

3 GUIDELINES FOR MATHEMATICS LEARNING GOALS - Cheryl Rose Toby (2019)

Teacher clarity is one of the high yield practices for building assessment-capable learners (Frey, Hattie, Fisher 2018). Included in teacher clarity is communicating learning intentions and success criteria. Although the importance of establishing and using learning goals is widely accepted, teachers across the nation share with me the need to improve their implementation of this practice. The following three guidelines are designed to support implementation:

1) Create lesson level learning goals with a balanced set of success criteria

A Learning Intention can be defined as the core mathematical concept students will understand by the end of the lesson. Success criteria are statements that allow the students and teachers to know what they will use as evidence for meeting the learning intention.

Success criteria should include a balance of procedural and higher-level process skills that would provide evidence that a student is on track to meeting the learning intention.

Sample sentence starters for developing **procedural success criteria** include:

- I can identify . . .
- I can solve . . .
- I can distinguish between ___ and ___
- I can define . . .
- I can use ___ to . . .

Sample sentence starters for developing **higher-level process success criteria** include:

- I can use a model to . . .
- I can explain why . . .
- I can design a . . .
- I can construct an argument about . . .
- I can provide evidence for . . .

Teachers indicate their learning goals too often focus only on procedural skills. As you develop and refine a learning intention and success criteria, the following questions can guide your process for creating a balanced learning goal.

- Is the learning intention focused on the important mathematics concepts in the lesson rather than referring to activities or tasks students will complete?
- Does at least one of the success criteria describe something students can do or explain how to do (procedural success criteria)?
- Does at least one of the success criteria describe something students can justify, model or explain at a higher conceptual level? (higher-level process success criteria)?

Samples of Learning Goals with a balanced set of success criteria.

<p>What I will learn: Counting on is a strategy for adding numbers I know I learned it if: 1: I can solve addition problems using counting on 2: I can show someone else how the counting on strategy works</p>	<p>Today's Math Idea: The difference between common factors and common multiples. Criteria for Success #1: I can find the common factors of two numbers. #2: I can find common multiples of two numbers. #3: I can explain the difference between a common factor and a common multiple.</p>
<p>Target Understanding: Variables can take on multiple values when used in an algebraic expression. How will I show I met the target understanding: 1: I can explain why an expression might have different values. 2: I can substitute different numbers into an expression to give it different values</p>	<p>Today's Question: How are sine and cosine related? Today's Success Criteria 1: Can I find sine of an angle from the cosine of the angle? 2: Can I show or explain how sine changes when the cosine changes, and vice versa?</p>

2) Establish and use routines to focus students' attention on the criteria while learning is underway.

Since success criteria are what both the teacher and students will use to determine the extent to which students are meeting the goal, pausing at key points mid-lesson provides a much-needed opportunity for students to summarize their learning to that point.

Routines can provide structure and purpose to revisiting the goal. Below is a list of examples of such routines:

- 1) *Take Stock* is used after the completion of a task or activity. Engage students in a discussion using the following series of questions.
- 2) “Who can describe for me what we’ve done so far with (this math task)?”
- 3) “So in our success criteria, we said we would (read criteria to students). Can someone else describe what this means in their own words?”
- 4) “In what way did this task help us work toward meeting the success criteria?”
- 5) *A Picture Tells a Thousand Words* is used to highlight the difference between doing and learning. Post a picture of students engaged in a task with manipulative or other materials. Ask:
 - What were we doing?
 - What were we learning?
- 6) *Feedback Focused Group Discourse* is a way for teachers to provide whole-group feedback or feedback on selected student responses.

Create a feedback poster or anchor chart displayed in a place visible to students with the following sentence prompts:

- You are on track for meeting the learning goal because _____.
- You haven’t yet met the learning goal because _____.
- A hint to revise your thinking is _____.

Showcase a student worked example and have students respond to the prompts in partners or small groups. Lead a whole group discussion to debrief. Close the feedback loop by having students revisit their own work.

3) Take appropriate responsive action based on evidence collected.

At any time in a lesson when you elicit and interpret evidence, there are a number of possible responsive actions, whether for an individual or for the whole class. The four most common are:

- a. *Provide formative feedback.* When students show enough understanding or skill that some slight adjustments will allow them to meet the current goal, then provide formative feedback. One method for doing this might be to use the Feedback-Focused Group Discourse routine described above.
- b. *Provide further instruction.* If the evidence suggests that there is a significant gap between a student’s current learning status and the learning goal, the student is unlikely to make progress after receiving formative feedback. This may be because there is a significant barrier or misconception or because there are enough smaller issues that they collectively prevent students from moving on. In such a case, taking a step back to address the issues through further instruction is often an appropriate responsive action.
- c. *Gather more evidence.* In many cases, when a student gives you a response, the information gathered may be inconclusive. You might have gained some insight into student thinking but not enough for you to determine which of the other responsive actions is most appropriate. In this case, you simply need to gather more evidence.
- d. *Move on.* Most often, this is appropriate when your students are on track with where you expected them to be, with regard to meeting the goal. This may be after a task has been completed and you check in to see where students are with a particular success criterion; even if they haven’t met the criterion completely, they might be far enough along that they are ready to continue to the next task in your lesson plan. This also may be at the end of a lesson, when you review the evidence of the entire lesson against the whole set of success criteria.

Following these guidelines can greatly improve student learning. Creating a balanced set of criteria focusing on important higher-level processes supports conceptual understanding of the core mathematics idea. Revisiting of the learning goal helps solidify its meaning for students, and can serve different purposes in moving students’ learning forward. Asking “to what extent are my students meeting the learning target”, helps determine an appropriate responsive action and differentiation needs.