

# Highest-Impact Strategies

## Purposeful Focus

Many of the things we do as educators have a positive effect on student learning, but which ones have the greatest impact? This program purposefully integrates five key strategies proven to have the highest impact on student achievement.

### TEACHER CLARITY

Before starting a new topic, make clear the learning target. As students explore and learn, continually connect their experiences back to the success criteria so they know where they are in their learning.

### Where Are We In Our Learning?

📍 "The first success criterion is about identifying linear functions using graphs, tables, and equations. Does the data you collected in the exploration represent a function? Explain." *Yes, every input has exactly one output.* "How can you tell from the table that the function is linear?" *Sample answer: The rate of change is constant.* "How can you tell from the graph that the function is linear?" *The points lie on a line.*

📍 **FEEDBACK** It is important to make a connection between students' experiences and the success criteria. You are providing explicit instruction on how to identify success (learning).

📍 **FEEDBACK** After students complete the Self-Assessment, have them check their work and solutions with their elbow partners. Then say, "These exercises are related to the first two success criteria. Where are you in your learning?"

### FEEDBACK

Actively listen as you probe for student understanding, being mindful of the feedback that you provide. Through feedback you see where your students are in their learning and make instructional decisions for where to go next.

- Show students a picture of a stack of the same object, such as copies of the same book. The top of the stack should not be visible.

? **TURN AND TALK** "If you know the height of the stack and the height of one book, how can you estimate the number of books in the stack?" *Divide the height of the stack by the height of one book.*

### CLASSROOM DISCUSSION

Encourage your students to talk together! This solidifies understanding while honing their ability to reason and construct arguments. Students benefit from hearing the reasoning of classmates and hearing peers critique their own reasoning.

## Daily Support from a Master Educator

In Laurie's Notes, master educator Laurie Boswell uses her professional training and years of experience to help you guide your students to better understanding.

Laurie studied Professor John Hattie's research on *Visible Learning* and met with Hattie on multiple occasions to ensure she was interpreting his research accurately and embedding it effectively. Laurie's expertise continues with an ongoing collaboration with Sophie Murphy, who is pursuing her Ph.D. under Professor Hattie.



# for Student Achievement

**KEY IDEA**  
**Vertical Line Test**  
**Words** A graph represents a function when no vertical line passes through more than one point on the graph.  
**Examples** Function Not a function

## DIRECT INSTRUCTION

Follow exploration and discovery with explicit instruction to build procedural skill and fluency. Teach with clear *Key Ideas* and powerful stepped-out *Examples* that have been carefully designed to meet the success criteria.

## EXAMPLE 1 Graphing $f(x) = a(x - p)(x - q)$

Graph  $f(x) = -(x + 1)(x - 5)$ . Find the domain and range.

### SOLUTION

**Step 1** Identify the  $x$ -intercepts. Because the  $x$ -intercepts are  $p = -1$  and  $q = 5$ , plot  $(-1, 0)$  and  $(5, 0)$ .

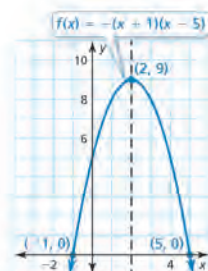
**Step 2** Find and graph the axis of symmetry.

$$x = \frac{p + q}{2} = \frac{-1 + 5}{2} = 2$$

**Step 3** Find and plot the vertex. The  $x$ -coordinate of the vertex is 2. To find the  $y$ -coordinate of the vertex, substitute 2 for  $x$  and evaluate.

$$f(2) = -(2 + 1)(2 - 5) = 9$$

So, the vertex is  $(2, 9)$ .



## REVIEW & REFRESH

42. Tell whether  $x$  and  $y$  are proportional.

$x$	4	6	12	16
$y$	6	8	16	20

43. What number is 60% of 35?

44. 27 is what percent of 75?

In Exercises 45–48, solve the equation.

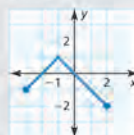
45.  $n - 5.3 = -7.4$

46.  $|2x + 5| = 3x$

47.  $7c + 10 - 12c = -11 - 2c$

48.  $-\frac{1}{2}(3h + 8) + 2 = 13$

58. Find the domain and range of the function represented by the graph.



59. **MP REASONING** Find the value of  $a$  for which the equation

$$12x - 15 = a(5 - 4x)$$

is an identity.

60. Write an inequality that represents the graph.

## SPACED PRACTICE

Assign *Review & Refresh* exercises in every section to provide continual practice on the major topics. Effective homework does not just focus on a single topic of new learning; students must revisit concepts over time so deeper learning occurs.

We focus on **STRATEGIES WITH THE HIGHEST IMPACT** on student achievement—up to 2 years of learning for a year of input.

## Five Strategies for Purposeful Focus

Professor John Hattie, in his *Visible Learning* network, identified more than 250 influences on student learning, and developed a way of ranking them. He conducted meta-analyses and compared the influences by their **effect size**—the impact the factor had on student learning.

