Card Set A

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

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: $y = ax^2 + bx + c$

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

Set C Instructions: 1. Get two *x*-intercepts and the *y*-intercept a. draw a Number Card for x_1-intercept b. draw a Number Card for x_2-intercept c. 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] a. draw a Number Card for *x* b. 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)

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