



1.2 Noticing Student Thinking: Quadratic Functions - Making Sense of “h”

In the video you will see a pair of high school students currently enrolled in an Integrated Math 1 course working on a task in which they are being introduced to parameters of quadratic functions in vertex form (i.e., $f(x) = a(x - h)^2 + k$).

The learning goal for the lesson is:

- Students will understand the connection between the structure of a quadratic function in vertex form and its related graph with respect to the location of the vertex, whether it opens up or down, and the vertical stretch compared to the parent function.

Specific performance goals include:

- Given a quadratic function in vertex form, students will determine the location of the vertex
- Given a quadratic function in vertex form, students will qualitatively describe its shape with respect to the parent function
- Given a quadratic function in vertex form, students will determine if the function opens up or down
- Given a quadratic function in vertex form, students will describe its vertical stretch/compression related to the parent function
- Given a quadratic function in vertex form, students will sketch a graph
- Given a quadratic function in vertex form, students will write its equation in vertex form

Before going any further, take a moment to get familiar with the task.



[Desmos Quadratic Sliders](#)

Now that you are familiar with the task, you are going to analyze a video of a pair of students, Sara and Julian, working on the same task. As was noted above, Sara and Julian are currently enrolled in an Integrated Math 1 course. They have been working with quadratic functions but have not been formally introduced to vertex form. This task serves as their introduction.



In this video [Sara and Julian](#) are working on page 2 and then 8 of the Desmos Quadratic Parameters Task.



Q1. Attend to (i.e., describe in detail) how the students determined the effect of the h slider on the graph of the quadratic function.

Q2. Interpret the students' current (rough draft) understanding of the h parameter. Provide evidence from the video to support your claims.