

# Trusting the Count

**“...a child’s capacity to access flexible mental objects for the numbers 0-10”**

(Siemon, Beswick, Clack, Faragher & Warren, 2011, p.197)

## **Micro Content**

**Early number experiences – Classifying, grouping, ordering and finding and using patterns underpin the development of this idea**

**Each object is counted once – one to one correspondence**

**Collections can be compared on a one to one basis**

**Arrangement of objects in a count does not change the quantity**

**Purpose of counting or subitizing is to quantify (find out how many)**

**Counting numbers (the number string) are always said in the same order**

**Counting on and back can be used to solve simple problems**

**Subitizing or instant recognition of small groups can be a means of quantifying**

**Small numbers can be seen as the combination of others**

**There are multiple ways of seeing grouping of objects**

**The part-part-whole relationship can be used as the basis for operating**

**Basic addition facts always give the same result irrespective of arrangement**

**Addition and subtraction situations can be considered in terms of a whole and two parts, one of which is unknown or missing**

**Additive thinking is employed to solve problems with small numbers**

**Skip counting to find the total will give the same result as one-one counting**

**Share portions from a quantity and know that the more portions there are, the smaller the portions will be**

### **Common Misconceptions:**

Students who are able to recite the number naming sequence (i.e. count orally) to 20 and beyond; recognise, read, and write number words and numerals to 10; and count and model small collections (less than 20), will know 'how many' in a particular collection. However diagnostic testing exposes that many of these students guess or fail to identify which of two single-digit numbers presented orally or in written form is the larger/smaller, and/or experience difficulty when counting larger collections (40 or more) accurately.

### **This could be due to/associated with:**

- a failure to understand that counting is a strategy to determine 'how many' and/or that the last number counted says how many
- a mismatch between the oral words and the objects counted (e.g. matches objects to syllables, omits certain number names);
- a failure to organise the count to avoid counting objects already counted; and/or
- a superficial understanding of numbers 0 to 10 (i.e. limited to simple counts and recognising, reading and writing number names and numerals).

To trust the count, students need a deep understanding of the numbers to 10 both in terms of what they represent and how they might be reconfigured or viewed in relation to other numbers.

In particular, they need to have developed flexible mental objects for each of the numbers that go beyond the recognition of number names and numerals to include rich part-part-whole knowledge based on visual imagery.

This supports trusting the count in the sense that when students read, write or hear 'seven', they can imagine what that collection may look like and how it relates to other numbers. For example, they can see a *seven* in their mind as *1 more than 6, 1 less than 8, 3 and 4 or 5 and 2*. This is not about addition or subtraction. It is about deeply understanding what each number means.

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