



Student-Centered Formative Assessment Change Routine

Categorizing Mistakes with Highlighting, Algebra 1 Honors

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<https://www.scanetwork.org/>

Problem of Practice

Categorizing Mistakes with Highlighting is a change idea that engages students in both self-correction of and self-reflection on their work in class. Through the use of both (self-correction and self-reflection), the idea increases students' participation with their work. *Categorizing Mistakes with Highlighting* was developed to get students to spend more time examining the types of error they made as well as build self-reflection skills to help avoid making similar errors in the future.

Over the course of two PDSA cycles, students started to identify errors with more precision and attributed mistakes to “careless error” less frequently.



Measures

The teacher tracked scores on the exit tickets after correction. A Google form was used to allow the teacher to track students' self-reported types of errors for each week. The forms were also used to track students' reflections on ways to improve their work. The teacher used scores on common assessments to track students' progress on achievement.

Procedure

To start the routine, students need to be trained to identify types of errors.

1. Give students a list with types of math errors.
2. Give students a sample exit ticket with flawed work and have them identify the error type.
3. Review the intended answers with the students in a class discussion.

Once this understanding is established students can move to this weekly routine:

1. Students work on an Exit Ticket at the end of class.
2. The teacher highlights any student mistakes (not necessarily the first mistake).
3. Students receive highlighted work back and fix their mistakes individually or in small groups. Students would reflect on and categorize their mistakes after they fixed their mistakes. Students with no errors



can create and solve a similar problem or write about what was key to successfully solving the problem or help another student(s) but they must mention who he/she helped.

NOTE: The teacher simply highlights where an error occurred no further feedback or guidance is given to the student.

4. Students fill out a Google form at the end of a cycle in which they are asked to reflect on A) the type of errors that they made (careless, precision, computation, problem solving or lack of conceptual understanding) and B) what they could do to avoid making that same type of error in the future. Students also reflected on what they noticed about their errors, and whether they are fixing errors on other assessments.

5. The teacher shares trends with the class and the class discusses how to move forward. The teacher would give a warm-up similar to an exit ticket problem a few days after students did a reflection. Students would work on the warm-up and, when it was time to go over the warm-up, the teacher would talk about errors students were making on the concept. At the beginning of a new cycle the teacher would informally talk to the class about making sure students did not always write “careless error” because that was an easy answer and it meant that students did not have to acknowledge they did not understand.

SCAFFOLD: Check with students as they work on type of errors. Give a student a hint or remind the student to look in his/her notebook or ask someone for help. This proved difficult for some students. One complicating issue is that some errors may come from a variety of causes.



Key Resources

**Reflection Form
for Exit Tickets**

**Error Types Exit
Ticket Sample**

**Exit Ticket
Student Work**



Variations

Categorizing error type is a “mature” version of the highlighting mathematics errors change idea. Other variations in math classes have included just doing basic highlighting and student correction, student identification of things to pay attention to in the future, and student plans for improving their work. Variations of highlighting have also been tried in science, AP Art History, and English classes as well as math classes. In many of these instances teachers highlighted student work against a rubric, focusing on required components of a writing assignment. They have used multiple highlighting colors to communicate different types of mistakes (grammatical, red; sentence structure, blue; etc.) and have trained students on how to use a highlighting method to edit their own work or as a way to give feedback to their peers.