

Making connections to the Week of Inspirational Math lessons

Resource 1: Mapping to Week 1 2015 lessons

Each year the team at youcubed design a [Week of inspirational Math](#) (WIM) with lessons for a range of grades. They have now designed three ‘weeks’ of tasks over the last three years. Teachers in NSW have been getting hooked on Jo Boaler, her research into [Mathematical Growth Mindsets](#) and also the wonderful lesson resources developed by Boaler and her colleagues at www.youcubed.org

This first resource maps the lessons from the [Week of Inspirational Math](#) Week 1 in 2015 to the [NSW mathematics K-10 syllabus](#) outcomes. I have mapped to the overarching outcomes, sub strands and general content links, not necessarily to the dot point level for all lesson activities. Many of the WIM lessons bring together a number of concepts, these concept connections should also be reflected in your programming where concepts are not taught in isolation. The lessons in this resource are the primary to middle school level lessons (grades 3-4 and grades 5-9+).

Note: I have linked the lessons directly to the outcomes where that concept or content is addressed. You as the teacher may feel that your students are ready to tackle some of these activities in earlier grades, this decision is up to you e.g. Pascal’s triangle Day 4 WIM 2015 may be explored in Stage 2 however, the content for triangular numbers sits within Stage 3 of the NSW mathematics K-10 syllabus.

References

Boaler, J. (2013). Ability and Mathematics: the mindset revolution that is reshaping education. FORUM, 55, 1, 143-152.

NSW Education Standards Authority (NESA). (2012). Mathematics K-6 syllabus. Sydney, NSW.: Author.

Lessons from the Week of Inspirational Math <https://www.youcubed.org/week-inspirational-math/>

See further papers here <https://www.youcubed.org/resource/short-impact-papers/>

Week of Inspirational Math 2015

Grades 3-4 <https://www.youcubed.org/weeks/week-1-grades-3-4/>

You may want to visit the website link above to access any videos and PowerPoint presentations that accompany the lessons. The links within this table link directly to the lesson plans.

WIM lesson	NSW syllabus outcomes	Sub strand and content links
Day 1 Honoring Ideas- Wanted: Everyone's! The Four 4's activity	MA2-1WM	<i>Communicating</i> describes methods used in solving problems
	MA2-3WM	<i>Reasoning</i> explains how an answer was obtained and compares their own method of solution with the methods of other students
	MA2-4NA	<i>Addition and Subtraction 1</i> adds and uses combinations to 10 explains and checks solutions to problems
	MA2-5NA	<i>Multiplication and Division 1 and 2</i> uses mental strategies for multiplying one-digit numbers
	MA2-7NA	<i>Fractions and Decimals 1</i> names fractions up to one whole (recognise that four quarters is one whole)
	MA2-8NA	<i>Patterns and Algebra 2</i> uses inverse operations to complete number sentences
	MA3-4NA	<i>Whole Numbers 2</i> explores and uses square numbers (e.g. using 42 in finding solutions to the problem)
	MA3-6NA	<i>Multiplication and Division 2</i> uses grouping symbols and order of operations

WIM lesson	NSW syllabus outcomes	Sub strand and content links
	MA3-8NA	<i>Patterns and Algebra 1</i> completes number sentences that involve more than one operation
Day 2 Visualizing Numbers Made of Dots! Number Visuals activity (includes consecutive numbers)	WM2-2WM	<i>Problem Solving</i> applies appropriate strategies to solve problems
	WM2-3WM	<i>Reasoning</i> makes generalisations about numbers and number relationships explains problem-solving strategies using language, actions, materials and drawings checks given number sentences to determine if they are true or false and explain why
	MA2-4NA	<i>Addition and Subtraction 1</i> adds three or more single-digit numbers (consecutive)
	MA2-5NA	<i>Multiplication and Division 1 and 2</i> finds factors and makes connections between factors and multiples
	MA2-8NA	<i>Patterns and Algebra 1</i> identifies and describes number patterns using diagrams, words or symbols discusses how patterns can be continued
	MA3-4NA	<i>Whole Numbers 1 and 2</i> explores prime numbers and factors recognises and explain the relationship between the way each pattern of numbers is created
Day 3 Folding Geometry with Brain Flip Flops! Paper Folding activity (includes dot task not linked in this mapping)	MA2-3WM	<i>Reasoning</i> investigates and explains equivalence using various methods discuss strategies used to estimate area
	MA2-7NA	<i>Fractions and Decimals 1 and 2</i> models fractions of shapes (area model – continuous) compares and represents equivalent fractions

WIM lesson	NSW syllabus outcomes	Sub strand and content links
	MA2-10MG	<i>Area 1 and 2</i> finds areas of rectangles and squares measures areas of common 2D shapes
	MA2-15MG	<i>Two-Dimensional Space 1 and 2</i> manipulates and describes features and properties of shapes combines and splits shapes to explore area
	MA2-16MG	<i>Angles 1</i> compares angles
	MA3-7NA	<i>Fractions and Decimals 1 and 2</i> models and represents adding fractions with same denominator
Day 4 Pascal's Triangle	MA2-3WM	<i>Reasoning</i> makes predictions and explains results
	MA2-8NA	<i>Patterns and Algebra 1</i> models, describes and records number patterns using diagrams, words or symbols investigates and generates number patterns (including visuals) and finds higher terms
	MA3-3WM	<i>Reasoning</i> describes strategies for completing simple number sentences, justifies solutions gives valid reasons to support ideas and strategies
	MA3-4NA	<i>Whole Numbers 1 and 2</i> explores consecutive triangular numbers (in background information) recognises and models prime numbers, square and triangular numbers recognises and explains the relationship between the way each pattern of numbers is created

WIM lesson	NSW syllabus outcomes	Sub strand and content links
	MA3-8NA	<i>Patterns and Algebra 1 and 2</i> describes, continues and creates number patterns (using the four operations) creates geometric patterns describes patterns in words and makes generalisations

Week of Inspirational Math 2015

Grades 5-9+ <https://www.youcubed.org/weeks/week-1-grades-5-9/>

You may want to visit the website link above to access any videos and PowerPoint presentations that accompany the lessons. The links within this table link directly to the lesson plans.

These activity match the same outcomes as for the Grade 3-4 versions, with the addition of the outcomes listed here

WIM lesson	NSW syllabus outcomes	Sub strand links
Day 1 Honoring Ideas- Wanted: Everyone's! The Four 4's activity	MA4-3WM	<i>Reasoning</i> recognises and explains mathematics relationships
	MA4-9NA	<i>Indices</i> describes and uses powers, square roots etc, applies order of operations
	MA4-5NA	<i>Fractions, decimals and percentages</i> explores irrational numbers such as square roots
Day 2 Visualizing Numbers Made of Dots! Number Visuals activity (includes consecutive numbers)	MA4-1WM	<i>Communicating</i> connects mathematical ideas to words and symbols
	MA4-3WM	<i>Reasoning</i> recognises and explains mathematical relationships

WIM lesson	NSW syllabus outcomes	Sub strand links
	MA4-8NA	<i>Algebraic expressions 1</i> develops the concept of pro-numerals recognises pro-numerals can represent many numerical values
	MA4-9NA	<i>Indices</i> explores prime factors and applying tests of divisibility
Day 3 Folding Geometry with Brain Flip Flops! Paper Folding activity (includes dot task not linked in this mapping)	Same as for Grades 3-4	
Day 4 Pascal's Triangle	MA4-4NA	<i>Computation with integers</i> explores the four operations with integers

Mathematics K-10 Syllabus outcomes © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2012.