



$$\begin{array}{r} 9 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ -5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ -2 \\ \hline \end{array}$$



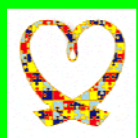
Sherri Jones Autism and Behavioural Sciences



AIP Program at Lansdowne

What is Autism Intervention Program?
 - Provides services for children who have a diagnosis of Autism Spectrum Disorder (ASD), and have been assessed and deemed eligible for Intensive Behavioural Intervention (IBI).
 - Program includes 3 components:
 - Child and Family Support Services (CFSS) → for clients who have completed the eligibility assessment process and been deemed eligible for IBI, and are now on the chronological waitlist for IBI
 - the provision of an individualized IBI program with,
 - Transition Support Services (TSS) available upon discharge from IBI

Who is eligible?
 - Children with a diagnosis of ASD are referred through Contact Brant to Lansdowne Children's Center. Contact Brant will complete an intake visit, and forward the referral information to Lansdowne
 - Upon receipt of the referral Lansdowne initiates the eligibility assessment process that is completed by Hamilton-Niagara Regional Autism Intervention Program (H-NAIP). The child must go through the eligibility assessment process to determine if he/she meets the criteria and qualifies for the program. H-NAIP provides the eligibility decision via written correspondence to the parents and Lansdowne.



Getting to know the Client

Age: 7
 Siblings: one younger sister
 Favourite Items: Thomas and Friends, Trains
 ABLLS level: Close to mastering all domains and is focused on skills needed at school
 School: Part time in Grade 1
 Lansdowne: 24 hours/week

R29 – Subtract/Take away

Domain: Math
Target Definition: To get the child to learn subtraction of 1's to 5's independently
Materials: Number line including the numbers 1-20, flash cards including all subtraction equations needed for the program, data sheet, and graph for percentage steps.

Mastery Criteria: The child will independently subtract/take away the specific target group with 100% accuracy across 3 data points.

Reinforcement: Continuous reinforcement schedule for target responses and faded to a variable ratio schedule of 6 for all R steps.

Step Mastery Criteria: For all A steps the child will respond correctly for each cue card across 3 consecutive cold probes. For all B steps the child will achieve over 90% correct consecutively across 3 cold probes.

Steps in Program: Example of Step 1A and 1B. Following steps are very similar and just include the next number for subtraction (E.g., 2's, 3's, 4's and 5's).

Step	Instructions that can be interchanged	Target Response	Move on to next step
1A	Present each cue card individually Present SD: "Subtract 1 from A" or "What is A take away 1" (interchange between SD's)	Colin will correctly and independently subtract/take away 1 from 1-10	Colin will correctly for each cue card across 3 consecutive cold probes
1B	Present variety of all 1-10 subtract/take away 1 cue cards and record percentage correct Present SD: "Subtract 1 from A" or "What is A take away 1" (interchange between SD's)	Colin will correctly and independently subtract/take away 1 from 1-10	Colin will achieve over 90% correct consecutively across 3 cold probes

Data Collection: For all Step A's the child must answer each cue card correctly to receive a YES for the session. If any incorrect answers are given the child is given a NO for the session. There is no graphing required for this step. For all Step B's the percentage correct is recorded by dividing the number of correct responses by the total number of trials conducted within the session. This data is recorded on a graph.

Data Collected to Date:

Date	Location	Y / N
Monday, April 20, 2009	Home	N
Thursday, April 23, 2009	Center	N
Thursday, April 23, 2009	Home	Y
Friday, April 24, 2009	Center	N

Future Directions: Currently the child is on Step 1A. The future involves the child learning his subtraction for 2's to 5's. Alterations may need to be made based on the child's capability to learn subtraction.

Troubleshooting (if needed): The child is currently also learning his addition and his attention and interest on the topic has been lost. It is important to keep the topic so that it is interesting to the child and create a fun atmosphere when learning this skill. Materials can be altered to have his favourite characters (Thomas and Friends). Cue cards can have the character on the or the number line can involve them as well.

Generalization and Maintenance: across settings (different therapy rooms, at home, etc.), across people (different IT's, parents, teacher, etc.). Step B allows for maintenance of all previous steps. Once initially mastered, the program will be in the maintenance binder and maintained over time (at 2 week intervals up to 8 weeks). Various stimuli will be used (different cue cards, remove the use of cue cards, use different colour marker for the numbers on the cue cards, etc.)

Past Research on Math

Chiang, Hsu-min and Lin, Yueh-Hsien (2007). Mathematical ability of students with Asperger syndrome and high-functioning autism: A review of literature. *The International Journal of Research and Practice*, 11(6), 547-556.

This research review looked at 3 questions involving individuals with Asperger syndrome and high-functioning autism. The questions were if these individuals have mathematical deficits, relative weaknesses, and mathematical giftedness. The findings indicated that individuals with Asperger syndrome and high-functioning autism have an average mathematical ability but also have weaknesses in their ability. This review is important because it provides evidence that individuals with Asperger syndrome and high-functioning autism can achieve an average mathematical ability. This review is important because it encourages instructors to set the bar high for these individuals and help them reach their full potential.

Chak, David F. and Foust, Jennifer L. (2008). Comparing number lines and touch points to teach addition facts to students with autism. *Focus on Autism and Other Developmental Disabilities*, 23(3), 131-137.

This study looked at the addition skills of 3 students with autism. Two teaching styles were used (number lines and touch points) to teach addition to the students. The results showed that touch points were more effective in teaching addition by a large margin. A study like this could help provide ideas for teaching subtraction to individuals with autism.

Banda, Devender R., Kubina, Richard M., Jr., Lee, David L., and McAfee, James K. (2007). Math preference and mastery relationship in middle school students with autism spectrum disorders. *Journal of Behavioral Education*, 16(3), 207-223.

This journal article looked at the difference between mastery problems and preference in individuals with autism. The results displayed that the individuals in the study did not link mastery of a math problem to preference. This research article would be a good reference for instructors because it provides knowledge that reinforcement for a particular skill could lead to preference of choosing that skill in the future. Reinforcement is important when learning a new skill but should not become dependent on the skill in the future.

Other Resources Provided at Lansdowne

- Medical Director
- Respite Programs
- Central Intake
- Special Services at Home
- Rehabilitation Programs
- In-Home Respite
- Occupational Therapy
- Kids Country Inn
- Physiotherapy
- Alternate Care
- Speech and Language Pathology
- Recreation Programs
- School Health Support Services
- Every Kid Counts
- Social Work
- Recreational and Camp Programs
- Service Co-ordination
- Teen Group
- Child Development Program
- Specialized Services
- Early Intervention Program
- Autism Services
- Autism Services
- Autism Services

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