

MIDDLE YEARS

MATHS

Activities for the
Differentiated
Classroom

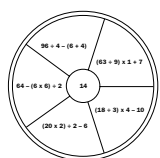
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Activities for the Differentiated Classroom

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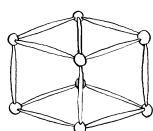
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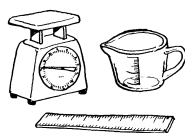
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Index of Activities

This chart shows the mathematics standards that are covered in each chapter.

NUMBERS AND OPERATIONS	Standards are covered on pages
Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	9, 23
Understand meanings of operations and how they relate to one another.	11, 13, 14
Compute fluently, and make reasonable estimates.	13, 14, 17, 23, 26

ALGEBRA	Standards are covered on pages
Understand patterns, relations, and functions.	37, 38, 40, 42
Represent and analyse mathematical situations and structures using algebraic symbols.	28, 30, 32, 40, 42
Use mathematical models to represent and understand quantitative relationships.	40, 42
Analyse change in various contexts.	40

GEOMETRY	Standards are covered on pages
Analyse characteristics and properties of two- and three-dimensional geometric shapes, and develop mathematical arguments about geometric relationships.	44, 51, 56, 57, 62, 67
Specify locations and describe spatial relationships using coordinate geometry and other representational systems.	49

MEASUREMENT	Standards are covered on pages
Understand measurable attributes of objects and the units, systems and processes of measurement.	67, 73, 80, 83
Apply appropriate techniques, tools and formulas to determine measurements.	67, 71, 73, 80

DATA ANALYSIS AND PROBABILITY	Standards are covered on pages
Select and use appropriate statistical methods to analyse data.	84, 86, 88
Develop and evaluate inferences and predictions based on data.	84, 86
Understand and apply basic concepts of probability.	89, 92

PROBLEM SOLVING	Standards are covered on pages
Solve problems that arise in mathematics and in other contexts.	17

Suggested Suitability of Activities by Year Level

Book One through to Book Six are suitable for Year Prep through to Year 6, as shown in the table below, but this may vary slightly in your classroom.

The Middle Years books in this series are suitable for Year 6 to Year 9.

BOOK	Year Level
1	Prep/1
2	1/2
3	2/3
4	3/4
5	4/5
6	5/6
Middle Years: English	6–9
Middle Years: Science	6–9
Middle Years: Maths	6–9

Introduction

As a teacher who has adopted the differentiated philosophy, you design instruction to embrace the diversity of the unique students in your classroom and strategically select tools to build a classroom where all students can succeed. This requires careful planning and a very large toolkit! You must make decisions about what strategies and activities best meet the needs of the students in your classroom at that time. It is not a “one size fits all” approach.

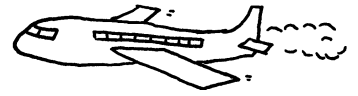
When planning for differentiated instruction, include the steps described below. Refer to the planning model in *Differentiated Instructional Strategies: One Size Doesn't Fit All, Second Edition* (Gregory & Chapman, 2007) for more detailed information.

1. Establish standards, essential questions and expectations for the lesson or unit.
2. Identify content, including facts, vocabulary and essential skills.
3. Activate prior knowledge. Pre-assess students' levels of readiness for the learning and collect data on students' interests and attitudes about the topic.
4. Determine what students need to learn and how they will learn it. Plan various activities that complement the learning styles and readiness levels of all students in this particular class. Locate appropriate resources or materials for all levels of readiness.
5. Apply the strategies and adjust to meet students' varied needs.
6. Decide how you will assess students' knowledge. Consider providing choices for students to demonstrate what they know.

Differentiation does not mean always tiering every lesson for three levels of complexity or challenge. It does mean finding interesting, engaging and appropriate ways to help students learn new concepts and skills. The practical activities in this book are designed to support your differentiated lesson plans. They are not pre-packaged units, but rather activities you can incorporate into your plan for meeting the unique needs of the students in your classroom right now. Use these activities as they fit into differentiated lessons or units you are planning. They might be used for total group lessons, to reinforce learning with individuals or small groups, to focus attention, to provide additional rehearsal opportunities, or to assess knowledge. Your differentiated toolkit should be brimming with engaging learning opportunities. Take out those tools and start building success for all your students!

Travelling the Country

Directions: Follow these steps to plan a six-day, five-night, three-person trip to a major city. Your budget is \$5,000. Your travel dates are _____.



1. As a group, decide which of these roles each group member will assume.

Airfare Expert _____

Hotel Expert _____

Rental Car Expert _____

2. Estimate how much to spend on airfare, hotel and car rental.
3. Research your area of expertise. You may use newspapers, travel magazines and the Internet.
4. Meet with your group and present your findings. Discuss whether your estimates are reasonable. As a group, make a final decision on each expense and complete the travel itinerary.
5. Present your travel itinerary to the class. Each member will explain various costs within his or her area and the team's rationale for choosing these options.



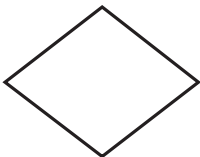
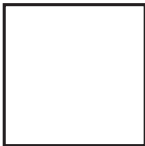
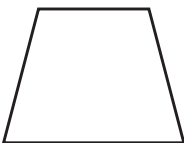
Travel Itinerary from _____ to _____

Grand Total _____

Airline/Flight Number	Outbound Flight	Return Flight	Class	Taxes/Fees	Total Cost	
	Depart	Depart				
	Arrive	Arrive				
Hotel Name	Location	Type of Room	Cost Per Night	Cost for 5 Nights	Taxes/Fees	Total Cost
Car Rental Company	Location	Car Type	Daily Rate	Cost for 5 Days	Taxes/Fees	Total Cost

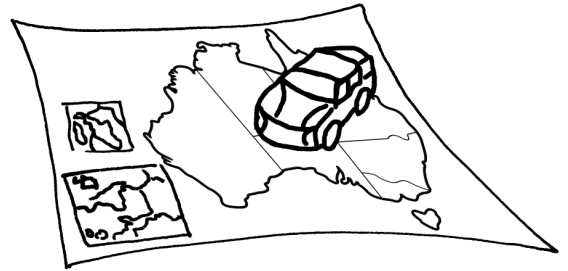
Special Quadrilaterals

Directions: Identify the properties of each special quadrilateral. Place a tick in the appropriate boxes.

	At least one pair of parallel sides	Opposite sides parallel	Opposite sides congruent	All sides congruent	Opposite angles congruent	All right angles
Parallelogram 						
Rectangle 						
Rhombus 						
Square 						
Trapezoid 						

Trip Planner

Directions: Plan a car trip from Sydney to Perth. Use a map to determine the shortest route. You must stop at five cities along the way. Calculate the shortest distance for each leg of your trip.



Starting City	Ending City	Centimetres on the Map	Kilometres	Travel Time (at 100 km/h)

Total distance: _____

Total time: _____

Total days (travelling ten hours per day max.): _____

What other factors should you consider when planning for this trip?
Make a list.
