# 21st Century Lesson Template

|  | Description |
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| Lesson Goals: | At the end of this lesson, each student should be able to say, "I can write the equation of a quadratic function using factored form when given a graph or equation." |
| Outcomes: | **RF02**  Students will be expected to demonstrate an understanding of the characteristics of quadratic functions, including vertex, intercepts, domain and range, and axis of symmetry.<br><br>RF02.12   Solve a contextual problem that involves the characteristics of a quadratic function.<br>RF02.06  Express a quadratic equation in factored form, using the zeros of a corresponding function or the x-intercepts of its graph. |
| Driving Question or Target: | Can you find the vertex, axis of symmetry, roots and y-intercept of a quadratic function and use them to create the equation that describes the function? (Focus on today is using factored form.) |
| Key Vocabulary and Skills: | Axis of symmetry, vertex, roots, zeroes, x-intercepts, y-intercepts, parabola, coordinates, |
| Materials: | Screencast, mimio lesson file, practice worksheet, exit card |

### 21 Century Competencies

|  | I | II | III | IV |
|---|---|---|---|---|
| Find and Validate | x |  |  |  |
| Communicate and Collaborate |  | x | x | x |
| Analyse and Synthesize |  | x | x |  |
| Apply and Connect | x | x | x | x |
| Evaluate and Leverage |  |  | x |  |
| Create and Publish |  |  |  | x |

Lesson:

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| **I. Introduction (Teacher organized)**<br>Present the focus of the lesson - students have been working with quadratics so they should be able to review vocabulary by answering questions.<br>Example questions for warm up:<br>● Show a graph ask students to identify pieces - vertex, intercepts, axis of symmetry.<br>● What is the equation for the axis of symmetry for a parabola with a vertex at (3,-2)?<br>● What is the y-intercept of the equation y=$3x^2 + 2x - 5$? Does this parabola open up or down?<br>● Address any carry over questions from homework. | Resources: |

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| **II. Guided Learning (Teacher/student collaboration)**<br>Here the mimio presentation will be used to interactively do examples with students. Students will be given an example with some information and will need to use that to find more pieces of the function in order to write an equation that represents that function. Do one example with students, then let them try one. Do a different type of example, let them try. Have them ask questions and give answers using proper vocabulary. | Resources:<br>Mimio file lesson on website<br><br>Blank PDF File |

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| **III. Collaborative Learning (Student focussed activity)**<br>Students will be given time to work on specific text book questions. They can work independently or in small groups. I will circulate throughout the room to support. They will also be given a worksheet to take home for review practice of all concepts on quadratics to date as there is an upcoming assessment | Resources:<br>worksheet<br><br>Answers to worksheet posted on website |

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| **IV. Grande Finale**<br>Students will be called back to attention and time will be taken to highlight some of the questions that may have caused difficulty. Homework will be discussed and students will be told to watch the screencast for a second look at solving quadratic word problems. Have students complete exit card. | Resources:<br>Screencast. |

| Differentiation | Resources: |
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| There are four students who will complete this lesson with the math support teacher after the introduction is complete. | |

| Assessment and Evaluation:<br>An exit card was given to be completed and collected as formative assessment. | [Exit card](#) |
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| Reflection: |
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| This lesson went well in class but students still struggle to make a plan when the questions vary from what they have seen. Hopefully having the screencast available for follow through will help. From the results of the exit card, the vocabulary is improving. I really like this template format. |