FIRSTPATH
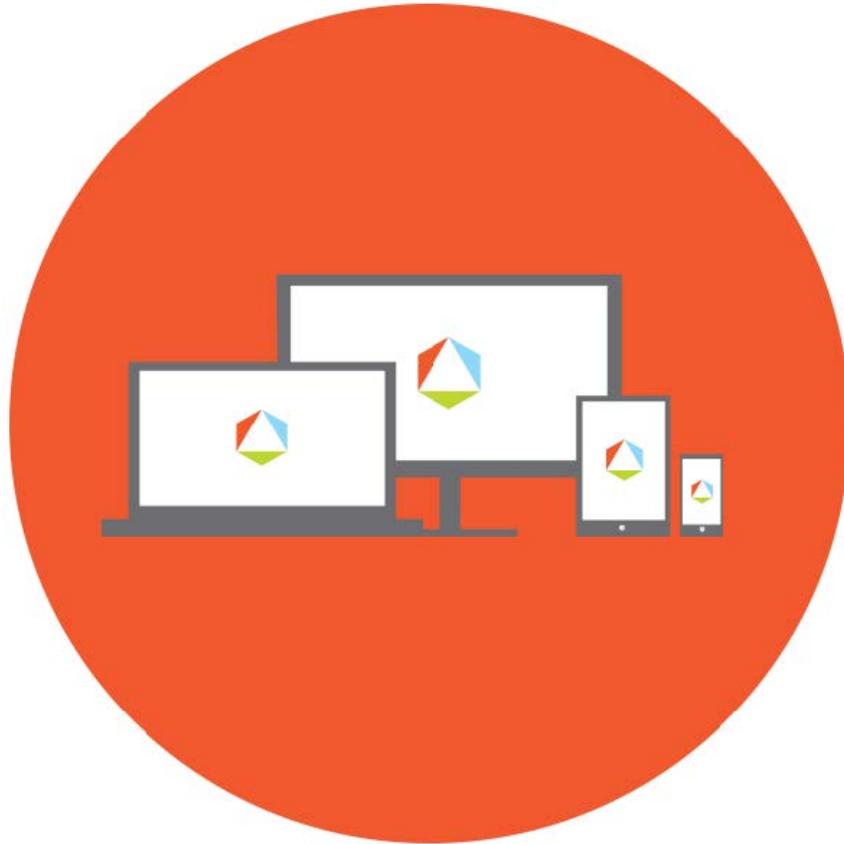## AUTISM

Lesson Guide
68. More than/Less than (Basic)
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More than/Less than (Basic)

Overview

Teaches:	Using both manipulatives (tangible objects) as well as written numerals, this lesson teaches the child to compare quantities and determine which is "more than" the other, "less than" the other, or "equal to" the other.
Before beginning:	All Pre-Math Skills (including Counting, 1:1 Correspondence, Number ID, Number to Quantity Match, Number Sequencing) should be mastered (or at least solidly familiar) before introducing this lesson.
Why it's important:	Being able to compare quantities or numerals is a foundational skill in math, and is a prerequisite to more advanced skills like subtraction. This skill also helps generalize and make functional use of skills previously learned in 1:1 Correspondence and Number Sequencing. Further, this lesson helps develop global skills of comparison and evaluation, which are useful in many other areas.
Materials needed:	Various 3D and 2D manipulatives (examples: counting bears, unifix cubes, marbles, flashcards depicting groups of identical items, flashcards with numerals). In addition, a dry erase board can be very helpful in this lesson (for the teacher to express the number equations utilizing the "<" , ">" , and "=" symbols, as well as for the more advanced student to repetitively practice expressing those symbols and number sentences.
Generalization activities:	Math worksheets, making selections of desirable/undesirable foods (larger helping and smaller helping), balancing games like "Who Spilled the Beans?", exercises in fairness ("making things equal"), weighing produce at the grocery store, etc.

Steps

Prepare

1. Ensure that the child is ready to "earn and learn": a reinforcer assessment has been recently completed, and identified highly preferred items and activities are ready and available.
2. Have data collection ready, either via tablet or pen/paper.
3. Have lesson materials prepared and available.
4. Sit facing the child, in a quiet place free of distractions.
5. Make sure the child is ready to attend, ideally looking at teacher and not engaging in any other activities.

Teach

1. Present 2 images or 2 collections/sets of objects.
2. Allow child to briefly observe the images/objects.
3. Deliver target instruction/question.
4. Allow the child 3-5 seconds to respond.
5. Provide feedback on how the child responded:
   - Correct response: enthusiastic praise and/or give the child his chosen reward
   - Incorrect or No response: corrective feedback, model or prompt of correct response
6. Record data.
7. Begin again at step 1.

Examples

Correct response	Incorrect response	No response
Teacher: (presents 2 images/collections of objects) "Which is MORE?" **Child**: (Points to correct answer) "That one." **Teacher**: "That's right! This is MORE." (and delivers reinforcer)	**Teacher**: (presents 2 images/collections of objects) "Which is MORE?" **Child**: (Points to incorrect answer) "That one." **Teacher**: "Hmmm…let's check again." (Teacher helps child count each group carefully, or, if a numeral, refers to a number chart or number line visual.) "THIS one (indicating correct answer) is MORE." (**Teacher** does not deliver reinforcer at this time; rather,	**Teacher**: (presents 2 images/collections of objects) "Which is MORE?" **Child**: (no response) **Teacher**: "Uh-oh. We are talking about which one is MORE. Let's look again." (**Teacher** does not deliver reinforcer at this time; rather, provides a corrective model or assistance if needed and then, re-starts teaching cycle)

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Typical order of learning targets:

(**NOTE:** Targets 1-3 should be more obvious/pronounced in the difference between them: for example, the child should not be asked to compare a group of 4 and a group of 5 objects; rather, he should be asked to compare a group of 2 objects and a group of 6 objects. Similarly, if he has recently mastered Number Sequencing, you might not ask him to compare the numerals 8 and 9; rather, you might ask him to compare 4 and 9. Complexity of the more/less than skill increases when the child reaches Targets 7 and 8.)

1. Identify which is "MORE" (sets of 1-10 objects, <u>clear</u> difference in quantity)
2. Identify which is "LESS" (sets of 1-10 objects, <u>clear</u> difference in quantity)
3. Identify "EQUAL" (sets of 1-10 objects)
4. Identify which is "MORE" (numerals 1-10)
5. Identify which is "LESS" (numerals 1-10)
6. Identify "EQUAL" (numerals 1-10)
7. Identify which is "MORE" (sets of 1-10 objects, <u>minimal </u>difference in quantity)
8. Identify which is "LESS" (sets of 1-10 objects, <u>minimal </u>difference in quantity)
9. Expressive/writing the "more than" (>) and "less than" (<) symbols in context of a number sentence.[*]
10. Expressive/writing the "equal to" (=) symbol in context of a number sentence.
11. Continue mastered targets with greater quantities and/or numerals if needed

([*]TARGET 9: This concept is often successfully taught by teaching the child to visualize the more/less than symbols as an alligator whose mouth will always "eat" the bigger number/group. The teacher might even draw or make an alligator to make practice of this concept fun!)