

EMA 200 Assignment 1- Development of a hypothetical learning trajectory

Key concept

Investigating number sequences involving multiples of 3, 4, 6, 7, 8 and 9.

The focus of this learning trajectory is to enable students to confidently learn number sequencing involving addition, subtraction, multiplication and division, whilst supporting and teaching their learning.

Informal knowledge

Informal knowledge refers to the knowledge students possess which has not necessarily been taught in the class room environment. This knowledge may have been acquired in situations such as the home environment or inadvertently through discussion with friends.

Pre formal knowledge

Pre formal knowledge refers to knowledge students have acquired through previous structured curriculum focussed teaching.

Assuming year four students have successfully completed year three in a school using the Australian Curriculum (ACARA), it would be fair to assume that students have participated in:

Year 3 Content Descriptions

Strand

Number and algebra

Sub strand

Number and place value

Content description

Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056)

Both informal and pre formal knowledge will be assessed and identified during the initial stages of the learning trajectory. Following the introduction of the trajectory and identification of learning objectives, students will be required to complete a fun quiz. This will allow the teacher to ascertain both the student's informal knowledge and pre formal knowledge.

Anthony Rossetti
255144

Learning goals

The learning goals of this learning trajectory are centred around the content descriptions found in the Australian Curriculum for year four students (see below).

Following completion of this learning trajectory, it is hoped that children will be able to investigate relevant number sequences, whilst performing equations. A focus of performing times tables is also included in the learning trajectory.

Year 4 Content Descriptors

Strand

Number and algebra

Sub strand

Number and place value

Content description

Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9 (ACMNA074)

Elaboration

Recognising that number sequences can be extended indefinitely, and determining any patterns in the sequences

Developmental objectives:

The below objectives all include the use of numbers 3, 4, 6, 7, 8 and 9 and include both content and proficiency strands such as understanding, problem solving, fluency and reasoning.

1. Students will be able to identify patterns in various number sequences.
2. Students will be able to add and subtract these numbers and identify links and relationships.
3. Students will be able to multiply and divide these numbers and identify links and relationships, involving the concept of multiplication tables.
4. Students will be able to identify patterns connected to these number relationships.
5. At the completion of the unit, students will have a sound knowledge of the above concepts and be able to apply and practice them with confidence.

Planned Learning Trajectory Layout

<p>PAGE 1.</p> <ul style="list-style-type: none"> Title page Identification of developmental objectives 	<p>PAGE 2. <i>Focus: Number 3</i></p> <ul style="list-style-type: none"> Page 2 will contain examples and activities relating to developmental objectives 1-5. 	<p>PAGE 3. <i>Focus: Number 4</i></p> <ul style="list-style-type: none"> Page 3 will contain examples and activities relating to developmental objectives 1-5. 	<p>PAGE 4. <i>Focus: Number 6</i></p> <ul style="list-style-type: none"> Page 4 will contain examples and activities relating to developmental objectives 1-5.
<p>PAGE 5. <i>Focus: Number 7</i></p> <ul style="list-style-type: none"> Page 5 will contain examples and activities relating to developmental objectives 1-5. 	<p>PAGE 6. <i>Focus: Number 8</i></p> <ul style="list-style-type: none"> Page 6 will contain examples and activities relating to developmental objectives 1-5. 	<p>PAGE 7. <i>Focus: Number 9</i></p> <ul style="list-style-type: none"> Page 7 will contain examples and activities relating to developmental objectives 1-5. 	<p>PAGE 8.</p> <ul style="list-style-type: none"> Conclusion page Contains short fun quiz to assess students acquired knowledge

Developmental Objectives	Examples of potential sequence of learning tasks <i>All learning tasks will contain example questions and answers and an explanation of processes.</i>
1.	Find the missing number (eg. 3, 6, 9, 12, ?, 18, 21, 24) Identify the pattern (eg. 4, 7, 10, 13, 16, 19)
2.	Find the missing number (eg. 4+12 is the same as 8+8) Find the missing number (eg. 20-4 is the same as 24-8)
3.	Calculate the answer (Is 6 groups of 6 is written as 6x6 or 6+6) Calculate the answer (How many times can 8 go into the number 24)
4.	Calculate the following (Does 6+3 have the same answer as 3x3? If so explain why) Calculate the following (24, 30 and 36 are all multiples of 2. What other numbers are they multiples of?)
5.	A short quiz including varying degrees of difficulty will be on the final page of the learning trajectory. The aim of this quiz is to identify the acquired knowledge students have gained and any students that need further assistance in meeting their developmental objectives.

Anthony Rossetti
255144

References

ACARA Australian Curriculum Assessment and Reporting Authority. (2014). *Foundation to year ten curriculum- year 3*. Retrieved from <http://www.australiancurriculum.edu.au/mathematics/Curriculum/F-10#level3>

ACARA Australian Curriculum Assessment and Reporting Authority. (2013). *Foundation to year ten curriculum- year 4*. Retrieved from <http://www.australiancurriculum.edu.au/mathematics/Curriculum/F-10#level4>

Eaton, SE. (2014). *Literacy, Languages and Leadership*. Retrieved from <http://drsaraheaton.wordpress.com/2012/02/28/characteristics-informal-learning/>

Simon, D., Beswick, K., Brady, K., Clark, J., Faragher, R., Warren, E. (2011). *Teaching Mathematics Foundations to Middle Years* (1st ed.). Australia and New Zealand: Oxford University Press.