K.OA Many Ways to Do Addition 1

Alignments to Content Standards: K.OA.A.5

Task

Materials

- Class white board and one marker
- Paper and pencil for students
- Materials such as counters or linker cubes
- Number lines that go from 0 to 10

Actions

- The teacher writes a simple addition problem on the white board. This should be a problem that is within easy grasp of all students, such as 3+2.
- Students then solve the problem using whichever strategy they choose. Then the teacher and the class should establish that the answer is 5. The focus of this lesson isn't the solution 3+2 = 5 but rather making explicit to students all the ways they can go about solving such a problem. However, young learners love to have the "answer" to things and students won't be able to focus on the next part of the problem until they know the teacher knows that they know the answer.
- The teacher should then have students brainstorm all the ways they can solve an addition problem like 3+2. Students should be encouraged to imagine a different strategy than the one they used. Students should talk with a partner first so everyone can have a chance to participate.
- Once students have been given about 90 seconds to talk, the teacher should bring the class back together. The teacher can use a random calling method such as sticks with students' names or can take raised hands. Random calling will ensure that many students get a chance to talk. The teacher will compile a list on the board of all the ways students have come up with.

This list should include:

- draw a picture of the problem
- using fingers to count
- using a number line
- counting on
- using counters
- knowing a subtraction fact and using that information (such as 5-2= 3, therefore I know that 2+3=5)
- using knowledge of all the ways to make five, such as 0+5, 1+4, 2+3

To get variety, the teacher can ask, "Did anyone do it another way?" Students may come up with ways other than those described here; the teacher should include all reasonable responses in the list. The teacher may need to provide a few of the higher level ideas, such as using a subtraction fact or counting on.

Once students have brainstormed ideas, the teacher should give them another chance to talk. The teacher can use the give one/get one procedure. Students stand up and find a friend to talk to. They give the friend one addition strategy and then get one additional strategy.

IM Commentary

The focus in developing fluency should be more than the internalization of facts. Students should be supported in the natural development of number sense so that students are able to solve computations flexibly and efficiently using their understanding of relationships between numbers.

Children's natural development of numbers progress from the concrete to the abstract, from counting all (e.g. physically making four counters and then making twelve and counting all the counters to get sixteen), to counting on (e.g., counting four more starting at twelve to get to sixteen), to strategies based on properties of operations such as part-whole (e.g. splitting apart the twelve to ten and two, and adding the two to four, then adding the ten) and relational thinking (knowing that 4 + 10 is 14 so 4 + 12 would be just two more), to number facts.

This tasks supports that by giving students a space to explicitly talk about the different ways they can solve addition and subtraction problems. Teachers can also repeat this lesson several times over the course of the year, and can use the same format to discuss a simple subtraction problem, such as 5-2=3.

This lesson should be taught after students have had many experiences solving addition equations. The purpose of this task is not to teach or model the addition strategies. Rather the purpose of this task is make explicit different ways students can solve problems so that they will be able to find the most efficient strategy in any given situation and increase their addition fluency.

The teacher can start the task off by giving a word problem such as, "Jaden had three cars. On his birthday Marcos gave him two more. How many does he have now?" The teacher should use his/her judgement as to which approach will be most engaging for his/her students. However, the teacher should remember that the goal of this task is for students to talk about multiple strategies for problem solving.

Edit this solution

Solution

- sketching out the problem
- using fingers to count
- using a number line
- counting on
- using counters
- knowing a subtraction fact and using that information (such as 5-2= 3, therefore I know that 2+3=5)
- using knowledge of all the ways to make five, such as 0+5, 1+4, 2+3