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| **Student(s) Name(s)/ ARCOTS Code**: | | | |
| **Date :** | | | |
| **Developmental Domain** | **Progression of Numeracy**  **Strand: Number** | | |
| **Developmental Level & Nutshell Statement** | **Level K**  **Generalize patterns using explicitly and recursively defined functions. Perform arithmetic operations on polynoms. Use factorisation to simplify quadratic equations. Analyse function using different representations. Extend properties of integer exponent to rational exponent.** | | |
| **Evidence for this level?** (What makes you say this? | ARCOTS testing student ZPD was Level K. Analysis of work samples against the progression confirmed this. | | |
| ***What is the student ready to learn?*** | ***What are the expected outcomes and evidence?*** | ***What interventions has the teacher planned?*** | ***What worked? What next?*** |

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| **Learning Intention/s**  (Specific **skill** or concept or part thereof to be learned) | **Evidence** (What the students will be able to do, say, make or write): | **Teaching Strategy** (What the *teacher* says, does, makes or writes) | **Learning Activity**  (Describes what the students are actually going to do) | **Resources** (People, place or things used in the activity to realise the learning strategy) | **Review & Reflection** |
| Students will be able to factorise and solve quadratic equations using different methods. | - Students select the most appropriate method to factorise a quadratic equation  - Students apply algebraic techniques such as completing the square to determine the **x**-intercept(s) and turning point (maximum or minimum value) of a quadratic function | ***MIDDLE and UPPER YEARS***  ***Expositive***  • Teacher will:   * Revise solving linear equations. * Demonstrate solution methods for quadratic equations (cross over method, algebraic formula and completion of square (if feel is necessary)   ***Individualistic***  • Teacher will give students the opportunity to assess different methods of solving quadratic equations.  • Teacher conducts debrief session to focus student learning, using questions such as:   * What is the purpose of solving a quadratic equation? * How can the most suitable method to factorise and solve a quadratic equation be determined? * How can the number of solutions for a quadratic equation be determined? * When would there be one, two or no solutions for a quadratic equation? * If a quadratic equation cannot be factorised, what does it mean for the corresponding graph? | ***MIDDLE and UPPER YEARS***  • Students solve different linear equations (ex: find x for the equation 5x + 1 = 2x – 6).  • Students factorise:  - 5 quadratic equations with an x2 coefficient of 1 and all have whole number factors.  - 5 quadratic equations where the x2 coefficient is not 1 and all have whole number factors.  - 5 quadratic equations that do not have whole number factors and need to be factorised using the formula  - the 5 equations in c. Can be factorised using the completion of square (if necessary) | Teachers can access to Ultranet eBookboxes “Algebraic” and ‘Quadratic and Exponential Functions’ where different interactive activities are available to work through this learning intention: Quadratic equation solver.Quadratic equations section 2.Using the quadratic formula. | **Review Date:**  **Reflection:** |
| **Rationale:** | Differentiated context, the activities proposed on this Log can be suitable for middle and upper years’ students.  The PLT Log references some eBook boxes (‘Algebraic’ and ‘Quadratic and Exponential Functions’) which are available on the Ultranet as Design Space 66512121. The activities in the eBook box should be allocated to students according to the teacher’s knowledge. | | | | |

Was the teaching intervention successful?

If yes, what, if anything would the PLT do differently? If no, why not?