

63<sup>RD</sup> CONFERENCE ON EXCEPTIONAL CHILDREN

# Believing In Achieving

SHERATON FOUR SEASONS | KOURY CONVENTION CENTER | GREENSBORO, NC



# Goal Attainment Scaling

A Useful Tool for Measuring  
Student Performance





# Learning Objectives

Participants will:

1. Describe Goal Attainment Scaling and ways in which it can be useful to measure changes in student performance
2. Practice creating a Goal Attainment Scale for an individual student



## Goal Attainment Scaling (GAS)

- Initially developed for use in mental health
- Individualized way of measuring change in performance over time
- Allows for documentation of positive changes even when targeted goal is not yet achieved
- More responsive to change than most standardized tests



## Goal Attainment Scaling (GAS)

- Encourages collaboration and communication among team members, including the client
- Requires some training/practice for team members to be reliable with one another
- Takes time initially to develop scale, but can make intervention more focused and re-evaluation more efficient



## Basic Process and Structure

- Goal behavior is identified in collaboration with client/team
- This goal is established as “0” point – this is the “expected outcome” of intervention
- Goal is translated into – 2 and -1 statements of the goal
- Goal is translated into + 1 and +2 statements of the goal

<b>-2 (much less than expected)</b>	<b>-1 (less than expected)</b>	<b>0 (expected outcome)</b>	<b>+1 (more than expected)</b>	<b>+2 (much more than expected)</b>
Holds scissors in one hand and opens and closes blade	Snips stiff objects (e.g., straw)	Snips paper using open/close action	Cuts a piece of paper in half	Cuts across a straight line



# Basic Scoring

All goals/scales are re-evaluated at the same time, and scores totaled

-2 (much less than expected)	-1 (less than expected)	0 (expected outcome)	+1 (more than expected)	+2 (much more than expected)
Holds scissors in one hand and opens and closes blade	Snips stiff objects (e.g., straw)	Snips paper using open/close action	Cuts a piece of paper in half	Cuts across a straight line
Makes marks on paper	Makes circular scribble	Imitates vertical line	Imitates vertical and horizontal line	Copies vertical and horizontal lines from model

Baseline:  $(-2) + (-2) = -4$

Week 4:  $(-1) + (-2) = -3$

Week 2:  $(-1) + (-1) = -2$

Week 6:  $0 + 0 = 0$



# GAS goals *can* be weighted...

Weight	-2 (much less than expected)	-1 (less than expected)	0 (expected outcome)	+1 (more than expected)	+2 (much more than expected)
3	Holds scissors in one hand and opens and closes blade	Snips stiff objects (e.g., straw)	Snips paper using open/close action	Cuts a piece of paper in half	Cuts across a straight line
2	Makes marks on paper	Makes circular scribble	Imitates vertical line	Imitates vertical and horizontal line	Copies vertical and horizontal lines from model

Baseline:  $(-2 \times 3) + (-2 \times 2) = -10$

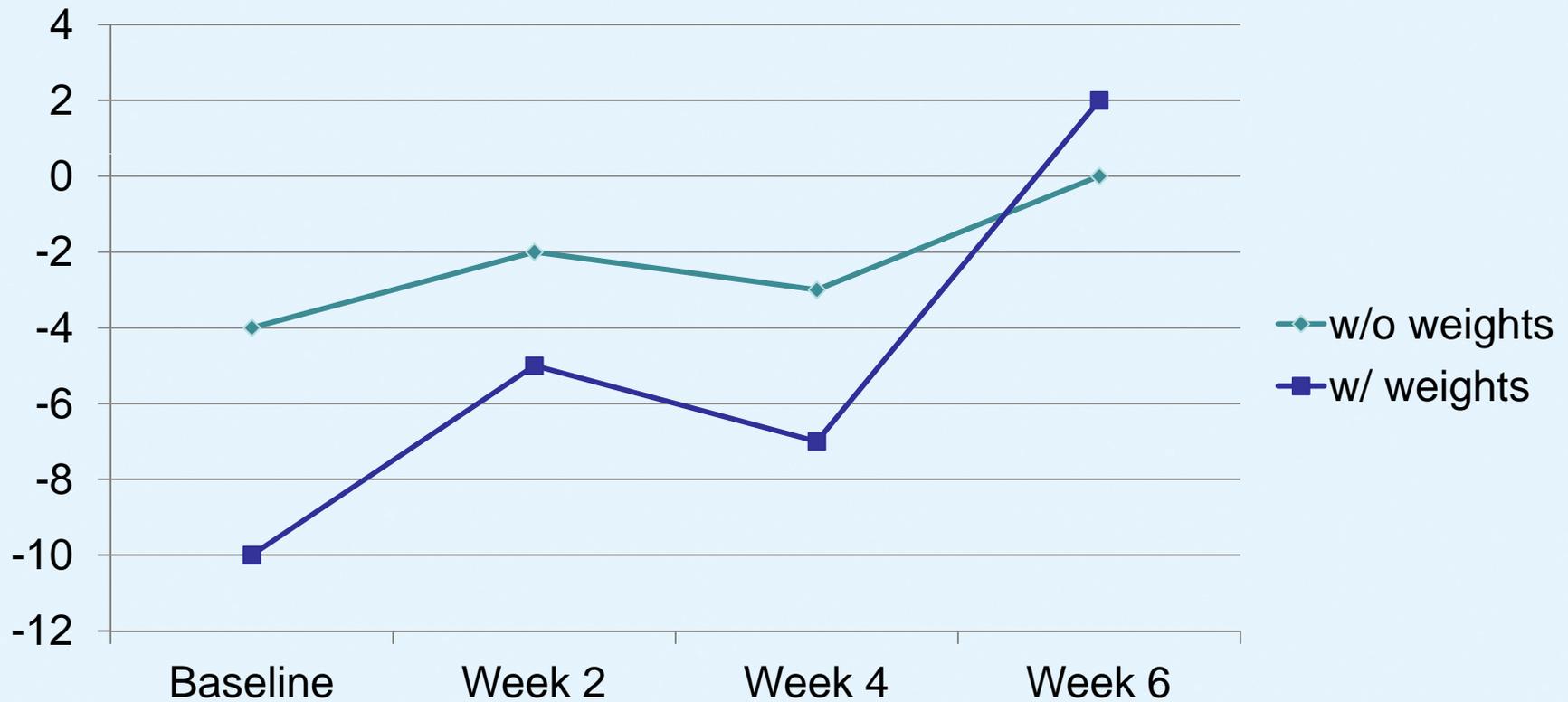
Week 2:  $(-1 \times 3) + (-1 \times 2) = -5$

Week 4:  $(-1 \times 3) + (-2 \times 2) = -7$

Week 6:  $(0 \times 3) + (0 \times 2) = 0$



## Change over time with/without weights...





## Details...getting started

- Dependent on specific, measurable goal statement as “0” point so...
  - **Identify target behavior (observable and connected to core curriculum)**
  - **Identify relevant contextual factors (e.g., set-up, assistive devices, environment, etc.)**
  - **Identify level of support needed (e.g., verbal, physical, visual prompts, etc.)**
  - **Quantify performance (e.g., time, frequency, amounts, etc.)**
  - Identify time period to meet goal (“0” is annual goal)



## For example...as an Annual Goal

Anthony will make 10 different requests per day, independently, to adults (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.

(Goal statement from Ruble, McGrew, & Toland, 2012)



## Then create a -2 statement...

- This can be the student's current level of performance, framed in a way similar to your goal statement, so:

*Independently, Anthony uses aggression (pushing, grabbing, hitting, etc.) to make requests, and depends on verbal and gestural mands from adults (such as "Tell me 'more'" while signing "more") to use signs, pictures, or verbalizations to make requests*



## And a -1 statement...

...varying one (or more?) aspects of your goal as appropriate. For example:

*Anthony will make (5) different requests per day independently to adults (go, more, eat, help, stop, finished, names of object/activity) or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.*



## And a +1 statement...

*Anthony will make a total of 15 10 different requests per day, independently, to adults and peers (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.*



## And a +2 statement.

- *Anthony will make a total of 15 different requests per day, independently, to adults and peers (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.*



<b>-2 (much less than expected)</b>	<b>-1 (less than expected)</b>	<b>0 (expected outcome)</b>	<b>+1 (more than expected)</b>	<b>+2 (much more than expected)</b>
Independently, uses aggression to make requests, and depends on verbal and gestural mands from adults to use signs, pictures, or verbalizations to make requests	Makes 5 different requests per day, indep., to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.	Makes 10 different requests per day, indep., to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization..	Makes a total of 10 different requests per day, indep., to adults and peers or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization,	Makes a total of 15 different requests per day, indep., to adults and peers, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.



## Identify timelines for re-assessment...

- Baseline – will be all of your -2 statements, so Baseline will always be -2
- Use regularly established dates for re-assessment (like the end of a grading period, or every X number of weeks)
- If you have questions about whether or not a particular approach to intervention is working, assess more often!



-2 (much less than expected)	-1 (less than expected)	0 (expected outcome)	+1 (more than expected)	+2 (much more than expected)
Independently, uses aggression to make requests, and depends on verbal and gestural mands from adults to use signs, pictures, or verbalizations to make requests	Makes 5 different requests per day, indep., to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization	Makes 10 different requests per day, indep., to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization	Makes a total of 10 different requests per day, indep., to adults and peers or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization	Makes a total of 15 different requests per day, indep., to adults and peers, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization

- BASELINE: Date 9/20/13 Score -2
- GRADING PERIOD 1: Date \_\_\_\_\_ Score \_\_\_\_\_
- GRADING PERIOD 2: Date \_\_\_\_\_ Score \_\_\_\_\_
- ETC...



## Practice Example: Creating – and + statements

<b>-2</b> <b>(much less than expected)</b>	<b>-1</b> <b>(less than expected)</b>	<b>0</b> <b>(expected outcome)</b>	<b>+1</b> <b>(more than expected)</b>	<b>+2</b> <b>(much more than expected)</b>
Teddy takes 10-12 minutes to walk to the school cafeteria, arriving at least 5 minutes after the rest of his class, stopping 4-5 times along the way to voice complaints about the distance or distract the adult with him with conversation		Using his reverse walker, Teddy will walk to the school cafeteria in under 7 minutes, with no more than 1 verbal prompt to continue walking, 4 of 5 days at school		



# Case Study Example

1. Read through the case study (Micah) on your handout (or use a child you know if you think you can clearly state one of his/her IEP goals and -2 point)
2. Find one or two other people to join you...
3. Develop a GAS for Micah that addresses at least 2 areas of need (you can choose whatever goal areas/need you want to address)
4. Decide when you want to re-assess



## References

- Bovend'Eerdt, T.J.H., Botell, R.E., & Wade, D.T. (2009). Writing SMART rehabilitation goals and achieving goal attainment scaling: A practical guide. *Clinical Rehabilitation*, 23, 352–361.
- King, G.A., McDougall, J., Tucker, M.A., Gritzan, J., Malloy-Miller, T., Alambets, P., Cunning, D., Thomas, K., & Gregory, K. (1999). An evaluation of functional, school-based therapy services for children with special needs. *Physical & Occupational Therapy in Pediatrics*, 19, 5-29.
- Marson, S.M., Wei, G., & Wasserman, D. (2009). A reliability analysis of Goal Attainment Scaling (GAS) weights. *American Journal of Evaluation*, 30, 203-216.
- McDougall, J. & Wright, V. (2009). Rehabilitation in practice: The ICF-CY and Goal Attainment Scaling: Benefits of their combined use for pediatric practice. *Disability and Rehabilitation*, 31, 1362–1372.
- McLaren, C. & Rodger, S. (2003). Goal Attainment Scaling: Clinical implications for paediatric occupational therapy practice. *Australian Occupational Therapy Journal*, x, 216–224.
- Roach, A. T. & Elliott, S. N. (2005). Goal attainment scaling: An efficient and effective approach to monitoring student progress. *Teaching Exceptional Children*, 37, 8-17.
- Ruble, L., McGrew, J.H., & Toland, M.D. (2012). Goal Attainment Scaling as an outcome measure in randomized controlled trials of psychosocial interventions in autism. *Journal of Autism and Developmental Disorders*, 42, 1974–1983.
- Steenbeek, D., Ketelaar, M., Galama, K., & Gorter, J.W. (2008). Goal Attainment Scaling in paediatric rehabilitation: A report on the clinical training of an interdisciplinary team. *Child: care, health and development*, 34, 521–529.



## GOAL ATTAINMENT SCALING: A USEFUL TOOL FOR MEASURING STUDENT PERFORMANCE

### Goal Attainment Scaling (GAS)

- Initially developed for use in mental health
- Individualized way of measuring change in performance over time
- Allows for documentation of positive changes even when targeted goal is not yet achieved
- More responsive to change than most standardized tests
- Encourages collaboration and communication among team members, including the client
- Requires some training/practice for team members to be reliable with one another
- Takes time initially to develop scale, but can make intervention more focused and re-evaluation more efficient

### Basic Process and Structure

- Goal behavior is identified in collaboration with client/team
- This goal is established as “0” point – this is the “expected outcome” of intervention
- Goal is translated into – 2 and -1 statements of the goal
- Goal is translated into + 1 and +2 statements of the goal

### Basic Scoring

All goals are re-evaluated at the same time, and scores totaled.

-2 (much less than expected)	-1 (less than expected)	0 (expected outcome)	+1 (more than expected)	+2 (much more than expected)
Holds scissors in one hand and opens and closes blade	Snips stiff objects (e.g., straw)	Snips paper using open/close action	Cuts a piece of paper in half	Cuts across a straight line
Makes marks on paper	Makes circular scribbles	Imitates vertical lines	Imitates vertical and horizontal lines	Copies vertical and horizontal lines from model

(Goal statements from McLaren & Rodger, 2003)

Baseline:	(-2)	+	(-2)	=	- 4
Week 2:	(-1)	+	(-1)	=	- 2
Week 4:	(-1)	+	(-2)	=	- 3
Week 6:	0	+	0	=	0

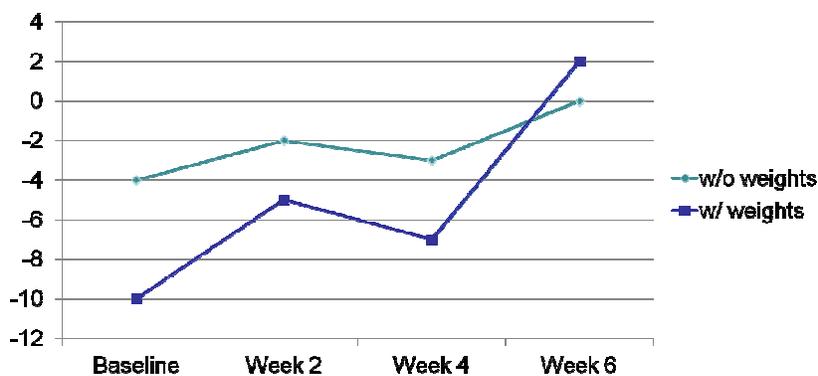
**However, GAS goals can be weighted**

Weight	-2 (much less than expected)	-1 (less than expected)	0 (expected outcome)	+1 (more than expected)	+2 (much more than expected)
3	Holds scissors in one hand and opens and closes blade	Snips stiff objects (e.g., straw)	Snips paper using open/close action	Cuts a piece of paper in half	Cuts across a straight line
2	Makes marks on paper	Makes circular scribbles	Imitates vertical lines	Imitates vertical and horizontal lines	Copies vertical and horizontal lines from model

(Goal statements from McLaren & Rodger, 2003)

Baseline:	$(-2 \times 3) + (-2 \times 2) = -10$
Week 2:	$(-1 \times 3) + (-1 \times 2) = -5$
Week 4:	$(-1 \times 3) + (-2 \times 2) = -7$
Week 6:	$(0 \times 3) + (0 \times 2) = 0$

Change over time with and without weighted goals



**Details...getting started**

Dependent on specific, measurable goal statement as “0” point, so...

- Identify target behavior (observable and connected to core curriculum)
- Identify relevant contextual factors (e.g., set-up, assistive devices, environment, etc.)
- Identify level of support needed (e.g., verbal, physical, visual prompts, etc.)
- Quantify performance (e.g., time, frequency, amounts, etc.)
- Identify time period to meet goal (“0” is annual goal)

**For example...as a “0” goal (expected outcome/Annual Goal)**

(Goal statement from Ruble, McGrew, & Toland, 2012)

*Anthony will make 10 different requests per day, independently, to adults (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization*

**Then create a -2 statement...**

This can be the student’s current level of performance, framed in a way similar to your goal statement, so:

*Independently, Anthony uses aggression (pushing, grabbing, hitting, etc.) to make requests, and depends on verbal and gestural mands from adults (such as “Tell me ‘more’” while signing “more”) to use signs, pictures, or verbalizations to make requests*

**And a -1 statement...**

...varying one (or more?) aspects of your goal as appropriate. For example:

*Anthony will make ⑤ different requests per day independently to adults (go, more, eat, help, stop, finished, names of object/activity) or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization.*

**And a +1 statement...**

*Anthony will make a total of ⑮ different requests per day, independently, to adults (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization*

OR

*Anthony will make a total of 10 different requests per day, independently, to adults and peers (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization*



**And a +2 statement.**

Anthony will make a total of 15 different requests per day, independently, to adults and peers (go, more, eat, help, stop, finished, names of object/activity), or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization

<b>-2 (much less than expected)</b>	Independently, uses aggression to make requests, and depends on verbal and gestural mands from adults to use signs, pictures, or verbalizations to make requests
<b>-1 (less than expected)</b>	Makes 5 different requests per day, independently, to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization
<b>0 (expected outcome)</b>	Makes 10 different requests per day, independently, to adults, or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization
<b>+1 (more than expected)</b>	Makes a total of 10 different requests per day, independently, to adults and peers or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization
<b>+2 (much more than expected)</b>	Makes a total of 15 different requests per day, independently, to adults and peers or as a response to a question (“what do you want?”), initiating by using sign, pictures, or verbalization

**Identify timelines for re-assessment...**

- Baseline – will be all of your -2 statements, so Baseline will always be -2
- Use regularly established dates for re-assessment (like the end of a grading period) when possible
- If you have questions about whether or not a particular approach to intervention is working, assess more often!



**Practice Example: Creating – and + statements**

<p><b>-2</b> <b>(much less than expected)</b></p>	<p>Teddy takes 10-12 minutes to walk to the school cafeteria, arriving at least 5 minutes after the rest of his class, stopping 4-5 times along the way to voice complaints about the distance or distract the adult with him with conversation</p>
<p><b>-1</b> <b>(less than expected)</b></p>	
<p><b>0</b> <b>(expected outcome)</b></p>	<p>Using his reverse walker, Teddy will walk to the school cafeteria in under 8 minutes, with no more than 1 verbal prompt to continue walking, 4 out of 5 days at school.</p>
<p><b>+1</b> <b>(more than expected)</b></p>	
<p><b>+2</b> <b>(much more than expected)</b></p>	

**Case Study Example: Micah**

**Background Information**

Micah Zeller is a very charming, playful, bright 5 year old boy who likes superheroes and "science experiments." He lives with his parents and older brother, Jacob, in Durham, North Carolina. Micah was diagnosed at age 30 months with a variant of Landau-Kleffner syndrome (acquired epileptic aphasia). Characteristics of this syndrome include difficulty with expressive language and with motor planning. Micah also has delays in visual-motor coordination that make tool use and construction tasks difficult. Micah is being followed medically, and also has been identified as eligible to receive exceptional children’s services based on his language and motor delays. Micah currently attends an inclusive preschool program; his parents decided to keep him in this program an extra year, rather than starting kindergarten at age 5, in order to give him a chance to further develop his language and social skills.

**Parent and Teacher Priorities and Concerns**

- More varied play in the classroom – tends to stick with role-playing/pretend play, especially about superheroes, and avoid construction play and art activities
- More interaction with peers – tends to stick with adults
- Pre-academics: writing his name, drawing pictures of things that are recognizable, cutting with scissors

- Concerns about cognitive processing speed and difficulty with visual-perceptual skills, even though above average cognitive/learning abilities (IQ =119)
- Need for structure – does well with it, and sometimes seems a little lost without it.

### **Play and Social Participation**

During structured play and learning activities, Micah participates actively and uses toys and materials that his peers are using. Micah is able to use verbal directions and adult and peer models to help him know what to do in these more structured situations, but is inconsistent in this ability. Though he's willing to engage with blocks, puzzles and other constructive activities, Micah has difficulty interpreting visual-spatial information, and with planning and sequencing assembly or construction tasks. He cannot complete interlocking puzzles or build structures of more than 5 pieces without help. His preferences for dramatic play based on themes he has rehearsed or knows reflect his discomfort with unfamiliar activities or those which challenge him to use abilities in which he is less confident. During free play or unstructured play times in the classroom and on the playground, Micah often needs suggestions or support to engage in a variety of play and to sustain play with peers. Micah typically is very comfortable with adults, and has a playful spirit and sense of humor; while this makes interacting with him delightful, it also allows him to avoid the challenge of interacting with peers.

### **School-related Tasks**

Micah is able to draw simple pictures of objects or events, using several basic shapes (lines, circles, squares), with minimal-moderate verbal support and occasional modeling by a teacher. He is also able to copy his first name in upper case letters, with minimal verbal cueing. His grasp of writing tools varies, and he is continuing to refine a functional grasp that allows him to write and draw with precision. He is able to use scissors to cut around shapes/objects, but he has difficulty cutting on a cutting line to actually cut out an object/shape. Micah uses a computer mouse well, understands how to access and operate typical early learning software, and is becoming familiar with the keyboard. Micah has some difficulty with scanning and tracking things visually, so he often needs some time to find, visually, the information he should be referencing, and then actually "take it in" and use it. When a task becomes familiar, he more easily uses the visual information presented (i.e., for familiar computer games, he already knows how icons are arranged in the screen, etc., so he's relatively efficient in finding, processing and using that information to play the game.)

	Goal area:	Goal area:
<b>-2</b> <b>(much less than expected)</b>		
<b>-1</b> <b>(less than expected)</b>		
<b>0</b> <b>(expected outcome)</b>		
<b>+1</b> <b>(more than expected)</b>		
<b>+2</b> <b>(much more than expected)</b>		

BASELINE:      Date \_\_\_\_\_      Score \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_      Score \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_      Score \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_      Score \_\_\_\_\_

## References

- Bovend'Eerdt, T.J.H., Botell, R.E., & Wade, D.T. (2009). Writing SMART rehabilitation goals and achieving goal attainment scaling: A practical guide. *Clinical Rehabilitation*, 23, 352–361.
- King, G.A., McDougall, J., Tucker, M.A., Gritzan, J., Malloy-Miller, T., Alambets, P., Cuning, D., Thomas, K., & Gregory, K. (1999). An evaluation of functional, school-based therapy services for children with special needs. *Physical & Occupational Therapy in Pediatrics*, 19, 5-29.
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