Section 2

Connecticut Core Standards for Mathematics

Grades K-5

Systems of Professional Learning

Connecticut Core Standards Systems of Professional Learning

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Section 2

Section 2: The Language of the Content Standards

Who Knows Math

Instructions: Read the five student responses to these math exercises. Record your observations of what each student knows and what they can do.

A group of students were given the following two exercises to do.

$$2\overline{)412}$$ $$\frac{1}{2} \times 412$$

Below are the responses of several students.

Student 1: Gigi

Gigi said, "The questions are both the same. The answer is about 200. I don't know how to divide."

Observations:

Student 2: Abie

Abie did the following.

$$2\overline{)412} = 206 \qquad \frac{1}{2} \times \frac{206}{412} = \frac{206}{1} = 206$$

$$\begin{array}{r} 206 \\ 2\overline{)412} \\ \underline{400} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

When the teacher checked his work, she engaged him in the following dialog.

Teacher: "Nice job, Abie. I see you got the same answer for both exercises. Did you notice that?"

Abie: "Oh yeah."

Teacher: "Why do you think that is?"

Abie: "I don't know. I guess lots of problems have the same answer, like 200+6 is 206 too.

Observations:

Student 3: Ceedee

Ceedee did the long division this way.

$$\begin{array}{r} 26 \\ 2\overline{)412} \\ \underline{400} \\ 12 \end{array}$$

Then she said, "I don't have to do the other one. I know that dividing by 2 is the same as taking half of something. The answer to the other exercise is also 26. "

Observations:

Student 4: Effie

Effie said, "I don't know how to do long division or multiply fractions. But I can use a calculator to do 412÷ 2. That comes out to 206. I don't have to do the other one. I know that dividing by 2 is the same as taking half of something. The answer to the other exercise is also 206."

Observations:

Student 5: Hi

Hi said, "It's 206 because 200 is half of 400 and 6 is half of 12."

Observations:

Notes on Conceptual Understanding, Procedural Skill and Fluency, and Application of Mathematics

Instructions: Watch the video Mathematics Fluency: A Balanced Approach *retrieved from* http://www.youtube.com/watch?v=ZFUAV00bTwA. *After the video has played, use the space below to record notes on conceptual understanding, procedural skill and fluency, and application of mathematics that you will communicate with your peers back at your school.*

Conceptual Understanding
"Students demonstrate *conceptual understanding* in mathematics when they provide evidence that they can recognize, label, and generate examples of concepts; use and interrelate models, diagrams, manipulatives, and varied representations of concepts; identify and apply principles; know and apply facts and definitions; compare, contrast, and integrate related concepts and principles; recognize, interpret, and apply the signs, symbols, and terms used to represent concepts. *Conceptual understanding* reflects a student's ability to reason in settings involving the careful application of concept of definitions, relations, or representations of either" (Balka, Hull, & Harbin Miles, n.d.).
Notes

Procedural Skill and Fluency

Notes:

Application of Mathematics

Notes: