

ENgagement and Achievement through Computational Thinking

Prompting and Pointing Out Decomposition and Debugging Viewing Guide

Lesson 13

Topic and goals

In this Engagement and Achievement through Computational Thinking (ENACT) Decomposition and Debugging Lesson video, a teacher models how to integrate computational thinking (CT) strategies into your classroom. Framing, prompting, and highlighting are designed to empower students to take ownership of CT strategies.

The goals of the video are to support you in:

- **framing** a lesson or task that provides students with an opportunity to apply one or more CT strategies.
- **prompting** students (either verbally or using resources) as they work on a problem by applying CT strategies.
- **highlighting** examples of when and how students used CT strategies to complete their work.

As teachers become comfortable with framing, prompting, and highlighting, students will feel more empowered to take ownership of the CT strategies and integrate them into how they solve math problems.

Context

This video demonstrates **prompting/highlighting (pointing out)** in a lesson. The examples in this video focus on tasks that involve plotting polygons on a coordinate grid and will be most effective if students have prior experience using coordinates to plot points. Although the mathematical context centers on coordinate geometry, the instructional strategies shown—such as exchanging work with a partner to support debugging—can be applied across a wide range of problem types and mathematical topics.

The four chapters in this video are listed below:

- **Chapter 1:** Prompting decomposition (0:53–3:45)
- **Chapter 2:** Prompting debugging (3:46–5:29)
- **Chapter 3:** Highlighting (pointing out) debugging (5:30–7:05)
- **Chapter 4:** Highlighting (pointing out) decomposition (7:06–8:31)

Questions to consider when planning:

- What are some strategies my students could use to solve the problems in this lesson?
- How might a CT strategy already be part of or add to what they are already doing?
- How might I recognize when my students are using CT strategies?
- How might I identify when it would be helpful to prompt a student to use CT strategies?



Video notes: As you view the video, icons (below) will appear, indicating content related to CT strategies, student-focused practices, pedagogy, and/or mathematics. When an icon appears, you may want to pause the video to read the associated notes in exhibit 1.



Computational Thinking

When this icon appears, the focus will be on CT strategies that are being modeled through framing, prompting, and/or highlighting. The focus is on the strategy.



Student Focus

When this icon appears, the focus will be on student-focused practices that are being used: connecting to student experiences, supporting student choice by enabling multiple approaches to problems, valuing student thinking and voice, supporting student collaboration.



Pedagogy

When this icon appears, the focus will be on the teaching techniques that use interactive teaching and student learning, and/or assessing formatively.



Mathematics



When this icon appears, the focus will be on specific math concepts that are needed for solving the problem and connecting them to previous learning, and/or observing student work.






Exhibit 1. Notes for ENACT video: Decomposition and debugging

In ENACT Lesson 13, a coach models how to use two strategies for integrating computational thinking (CT) into your classroom. These two strategies, called *prompting* and *highlighting (pointing out)*, are designed to support students in taking ownership of CT practices.

The goals of the video are to support you to:

- **Prompt** students to use decomposition and debugging to help them solve problems about polygons on a coordinate grid.
- **Highlight (point out)** when you see students using decomposition or debugging independently.

Timestamp	Topic	Notes
Chapter 1: Prompting decomposition		
02:05	 Student Focus	Support student collaboration: After a student shares a question or expresses confusion, inviting other students to consider whether they have the same question can encourage collaborative sensemaking. This approach helps students learn from one another and reinforces that grappling with uncertainty is a shared part of the problem-solving process.
03:26	 Pedagogy	Support engagement through structured discussion: Providing students time to discuss a problem in partnerships or small groups supports active engagement and gives them opportunities to take ownership of the work. These discussions help students articulate their thinking, compare approaches, and begin breaking the problem into manageable parts.

Timestamp	Topic	Notes
Chapter 2: Prompting debugging		
04:10	 <p>Mathematics</p>	<p>Support understanding of coordinate representations: It is important for students to have experience working with coordinate grids both with and without gridlines extending across the entire plane. Some students may benefit from using grid paper to support accurate placement of points and interpretation of coordinates, which can help make potential errors in reasoning or plotting more visible during debugging.</p>
04:47	 <p>Mathematics</p>	<p>Address common plotting errors: Reversing the x- and y-coordinates is a common error students make when plotting points on a coordinate grid. Supporting students in anticipating this mistake—by encouraging them to check the order of the coordinates or verify point placement—can help them prevent or correct errors as they work.</p>
05:14	 <p>Computational Thinking</p>	<p>Support debugging through organized representation: Listing coordinates in a table is another debugging strategy students can use to keep track of which coordinate corresponds to each point. Organizing information in this way can help students determine whether they have identified all required coordinates and plotted them correctly, making potential errors easier to notice and correct.</p>
Chapter 3: Highlighting (pointing out) debugging		
05:46	 <p>Student Focus</p>	<p>Support student choice: Asking students for permission before sharing their thinking with the class helps them maintain control over how and when their ideas are shared. This practice supports students in engaging at a pace that feels comfortable and encourages continued participation in debugging discussions.</p>
Chapter 4: Highlighting (pointing out) decomposition		
07:21	 <p>Pedagogy</p>	<p>Use active monitoring to inform instruction: Circulating as students work helps create opportunities for them to ask questions and seek support as they decompose the problem. Observing student approaches during work time also allows the teacher to identify strategies, misconceptions, or key ideas to highlight during the lesson summary.</p>

This viewing guide is part of a series of training resources related to REL Midwest’s ENACT partnership.