Polygraph: Square Root F...

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BY ANDREW SHAUVER view original | Duplicate This Activity

Edited with love by Desmos Teaching Faculty

polygraph, square root, radical

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ABOUT THIS ACTIVITY

This Custom Polygraph is designed to spark vocabulary-rich conversations about square root functions. Key vocabulary that may appear in student questions includes: intercept and quadrant.

In the early rounds of the game, students may notice graph features from the list above, even though they may not use those words to describe them. That's where you can step in. After most students have played 2-3 games, consider taking a short break to discuss strategy, highlight effective questions, and encourage students in their use of increasingly precise academic language. Then ask them to play several more games, putting that precise language to work.

THE GRAPHS

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ABOUT POLYGRAPH

We have designed Polygraph to foster the pleasure and the power of words without the drudgery of the lists.

With Polygraph, Desmos provides tools for developing informal language into formal vocabulary. Because words should result from a need to describe our world—this is where they gain their power.

And we also know well the pleasure of having just the right word handy at just the right moment—what the French call *le mot juste*.

How Polygraph works:

1. Practice
Each student plays a practice round against the computer to learn how the game works.

2. Play
Next, students are paired with a classmate to play polygraph with graphs. One person chooses a graph; their partner asks yes/no questions in order to narrow a field of suspects down to one.

3. Reflect
Between rounds, students answer questions that focus their attention on vocabulary and strategy.

THE STUDENT EXPERIENCE

Before you put students on computers, make sure they understand the premise of the game. We do not recommend playing a sample round with the class, as the first round involves the computer asking questions of all of the students (a fact we do not reveal until they have

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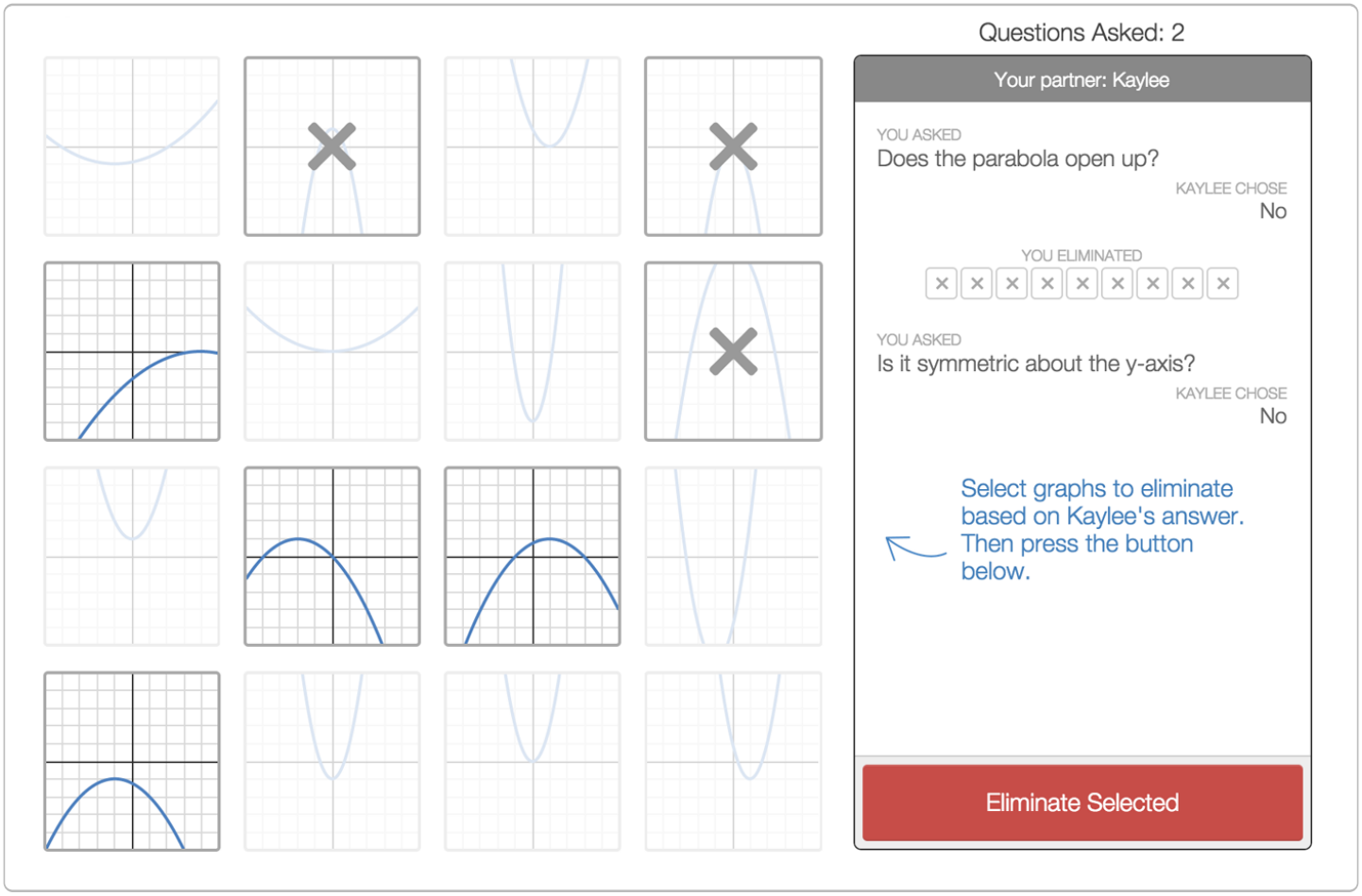
Starting in the second round, we pair students with each other. One student picks the graph and answers questions, the other student asks the questions and tries to identify the chosen graph. Between rounds, students answer questions that focus their attention on vocabulary and strategy.



Students will play a practice round with faces to learn the game mechanics, then use graphs to play against their classmates.

THE TEACHER EXPERIENCE

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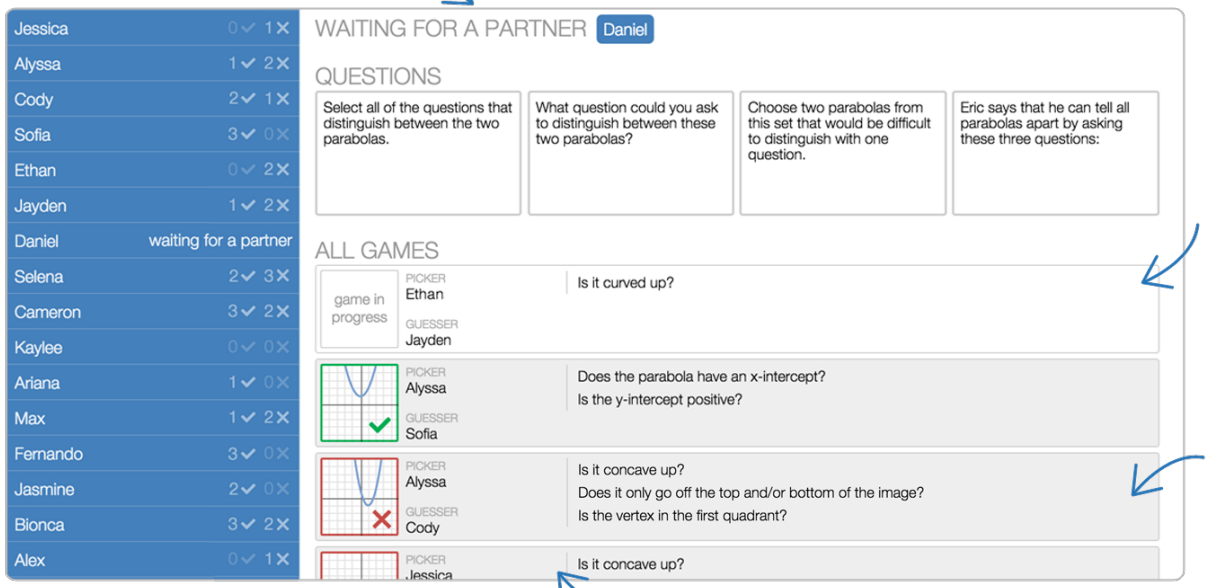
Keep an eye out for students who are waiting too long for a partner.



To what extent are students using formal vocabulary? What ways do they create to describe standard (and non-standard) features of the graphs?

Keep an eye out for students who pick the wrong suspect. Thinking about what went wrong, is a challenging bit of reflection. Some students may need encouragement and support to see it through.

You can click on a pair's game in the teacher dash to view the entire game.

There are a couple of ways you can wrap up this lesson. You could end it by playing a round against the class. Invite discussion of the ideas and strategies behind the questions your students ask.

As an alternative, you could use the teacher dashboard to identify some interesting questions that students asked as they played, and bring these questions to their attention. These might include use of vocabulary you want to introduce or examples of students noticing things about the suspects that most did not.

TIPS FROM TEACHERS

Polygraph Rocks
by Jo Morgan @mathsjem
I was really impressed by how quickly their mathematical language developed. They started using the new words (roots, vertex and