

Chapter 8

Summarizing Student's Mathematical Learning

During the third quarter of the year, before moderations, the teacher (and, if appropriate, the student) reviews the work in the Learning Records of three students and writes a summary of each one's accomplishments in mathematics for the year so far. It is important for the teacher to be as specific as possible about the student's knowledge and understanding of mathematics and about the student's mathematical disposition.

Evidence for much of this summary will be based on the student work and commentary included in the LR. However, because of the limited number of work samples included in the LR, it will often be necessary to draw from other information the teacher has about the student's accomplishments. Additional comments that go beyond what is included in a student's LR will draw on the teacher's knowledge of work done by the student throughout the year. These statements should be consistent with the work that is included, and seem reasonable by those who will be reviewing the LR.

In the two summaries below, the teacher draws from the work that is included in the student's LR, but also includes other specific information based on the teacher's year-long work with the student. For example, although the geometry investigation included in the *Analysis of Student Work* was primarily concerned with definitions of geometric terms, Glen's teacher makes some broader statements (based on the work sample interim summaries and on other work Glen has done throughout the year) about Glen's understanding of geometric ideas.

Tessa, Grade 1

Tessa enjoys math activities, choosing to use pattern blocks during free time. She creates patterns using unifix cubes, reproducing the patterns in chains and naming them in several ways. She also sees number patterns in lists of multiples. Tessa knows something about place value, as she counts by tens and then up by ones ("10, 20, 30, 31, 32, . . . 36"). She also knows that the hundreds is followed by zeros in the number 400. Tessa is developing the concept of regrouping through menu activities and knows to exchange 10's for ones (1 dime for 10 pennies) when subtracting. She knows her addition facts (+0 to +9) as demonstrated in timed tests (2 minutes)

and is learning subtraction facts. Tessa enjoys recording information and is beginning to generate charts (e.g., chart of number of letters from Lucky).

Glen, Grade 4

Glen began 4th grade uncertain of his abilities in math. Throughout the year, he grew in confidence and competence. Glen developed sensible mental math strategies for addition and subtraction. He is able to solve multi-digit multiplication and division problems (one-digit divisor) overcoming initial difficulties dealing with remainders. He developed a strong sense of simple fractions and decimals, and their simple equivalents that will provide a foundation for later work. In geometry, Glen developed strong visual-spatialization skills, understanding about 2- and 3D relationships; he is knowledgeable about terminology, and makes connections between geometry/area, multiplication and fractions. He is competent and thoughtful interpreting data; he has a basic understanding of probability concepts, uses organized lists and tables to determine outcomes, and can state outcomes in terms of fractions.

In the fall, Glen allowed his parents to assist him with POWs (Problems of the Week). Midway through the year he developed competence with varied strategies and took charge of POWs, rarely allowing his parents to participate. He worked collaboratively in a variety of groupings. With complex problems, he preferred to work alone initially, and then work together with others.

Glen's number sense benefited from representative models (examples: arrays in multiplication, area and number lines in fractions) and when he was asked to reason about computational situation, rather than provided practice problems. His progress with mental computation was helped by classroom discussions of varied, effective strategies.

When writing up the summary of a student's mathematical learning, it will be helpful to review the Mathematical Understanding and Disposition Scales.

Thinking about what the student has accomplished in relation to the mathematics scales helps the teacher summarize the student's learning. However, it is not useful to just copy statements from the scales into the summary. The written comments should reflect what each particular student knows and understands. For example, Tessa's teacher notes that Tessa knows her addition facts and is learning her subtraction facts. Glen's teacher notes that he is able to solve multi-digit multiplication and division problems limited to one-digit divisors.

As mentioned earlier, it is impossible for a student's LR to include work related to all the mathematical understandings and dispositions mentioned in the appropriate level(s) of the LR Mathematics Scales. Also, especially for

classrooms new to the LR, the mathematics program may have been quite limited in the four mathematical areas of the Learning Record: (1) number sense; (2) patterns, functions, and algebra; (3) geometry and measurement; and (4) data analysis, statistics, and probability. If so, the teacher may not wish to address these areas or may wish to make a statement that no work was done, for example, in data analysis during the year. Teachers who find there are areas in the scales they haven't included in their curriculum, may want to think about changing their program for the next school year.