COUNTING

In This Guide, We'll Learn:

Conservation

Understanding that the count for a set group of objects stays the same no matter whether they are spread out or close together.

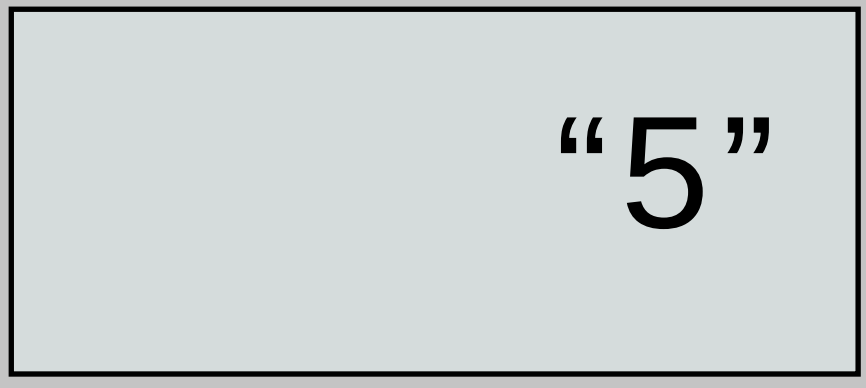
If a student counts a group of items that are close together and then needs to recount after you spread them out, they may not have developed an understanding of the principle of conservation.

Abstraction

Abstraction requires an understanding that we can count any collection of objects, whether tangible or not.

Subitizing

In general, subitizing is the ability to “see” or visualize a small amount of objects and know how many there are without counting. While this idea may seem simple on the surface, subitizing is actually quite complex. If we dig deeper, we can see that there are two types of subitizing that could be going on in our mind when we are learning to count called perceptual subitizing and conceptual subitizing.



Hierarchical Inclusion

Understanding that all numbers preceding a number can be or are systematically included in the value of another selected number.

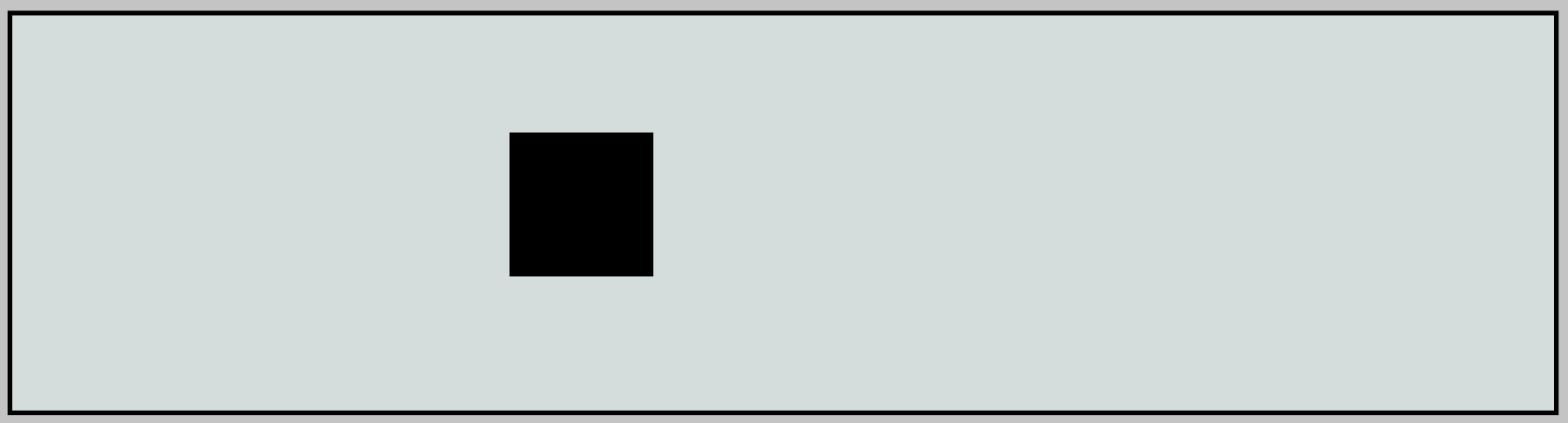
For example, knowing that within a group of 5 items, there is also a group of 4 items within that group; 3 items within that group; 2 items... and so on.

The numbers 1, 2, 3 and 4 are included inside the number 5.

Unitizing

Unitizing refers to the understanding that you can count a large group of items by decomposing the group into smaller, equal groups of items and then count those.

For example, if there is a large group of candies on a table, one might choose to create groups (or “units”) of 2 (often doing this by perceptually subitizing these groups) and skip counting up by 2’s. Some may choose to create “units” of 3 and skip count up by 3’s.



Resources & References

Online Resources

Principles of Counting & Quantity - Tap Into Teen Minds
https://tapintoteenminds.com/counting-principles/

Counting & Quantity Visuals - Math Is Visual
mathisvisual.com/series/counting-and-quantity/

Count With Your Eyes: Subitizing Guide - Tap Into Teen Minds
https://tapintoteenminds.com/counting-with-your-eyes/

How the 5 Counting Principles lay the foundation for flexible thinking in later grades - S. Edgar - Winnipeg School Division
https://countingcollections.files.wordpress.com/2012/10/counting-principles-package.pdf

Mathematics in the Early Grades: Counting & Cardinality - Research Brief - Interactive STEM
interactivestem.org/wp-content/uploads/2015/09/Interactive-STEM-Brief-Counting-and-Cardinality-Sept-16-Final-File.pdf

The Principal Counting Principles - Ian Thompson
https://www.ncetm.org.uk/public/files/712850/The+principal+counting+principles.pdf

Books to Learn More About Counting, Quantity and Early Mathematics

Research

Bermejo, V., Morales, S. and Garcia de Osuna, J. (2004) Supporting children’s development of cardinality und9ting children’s-9 Early Mathematics141+priny Mng children’s-9 Early Mathematicsbandaidy_pcTu21W4