on a sheet of paper and allow students to do the activities in any order?” Although you certainly could do that, we have found that students respond positively when we use strategies that are “fun”. As you will see in

CHAPTER 5

GRAPHIC ORGANISERS

Overview

Graphic organisers are visual tools used by teachers to assist students in analysing, interpreting and making sense of the content. Graphic organisers come in many forms, depending on the use. Examples include Venn diagrams, compare/contrast charts, double bubble diagrams and flow charts. Graphic organisers can be used as advanced organisers, sense-making activities, or as formative or summative assessments.

How and When to Use Graphic Organisers

Graphic organisers often are used as advanced organisers at the beginning of a lesson or activity to assist students in understanding the content. They also may be used for practice with activities that require students to make sense of the content. The teacher might choose to use graphic organisers to gather formative or summative data. To accommodate the needs of all learners, some organisers may be blank, while others may be partially completed, depending on the readiness level of the students.

Directions for Making Graphic Organisers

Graphic organizers are simple to design. But there is no set template. The form and function of the graphic organiser will depend on the topic being taught, as well as the thinking skills students will be using. Inspiration® is

CHAPTER 6

LEARNING CONTRACTS

Overview

Learning contracts are “bargains” between the teacher and a student or group of students. Learning contracts may be on any topic and may be considered abbreviated lesson plans or mini-units. That is, learning contracts list standards, concepts, goals, activities, resources, products and assessments in a format that is student-friendly. They have a starting and ending date and a place for the student, the teacher and the student’s parents to sign indicating that the contract is binding. Generally, learning contracts are used as an alternative to regular instruction, especially when students have been compacted out of a portion of the curriculum.

How and When to Use Learning Contracts

In a classroom, the learners are at a variety of readiness levels. To accommodate these differences, many teachers begin a unit of instruction by pre-testing the entire class on the planned content. Some students already may know significant portions of the content and need alternative activities while the rest of the class proceeds with learning the content that is new to them. To provide clearly articulated learning experiences for the students who already have mastered the planned content, a learning contract often is an appropriate choice. Generally, the student and teacher jointly plan the contract, agree to the terms and sign it. In our experience, it also is vital that parents sign the contract to avoid unnecessary miscommunication.