**Card Set A**

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| **Set A Instructions:**   1. Keep cards in 3 separate piles: Opening, Vertex and Crossing 2. Randomly draw one card from each pile  (or from just one or two piles, your choice) 3. Sketch a parabola (qualitative representation, no numbers) that satisfies the criteria on the drawn card(s). Hint: There might be times this is not possible. 4. Compare your sketch with others and discuss similarities and differences. 5. Erase your work and do another one! | Set A Vertex  Vertex in QIII |
| Set A Opening  Opens up | Set A Vertex  Vertex in QIV |
| Set A Opening  Opens down | Set A Crossing  Crosses the X-axis twice |
| Set A Vertex  Vertex in QI | Set A Crossing  Crosses the X-axis once |
| Set A Vertex  Vertex in QII | Set A Crossing  Does not cross the X-axis |

**Card Set B**

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| **Set B Instructions:**   1. Get vertex ( *h, k* ):    * draw a Number Card for *h*    * draw a Number Card for *k* 2. Draw one *a* value card to get *a* 3. Sketch the parabola (quantitative representation)  that satisfies the criteria on the drawn cards. 4. Compare your sketch with others and discuss  similarities and differences. 5. Draw a Challenge card, complete and discuss (optional). 6. Erase your work and try another one! | Set B Quadratic Equations  Vertex form: *y* = *a* ( *x - h* )2 + *k*  Standard form: *y = ax2 + bx + c* |
| Set B *a* value  *a* = 1 | Set B Challenge  Represent the criteria in vertex form |
| Set B *a* value  *a* = -1 | Set B Challenge  Represent the criteria in standard form |
| Set B *a* value  *a* = 2 | Set B Challenge  Find the *y*-intercept |
| Set B *a* value  *a* = -2 | Set B Challenge  If *y* is a perfect square, find the *x*-intercepts.  If *y* is not a perfect square, why is it  more difficult to find the *x*-intercepts? |

**Card Set C Card Set D**

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| **Set C Instructions:**   1. Get two *x*-intercepts and the *y*-intercept    1. draw a Number Card for *x1*-intercept    2. draw a Number Card for *x2*-intercept    3. draw a Number Card for *y*-intercept 2. Sketch the parabola (quantitative representation)  that satisfies the criteria on the drawn cards. 3. Compare your sketch with others and discuss  similarities and differences. 4. Draw a Challenge card, complete and discuss (optional). 5. Erase your work and try another one! | **Set D Instructions:**   1. Get a point on the graph( *x, y* ): [not the vertex]    1. draw a Number Card for *x*    2. draw a Number Card for *y* 2. Draw a Number Card for *a* 3. Draw a Number Card for either *x*-intercept or *y*-intercept 4. Sketch the parabola that satisfies the criteria  (you may need to solve algebraically first). 5. Compare your sketch with others and discuss. 6. Draw a Challenge card, complete and discuss. 7. Erase your work and try another one! |
| Set C Challenge  Represent the criteria in factored form | Set D Challenge  Find the vertex |
| Set C Challenge  Solve for *a* | Set D Challenge  Complete the square from factored or standard form |
| Set C Challenge  Find the vertex | Set D Challenge  Find both *x*-intercepts |
| Set C Challenge  Represent the criteria in standard form | Set D Challenge  Take away one or add one parameter. Can you drawn a graph with this information?  Why or why not? |

**Number Cards** (print 2 copies, ideally on paper that’s a different colour from the Set cards)

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| --- | --- | --- |
| 0 | 8 | -4 |
| 1 | 9 | -5 |
| 2 | 10 | -6 |
| 3 | 0 | -7 |
| 4 | 0 | -8 |
| 5 | -1 | -9 |
| 6 | -2 | -10 |
| 7 | -3 | 1 |

**Teacher Cards** (print on paper that’s a different colour from the Set cards and Number cards)

|  |  |  |
| --- | --- | --- |
| Does | 1/2 | -1/2 |
| Does Not | 1/3 | -1/3 |
| < | 1/4 | -1/4 |
| > | 1/5 | -1/5 |
| *x* | *y* | *a* |
| Does | 1/2 | -1/2 |
| Does Not | 1/3 | -1/3 |