The Thirsty Crow – linear function modeling with video clips, data collection, and sliders (or regression)

Q: If the water needs to be 15.3 cm high for the crow to reach it, how many _more_ rocks does she need?

Mohegan Sun Arena – build a spreadsheet with formulas to generate an arithmetic sequence and series

Q1: How many seats are there all together in section 22?

Q2: How many rows have 17 or more seats?

Q3: Which row are you in if there are 84 people in your section in front of you?

Quadratic Palooza - 3 forms of a quadratic function respond to the same sliders - awesomeness

Q1: What can be observed in each form of a quadratic function?

Vertex form:

Factored form:

Standard form:

Q2: Which form is easiest for you to graph and why?

[Checkerboard Tile Border](#) – play with an applet to help find a rule for a pattern, optional spreadsheet

    Q1: If the center square has a side length of 60', how many blue tiles will you need?

    Q2: If the center is a 25' x 40' rectangle, how many blue tiles will you need?

[Setting Posts](#) – an applet to help students discover a rule for adding positive and negative numbers

    Q1: Describe what happens when you add a short post to a deep hole.

    Q2: Describe what happens when you add a tall post to a short hole.

[Multiplying Binomials](#) - an applet of an area model to visualize the product of binomials (conditionals)

    Q1: Model the product of (3x + 2) and (x + 3). Write the product _____

    Q2: Check the box to show the area. Move the slider to show each of the integer values of the area.
       Then find the corresponding x-values.

Value of Area				
Value of x				

    Q3: How does the picture help you?

Simplifying Radicals - use the intersection of a rectangle's diagonal and interior lattice points

   Q1: Why does this work?

   Q2: How will this help kids see how to simplify a square root?

Angry Birds - quadratic modeling with sliders
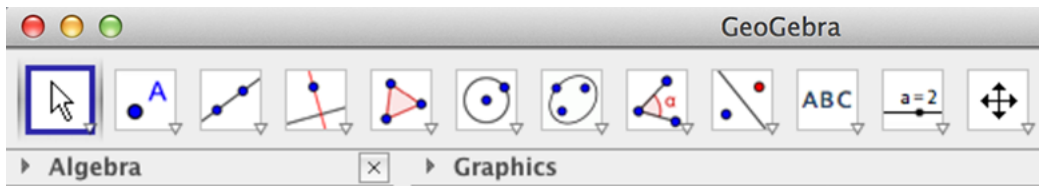
   Q1: Record your equations

   1. _____   2. _____   3. _____

   Q2: Explain how a, h, and k change the graph.

Glenn Waddell's TMC13 Favorite: "Vertex Form" for every function – exploration of transformations

   As Glenn shared his approach, I made this applet. Lots of fun at Twitter Math Camp!

   Q1: Explain how a, h, and k change the graph.

GeoGebra

Algebra ✕ ▶ **Graphics**

Move Tool
- Move
- Rotate around Point
- Record to Spreadsheet

Point Tool
- New Point
- Point on Object
- Attach / Detach Point
- Intersect Two Objects
- Midpoint or Center
- Complex Number

Line Tool
- Line through Two Points
- Segment between Two Points
- Segment with Fixed Length
- Ray through Two Points
- PolyLine between Points
- Vector between Two Points
- Vector from Point

Perpendicular Line Tool
- Perpendicular Line
- Parallel Line
- Perpendicular Bisector
- Angle Bisector
- Tangents
- Polar or Diameter Line
- Best Fit Line
- Locus

Polygon Tool
- Polygon
- Regular Polygon
- Rigid Polygon
- Vector Polygon

Circle Tool
- Circle with Center through Point
- Circle with Center and Radius
- Compass
- Circle through Three Points
- Semicircle through Two Points
- Circular Arc with Center between Two Points
- Circumcircular Arc through Three Points
- Circular Sector with Center between Two Points
- Circumcircular Sector through Three Points

Conic Tool
- Ellipse
- Hyperbola
- Parabola
- Conic through Five Points

Angle Tool
- Angle
- Angle with Given Size
- Distance or Length
- Area
- Slope
- Create List {1,2}

Reflect Tool
- Reflect Object about Line
- Reflect Object about Point
- Reflect Object about Circle
- Rotate Object around Point by Angle
- Translate Object by Vector
- Dilate Object from Point by Factor

Text Tool
- Insert Text
- Insert Image
- Pen
- Freehand Shape
- Relation between Two Objects
- Probability Calculator
- Function Inspector

Slider Tool
- Slider
- Check Box to Show / Hide Objects
- Insert Button
- Insert Input Box

Move Graphics View Tool
- Move Graphics View
- Zoom In
- Zoom Out
- Show / Hide Object
- Show / Hide Label
- Copy Visual Style
- Delete Object