# Here's how a number talk works

1. Students sit either on the floor or at their tables generally facing the front of the room.
2. There is no calling out or hands up during a number talk. Instead, students make a fist and place it on the front of their chest.
3. As the teacher, you present them with a question. You can say something like "Today we will be discussing the solution to 16 x 25".
4. Give the students time to come up with an answer and to think of a way to communicate the solution to the class.
5. When students have a solution to the question they put a thumb up. This allows you, the teacher, to see who has an answer and who has not. The aim of the thumbs up instead of hands up concept is to give everyone an opportunity to solve the problem in their own time without the distraction of who has solved it the fastest.
6. While they are waiting, encourage the students to find more than one way to get to the result. Once they have discovered another way they can now also put a finger up. The more ways, the more fingers they hold up to their chest.
7. Once you are confident that most students have at least one solution, post them on the board for consideration. Incorrect solutions provide a great opportunity for conversations surrounding common misconceptions, so encourage these as well.
8. At this stage, you can ask students to share their strategies for arriving at their answer. Place each strategy on the board along with the students name in order to recognise the individual child and identify their strategy.

In her book, Sherry also encourages the use of open arrays when communicating solutions in order to provide a visual understanding of each strategy used. There has been much literature on the importance of arrays in developing multiplicative thinking in students and they are a vital concept in learning multiplication and division. Their repeated use in a number talk helps to consolidate these important skills.
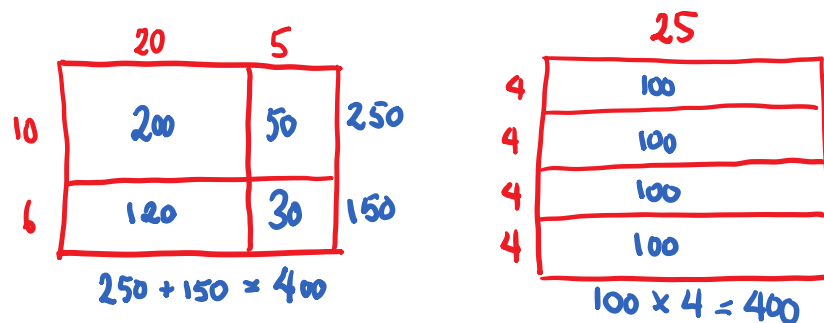
Two examples of open arrays as a strategy to solve the multiplication 16 x 25

For the junior primary level, number talks can be done in the form of a *dot talk.* Helping students recognise quantity at an early level through subitising is a vital skill and this is encouraged through a dot talk. The basic rules are the same, but instead of presenting students with a numerical problem, a dot card is held up and students are asked 'how many dots?', as well as stating the different ways that they saw the collection. Again, these are all presented on the board and open for discussion and communication.

By immediately recognising a collection of numbers or subitising, students start to understand how a number is made up. This understanding of part-whole relationships helps children to separate and combine numbers and accelerates learning in addition and subtraction. An example of a dot talk is shown below.
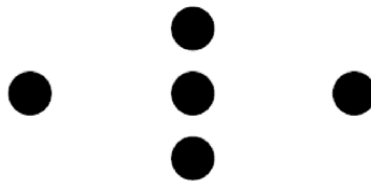

Figure 1: A dot card showing a collection of five

A dot card showing a collection of five is held up (figure 1) and once quantity is established students are asked how they saw the collection. Some examples of student responses are shown below:

I often get amazed at all of the different ways that students see the same series of dots and people of all ages enjoy finding all of the various patterns. I would recommend beginning with collections up to 5 and then gradually moving to collections of 10 in order to support their journey in successfully establishing strong number knowledge.

Key components of a number talk

Five key components to doing a successful number talk are discussed in the book. These are:

1. Classroom environment and community
2. Classroom discussions
3. The teacher's role
4. Role of mental health
5. Purposeful computation problems.

In short, when doing a number talk, it is important to foster a cohesive classroom community where students feel safe enough to offer responses for discussion, question themselves and investigate new strategies. Communication is key and this should be encouraged and supported. Once students have practiced a few number talks, they will soon start to discover new experiences in mathematics and so many different ways of solving the same problem. In fact, I have not done a number talk where a student did not make the comment "I never thought of doing it that way" or, "I'm going to try that next time". Over time, you will find that with regular use, number talks will dramatically improve their ability to access the mental maths strategies necessary to become facile maths learners. They also provide teachers with a great opportunity to establish the level of numerical understanding of each student.