#NCSIP2022

2022 NCSIP NETWORK CONFERENCE

PEOPLE | PURPOSE | PASSION

THE PATHWAY TO SUCCESS

North Carolina Department of PUBLIC INSTRUCTION

NC SIP

How to Set Goals and Monitor Progress in Math

PEOPLE | PURPOSE | PASSION
THE PATHWAY TO SUCCESS

#NCSIP2022

Sarah R. Powell, Ph.D.

Associate Professor
The University of Texas at Austin

www.sarahpowellphd.com

srpowell@utexas.edu

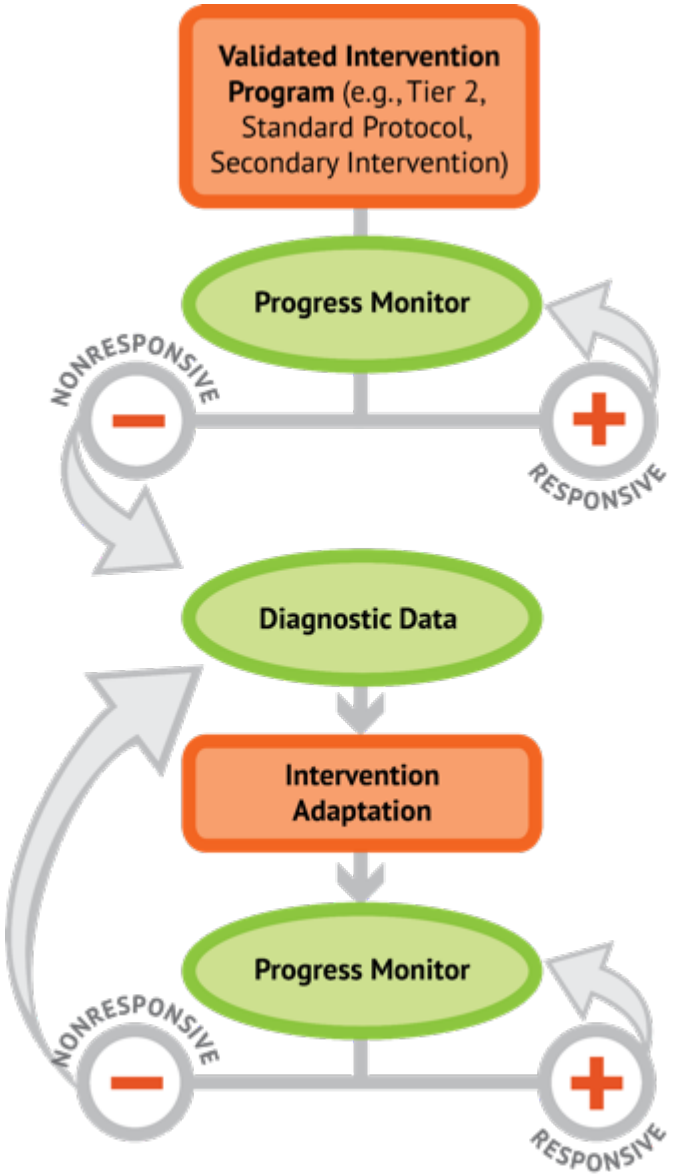
@sarahpowellphd

Introduce yourself.

Describe your role as an educator.

Describe the mathematics you support.

Share fun things from today and tag @sarahpowellphd!



Share your experience with data-based individualization.

What is Progress Monitoring?

- Tests/measures/probes administered **frequently**
- Compare scores to understand **mathematics growth**

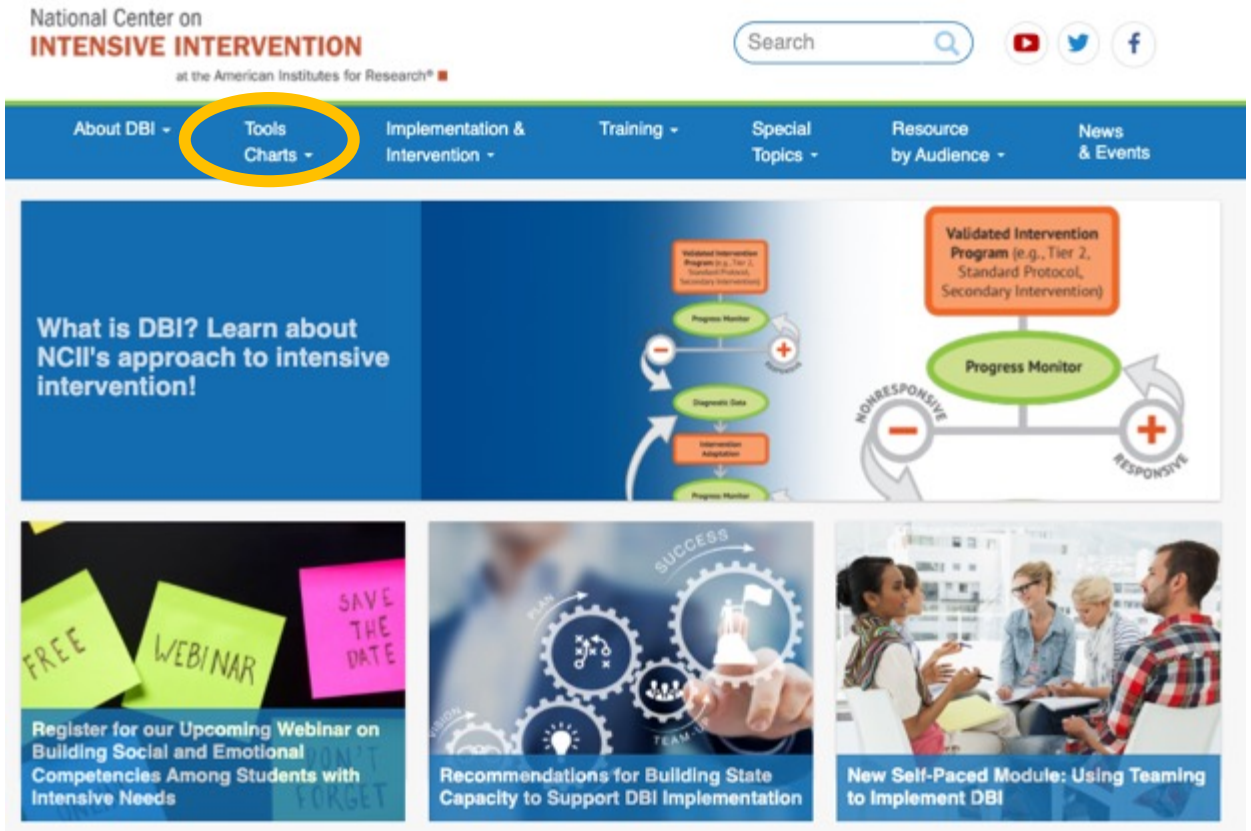
Must be **reliable** and **valid**

Must have **alternate forms**

Where to Find Progress Monitoring Measures?

National Center on Intensive Intervention

www.intensiveintervention.org



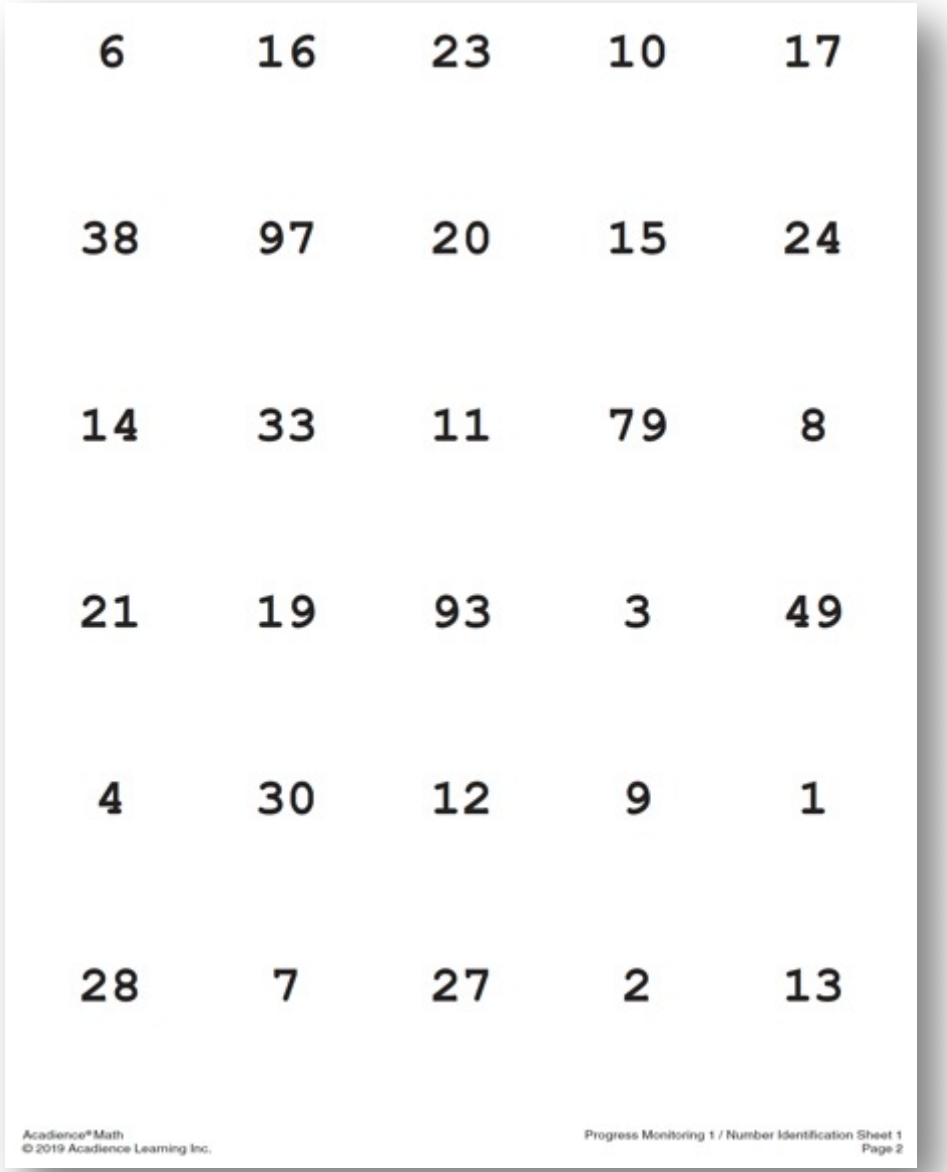
Progress Monitoring Suggestions

Name	Grade
Early Numeracy Measure Number Identification; Quantity Discrimination; Missing Number	K
Computation	1-2
Concepts and Applications	3-8

Progress Monitoring Considerations

- Skills to be measured—age and grade appropriate
- Cost and training requirements
- Administration and scoring time
- Data management
- Technical rigor (consider population)
  - Reliability
  - Validity
  - Evidence of being sensitive to change
  - Alternate/parallel forms

Number Identification



6	16	23	10	17
38	97	20	15	24
14	33	11	79	8
21	19	93	3	49
4	30	12	9	1
28	7	27	2	13

Acadience® Math

Progress Monitoring 1 / Number Identification Sheet 1
Page 2

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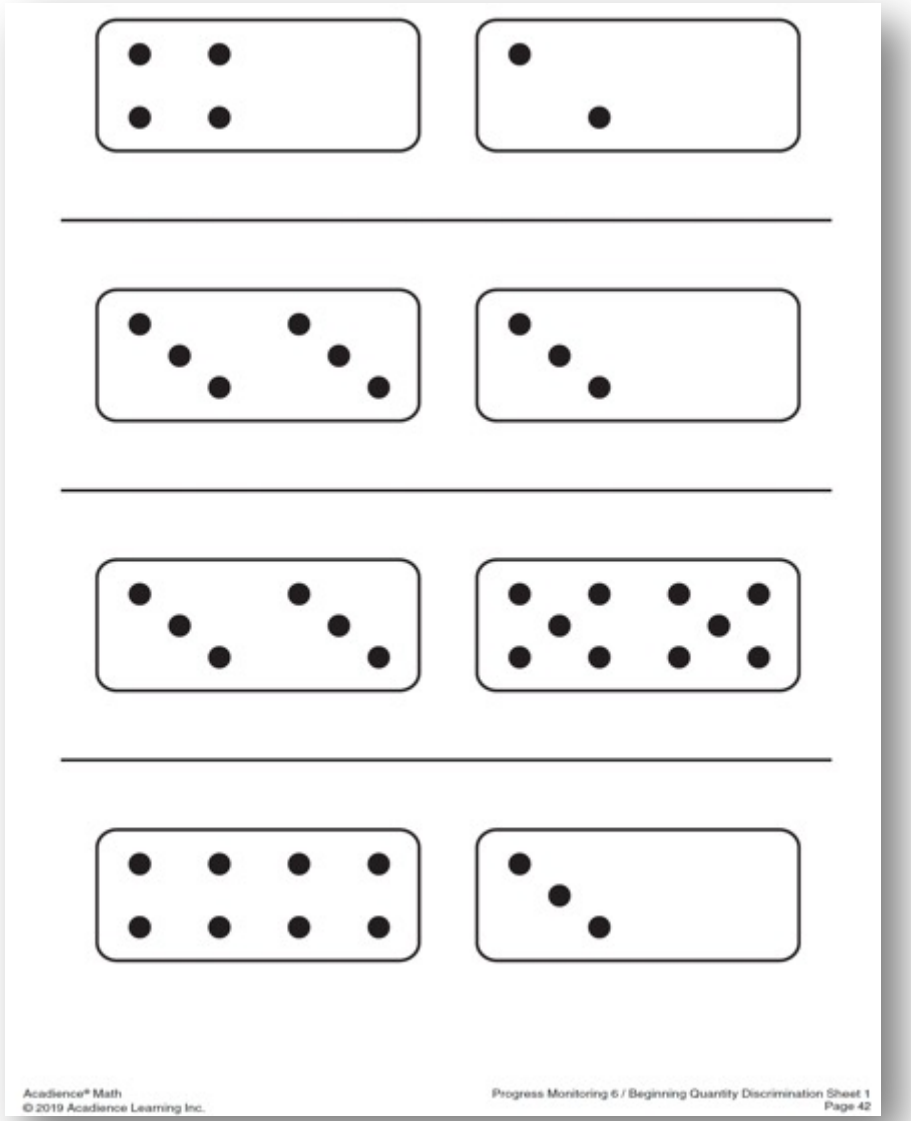
Quantity Discrimination



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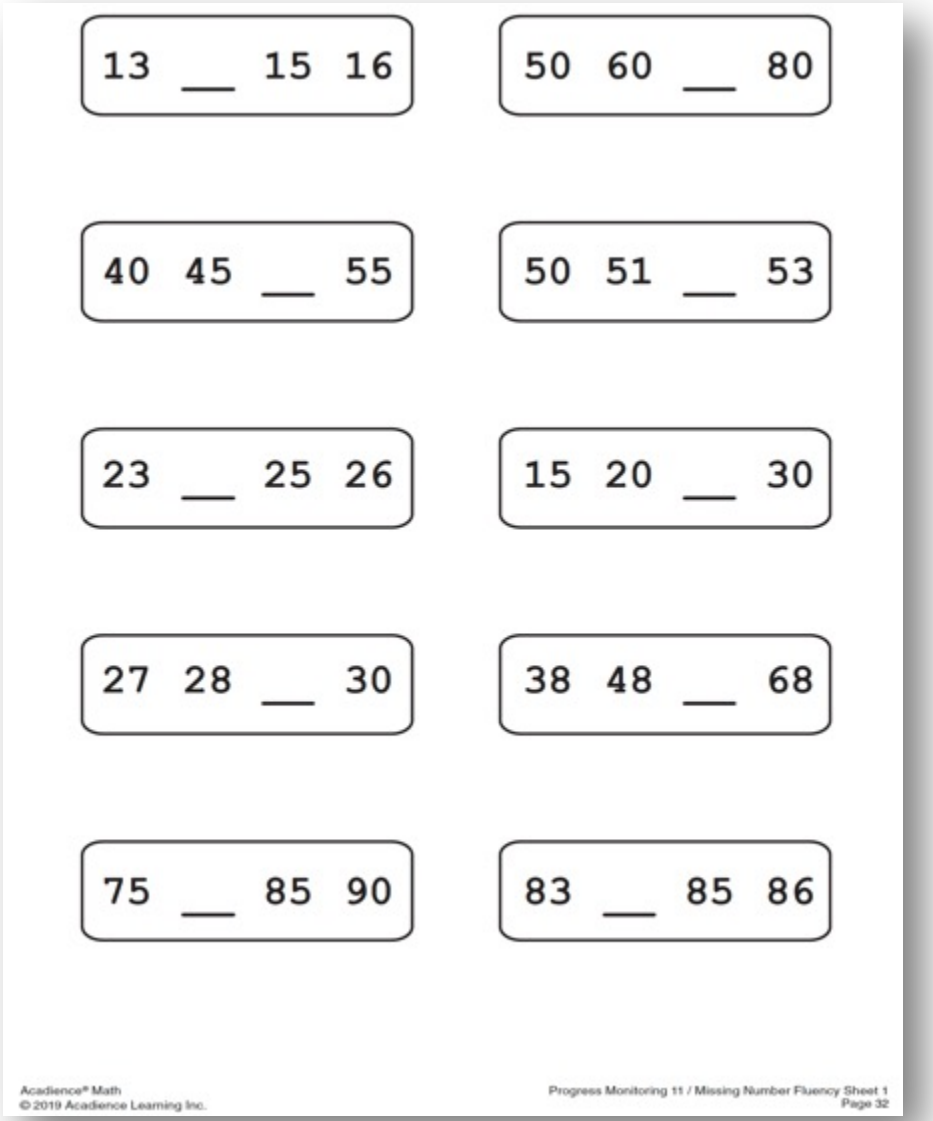
Missing Number



13 __ 15 16	50 60 __ 80
40 45 __ 55	50 51 __ 53
23 __ 25 26	15 20 __ 30
27 28 __ 30	38 48 __ 68
75 __ 85 90	83 __ 85 86

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Progress Monitoring 11 / Missing Number Fluency Sheet 1
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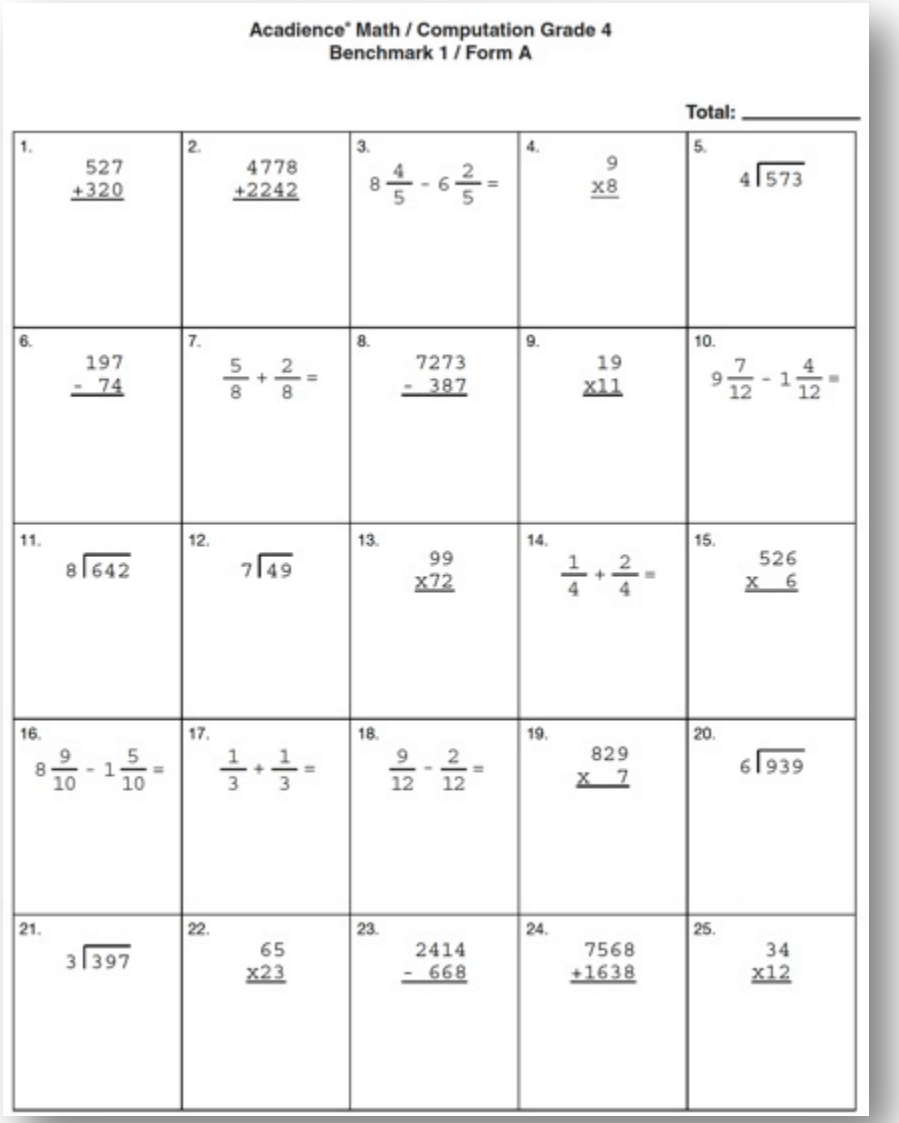
Computation



Acadience® Math / Computation Grade 4
Benchmark 1 / Form A

Total: _____

1. $\begin{array}{r} 527 \\ +320 \\ \hline \end{array}$	2. $\begin{array}{r} 4778 \\ +2242 \\ \hline \end{array}$	3. $8\frac{4}{5} - 6\frac{2}{5} =$	4. $\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$	5. $4\overline{)573}$
6. $\begin{array}{r} 197 \\ -\ 74 \\ \hline \end{array}$	7. $\frac{5}{8} + \frac{2}{8} =$	8. $\begin{array}{r} 7273 \\ -\ 387 \\ \hline \end{array}$	9. $\begin{array}{r} 19 \\ \times 11 \\ \hline \end{array}$	10. $9\frac{7}{12} - 1\frac{4}{12} =$
11. $8\overline{)642}$	12. $7\overline{)49}$	13. $\begin{array}{r} 99 \\ \times 72 \\ \hline \end{array}$	14. $\frac{1}{4} + \frac{2}{4} =$	15. $\begin{array}{r} 526 \\ \times\ \ 6 \\ \hline \end{array}$
16. $8\frac{9}{10} - 1\frac{5}{10} =$	17. $\frac{1}{3} + \frac{1}{3} =$	18. $\frac{9}{12} - \frac{2}{12} =$	19. $\begin{array}{r} 829 \\ \times\ \ 7 \\ \hline \end{array}$	20. $6\overline{)939}$
21. $3\overline{)397}$	22. $\begin{array}{r} 65 \\ \times 23 \\ \hline \end{array}$	23. $\begin{array}{r} 2414 \\ -\ 668 \\ \hline \end{array}$	24. $\begin{array}{r} 7568 \\ +1638 \\ \hline \end{array}$	25. $\begin{array}{r} 34 \\ \times 12 \\ \hline \end{array}$

https://www.acadiencelearning.org

Concepts and Applications

Acadience® Math / Concepts and Applications
Grade 4 / Benchmark 1

Total: _____

1. Is the dotted line a line of symmetry for each shape? Write "yes" or "no" in the space provided below each shape.

_____ _____ _____

2. Compare the number in Box 1 with the number in Box 2. Fill in the blank with > (greater than), = (equal to), or < (less than):

Box 1	>, =, <	Box 2
835		751
333		613
131		168

3. List three numbers that are multiples of 4:

_____ _____ _____

4. Jake read 17 books over the summer that were nonfiction and 43 books that were fiction. His friend Ross read 38 books total. How many more books did Jake read than Ross? _____ books.

5. Compare the decimal in Box 1 with the decimal in Box 2. Fill in the blank with > (greater than), = (equal to), or < (less than):

Box 1	>, =, <	Box 2
0.47		0.25
0.39		0.68
0.89		0.91

6. We rented a movie that was 2 hours and 15 minutes long. How many minutes total was the movie? _____ minutes.

https://www.acadiencelearning.org

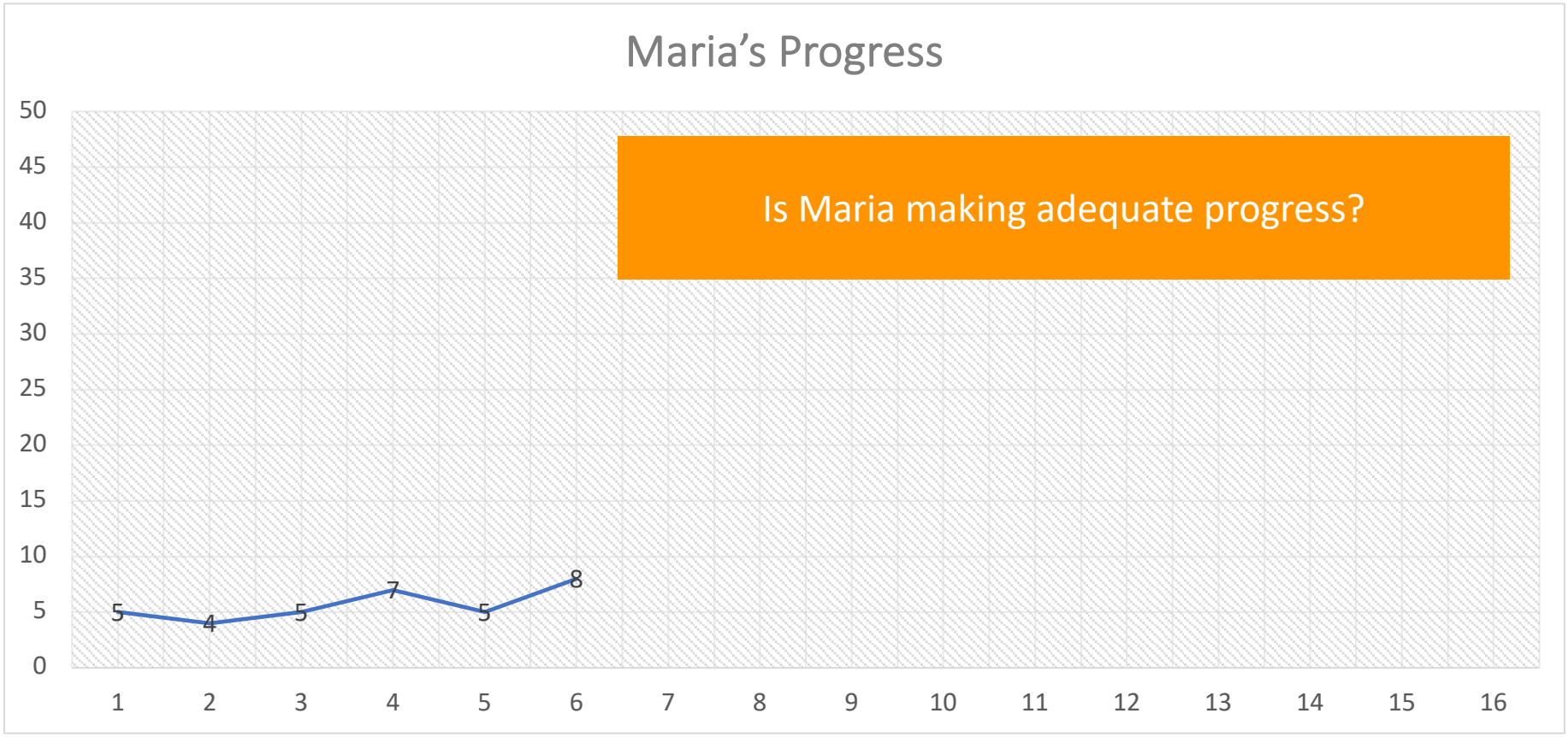
Next Number / Counting	Grades K-1
Geometry / Measurement	Grades 1-6
Proportional Reasoning / Quantity Discrimination / Number Properties	Middle School
Algebra	High School

Progress Monitoring Suggestions

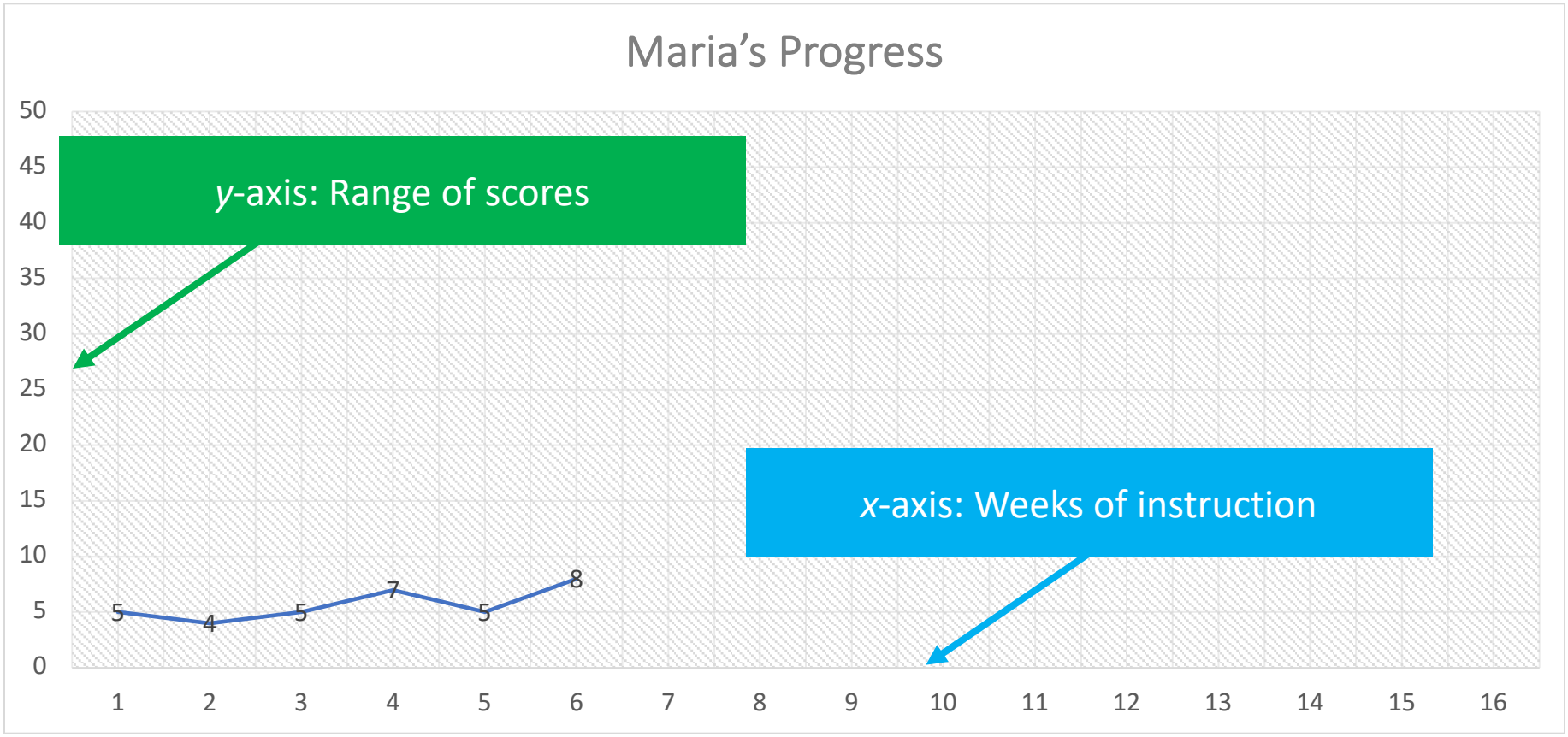
Name	Grade
Early Numeracy Measure Number Identification; Quantity Discrimination; Missing Number	K
Computation	1-2
Concepts and Applications	3-8

What progress monitoring measures do you use (or want to use)?

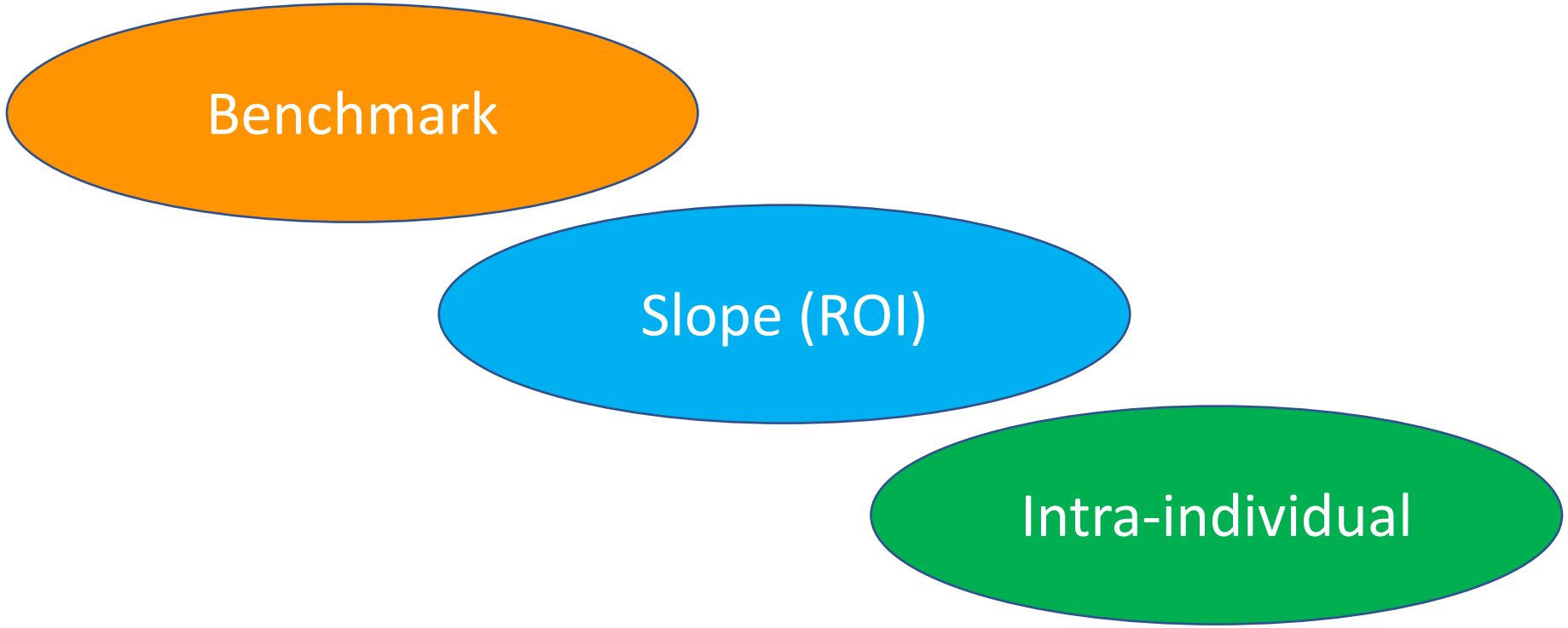
Goal Setting and Decision Making



Graphing


Maria's Progress
50
45
40
35
30
25
20
15
10
5
0
y-axis: Range of scores
x-axis: Weeks of instruction
5
4
5
7
5
8
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Setting Goals



Benchmark

- Identify appropriate grade-level benchmark
- Mark benchmark on student graph with an X
- Draw goal-line from baseline progress monitoring scores to X

Benchmark

- Identify appropriate grade-level benchmark

Grade	Computation	Concepts and Applications
1	20 digits	20 points
2	20 digits	20 points
3	30 digits	30 points
4	40 digits	30 points
5	30 digits	15 points
6	35 digits	15 points

http://www.rti4success.org/resource/rti-implementer-series-module-2-progress-monitoring

Benchmark

- Identify appropriate grade-level benchmark

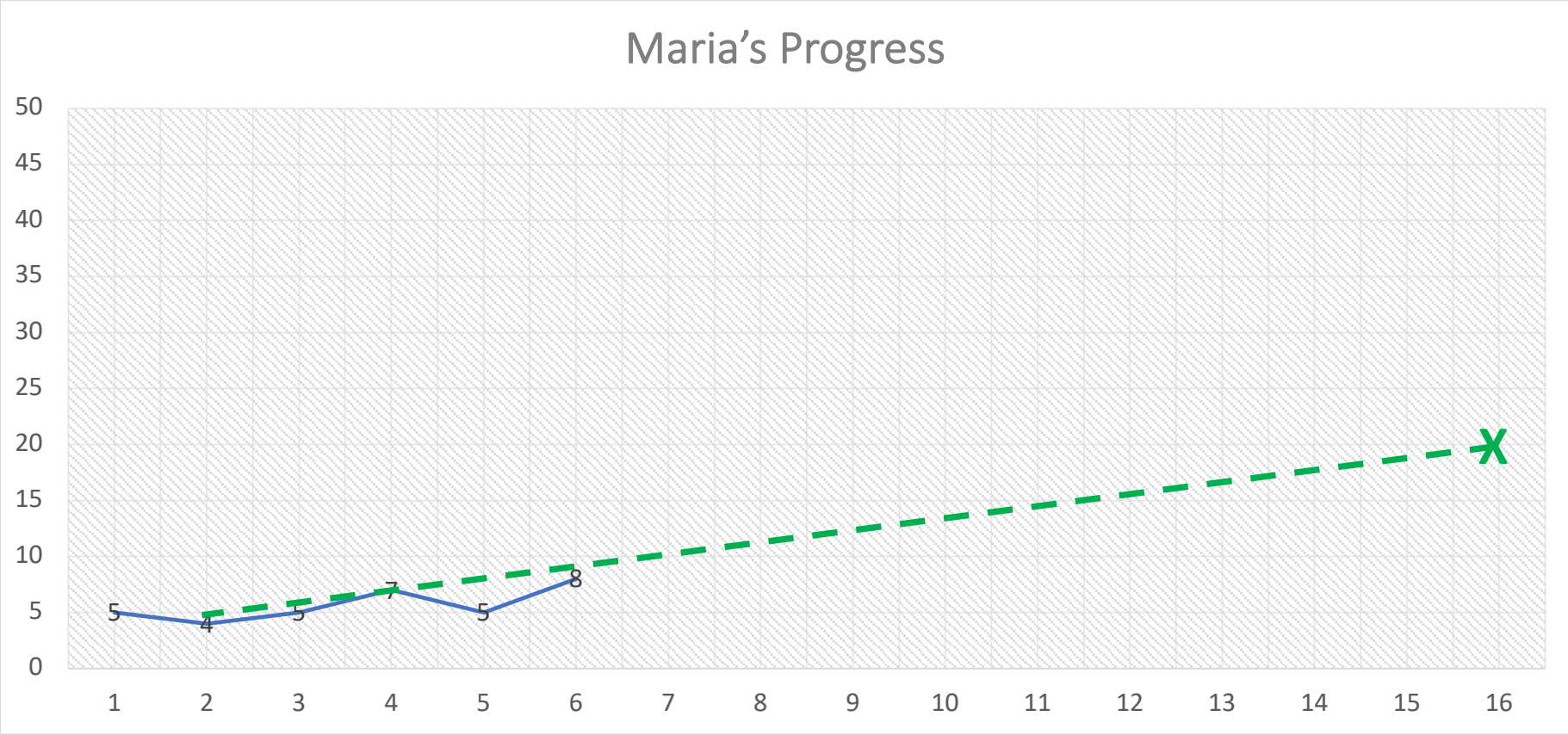
Grade	Computation	Concepts and Applications
1	20 digits	20 points
2	20 digits	20 points
3	30 digits	30 points
4	40 digits	30 points
5	30 digits	15 points
6	35 digits	15 points

Maria: 2nd-grade student using Computation

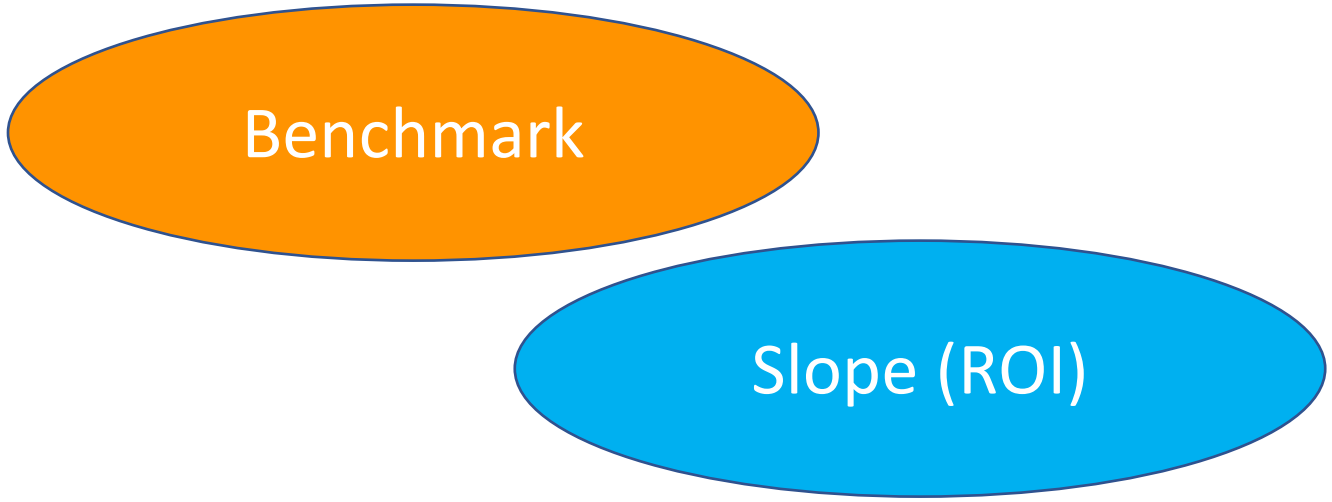
http://www.rti4success.org/resource/rti-implementer-series-module-2-progress-monitoring

Benchmark

2. Mark benchmark on student graph with an X
3. Draw goal-line from baseline progress monitoring scores to X



Setting Goals



Slope (ROI)

- Locate slope (i.e., rate of improvement – ROI)
- Multiply ROI by number of weeks left in intervention
- Add to baseline of progress monitoring scores
- Mark goal on student graph with an X
- Draw goal-line from baseline progress monitoring scores to X

Slope (ROI)

- Locate slope (i.e., rate of improvement – ROI)

Grade	Computation—Slope for Digits Correct	Concepts and Applications — Slope for Points
1	0.35	No data available
2	0.30	0.40
3	0.30	0.60
4	0.70	0.70
5	0.70	0.70
6	0.40	0.70

http://www.rti4success.org/resource/rti-implementer-series-module-2-progress-monitoring

Slope (ROI)

- Locate slope (i.e., rate of improvement – ROI)

Grade	Computation—Slope for Digits Correct	Concepts and Applications — Slope for Points
1	0.35	No data available
2	0.30	0.40
3	0.30	0.60
4	0.70	0.70
5	0.70	0.70
6	0.40	0.70

Maria: 2nd-grade student using Computation

http://www.rti4success.org/resource/rti-implementer-series-module-2-progress-monitoring

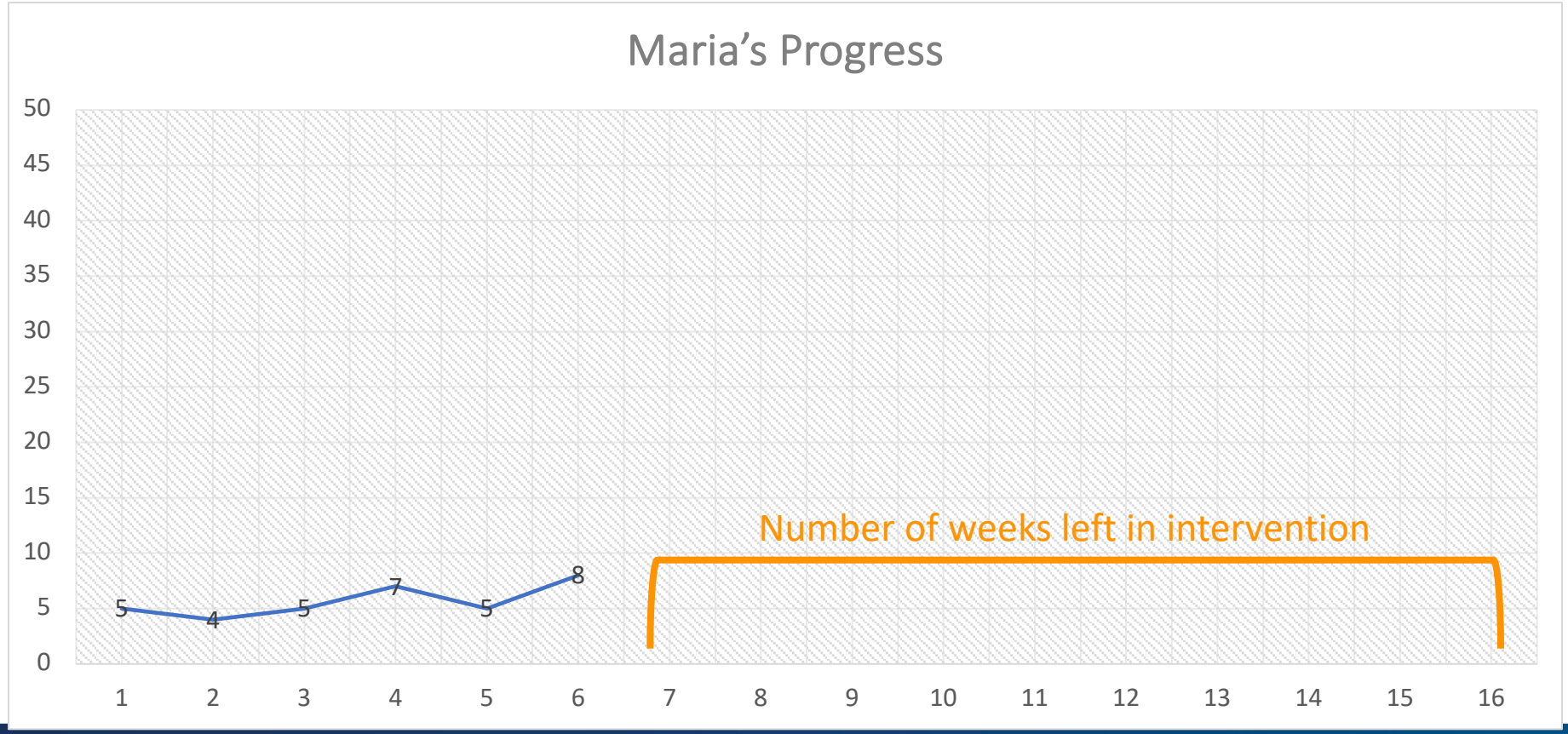
Slope (ROI)

1. Locate slope (i.e., rate of improvement – ROI) **0.30**

Slope (ROI)

1. Locate slope (i.e., rate of improvement – ROI) **0.30**
2. Multiply ROI by number of weeks left in intervention **0.30** ×

Slope (ROI)


Maria's Progress
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
5
4
5
7
5
8
Number of weeks left in intervention

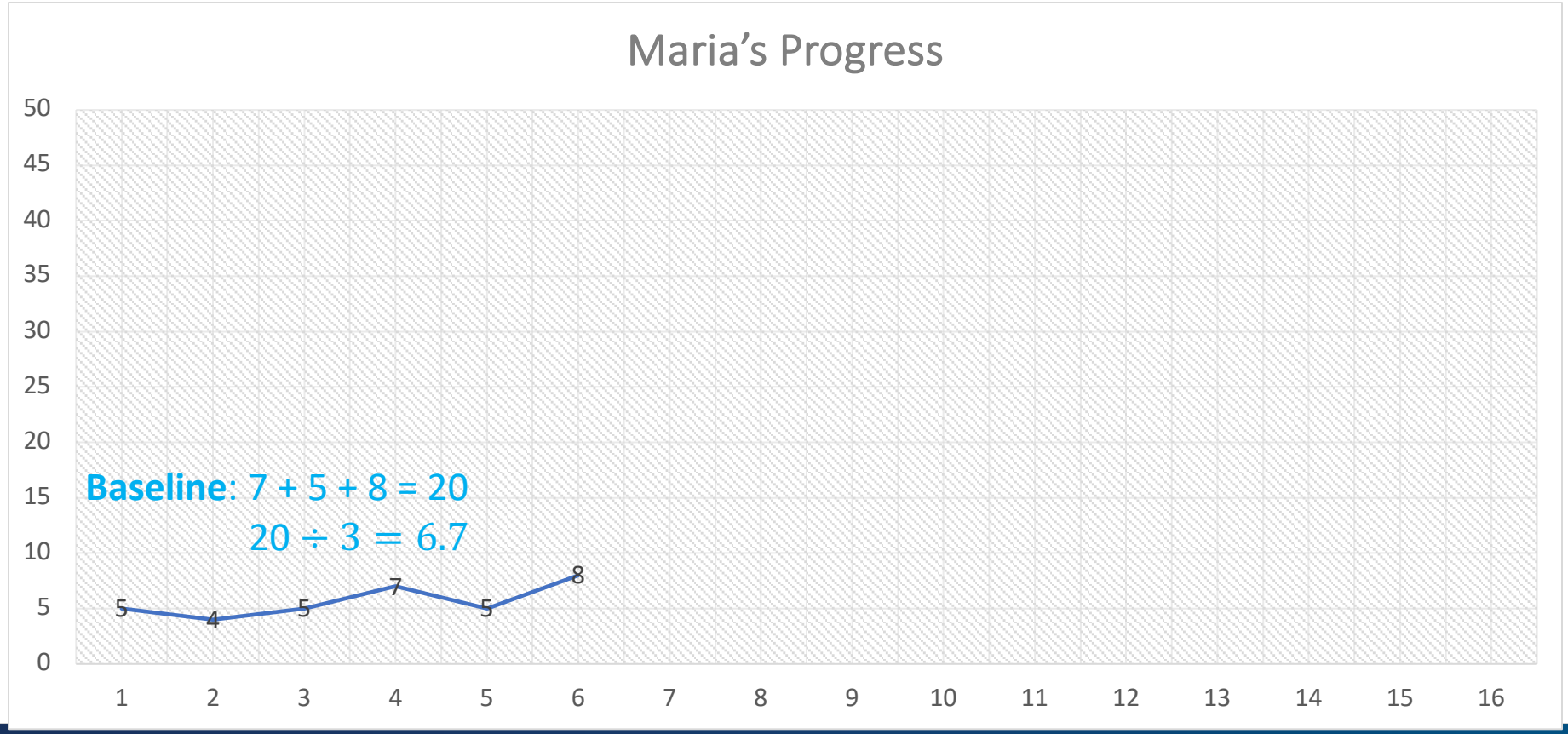
Slope (ROI)

1. Locate slope (i.e., rate of improvement – ROI) **0.30**
2. Multiply ROI by number of weeks left in intervention **0.30 × 10 = 3**

Slope (ROI)

1. Locate slope (i.e., rate of improvement – ROI) **0.30**
2. Multiply ROI by number of weeks left in intervention **0.30 × 10 = 3**
3. Add to baseline of progress monitoring scores **3 +**

Slope (ROI)

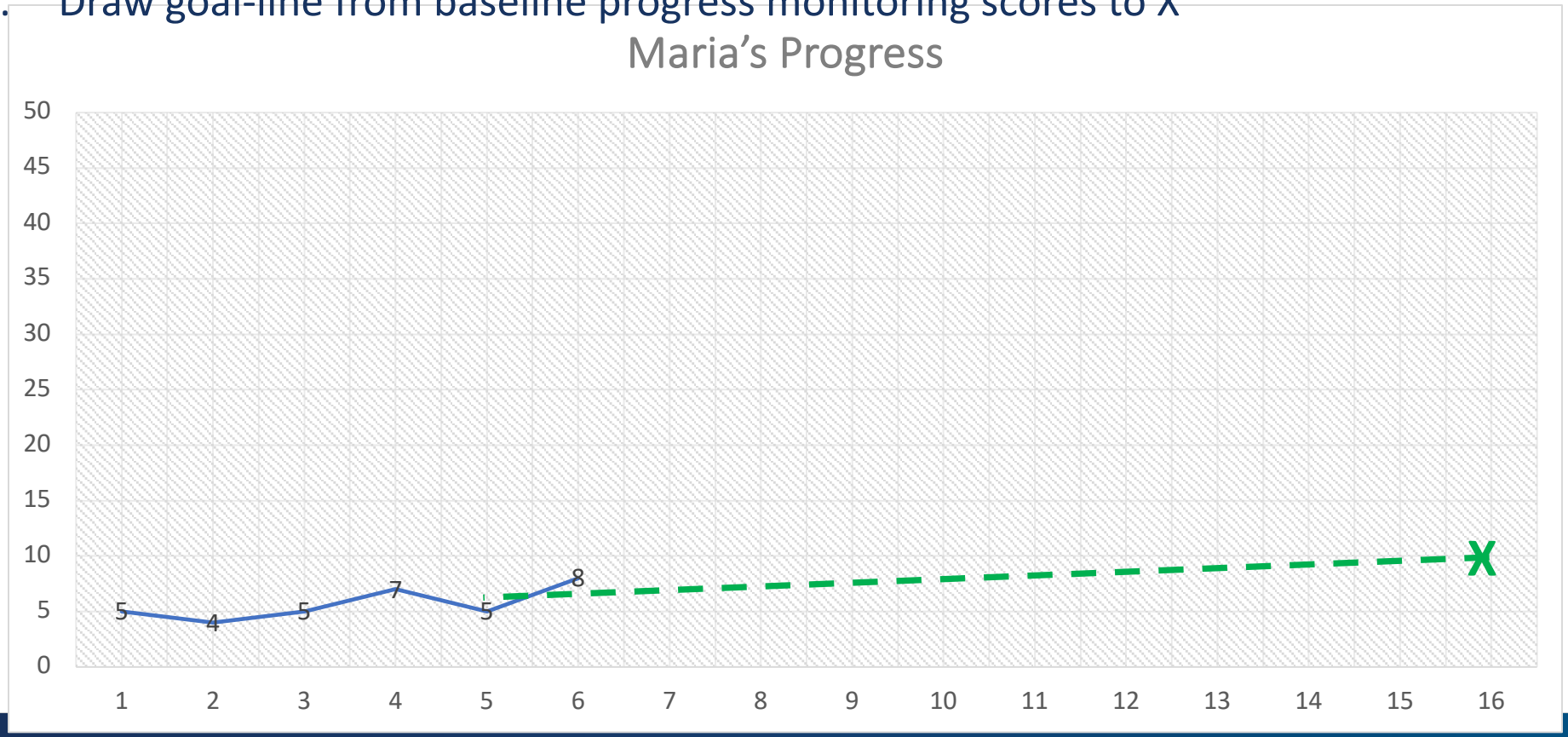

Maria's Progress
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Baseline: 7 + 5 + 8 = 20
20 ÷ 3 = 6.7
5
4
5
7
5
8

Slope (ROI)

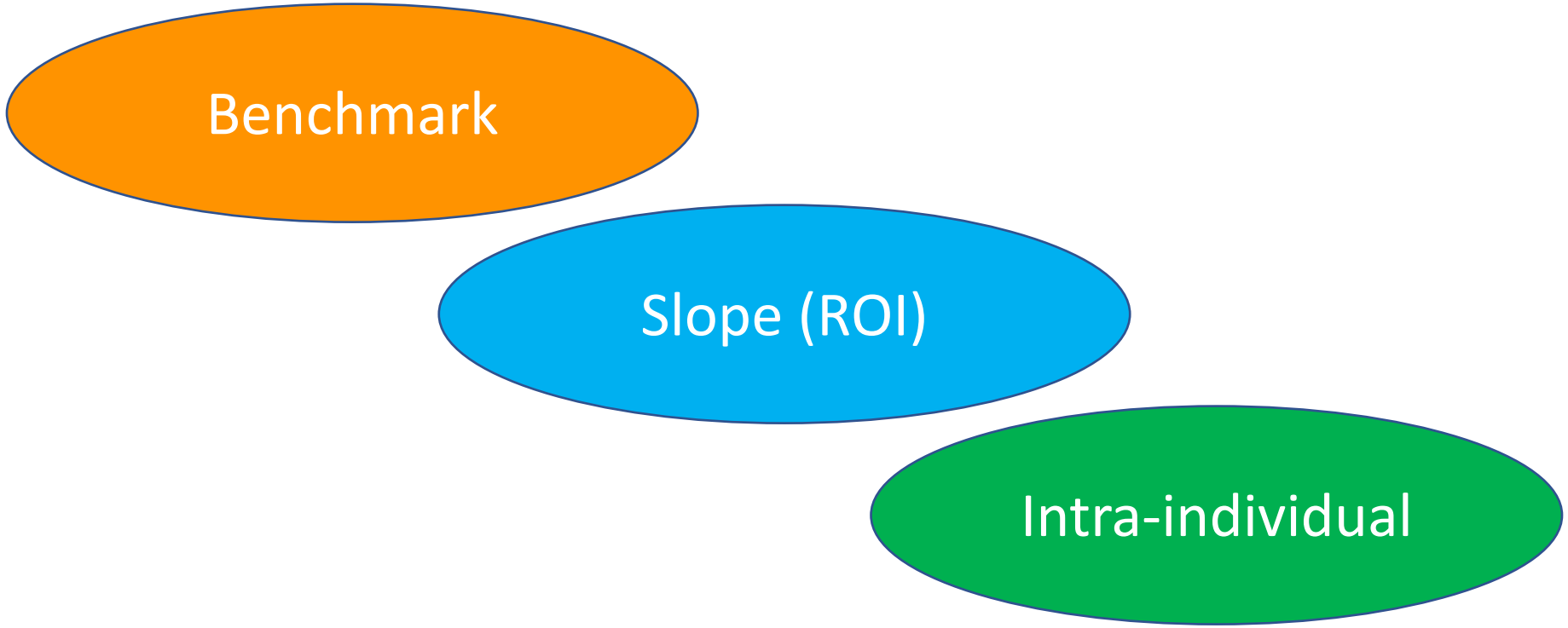
1. Locate slope (i.e., rate of improvement – ROI) **0.30**
2. Multiply ROI by number of weeks left in intervention **0.30 × 10 = 3**
3. Add to baseline of progress monitoring scores **3 + 6.7 = 9.7**

Slope (ROI)

4. Mark goal on student graph with an X
5. Draw goal-line from baseline progress monitoring scores to X



Setting Goals



Intra-individual

1. Identify student's slope
2. Multiply slope by 1.5
3. Multiply by number of weeks until end of intervention
4. Add to student's baseline score
5. Mark goal on student graph with an X
6. Draw goal-line from baseline progress monitoring scores to X

Intra-individual

1. Identify student's slope

SLOPE CALCULATION:

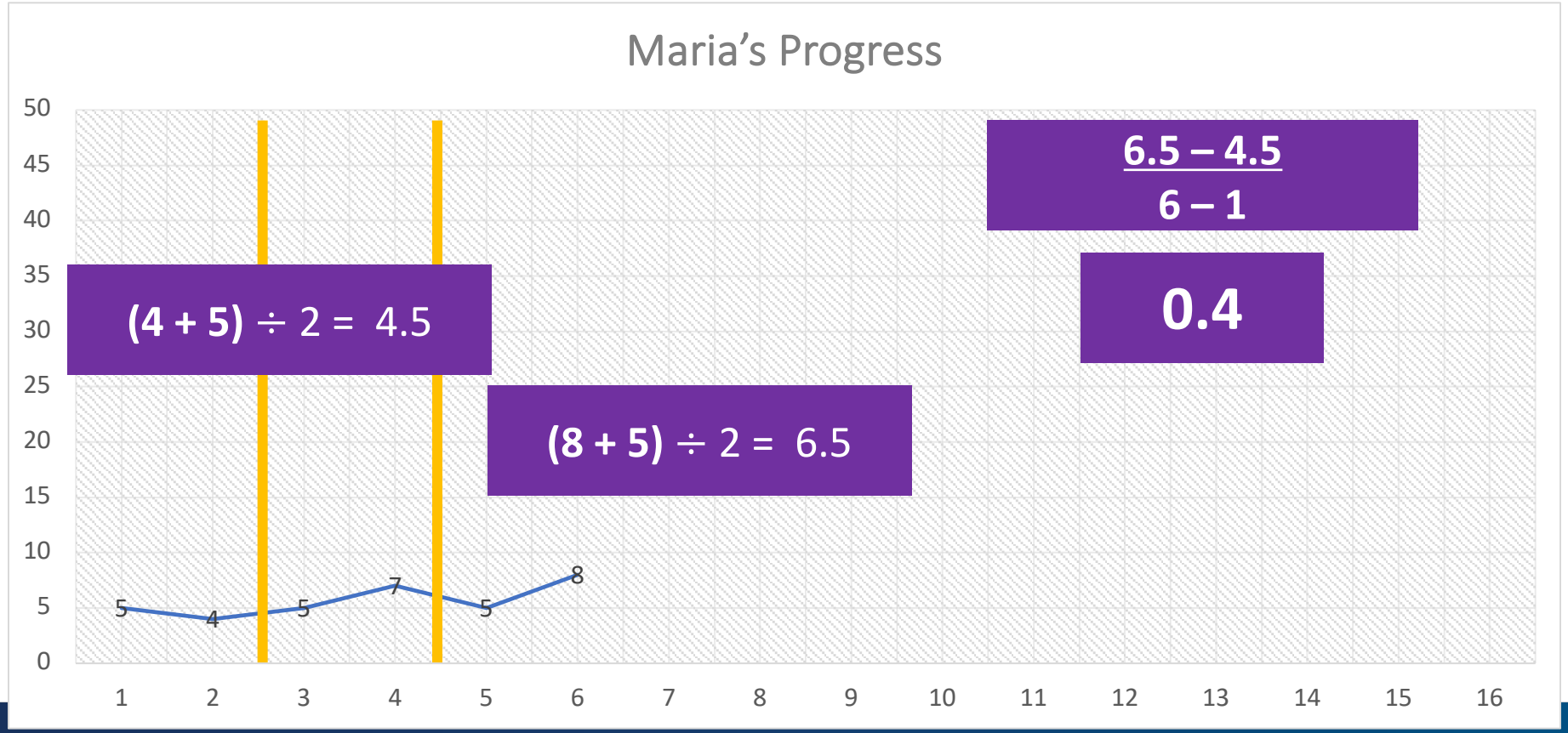
$$\frac{3^{rd}\text{ median} - 1^{st}\text{ median}}{\#\text{data points} - 1}$$

Intra-individual

SLOPE CALCULATION:

$$\frac{3^{rd}\text{ median} - 1^{st}\text{ median}}{\#\text{data points} - 1}$$

1. Identify student's slope



Intra-individual

1. Identify student's (slope) **0.4**

Intra-individual

1. Identify student's (slope)

2. Multiply slope by 1.5

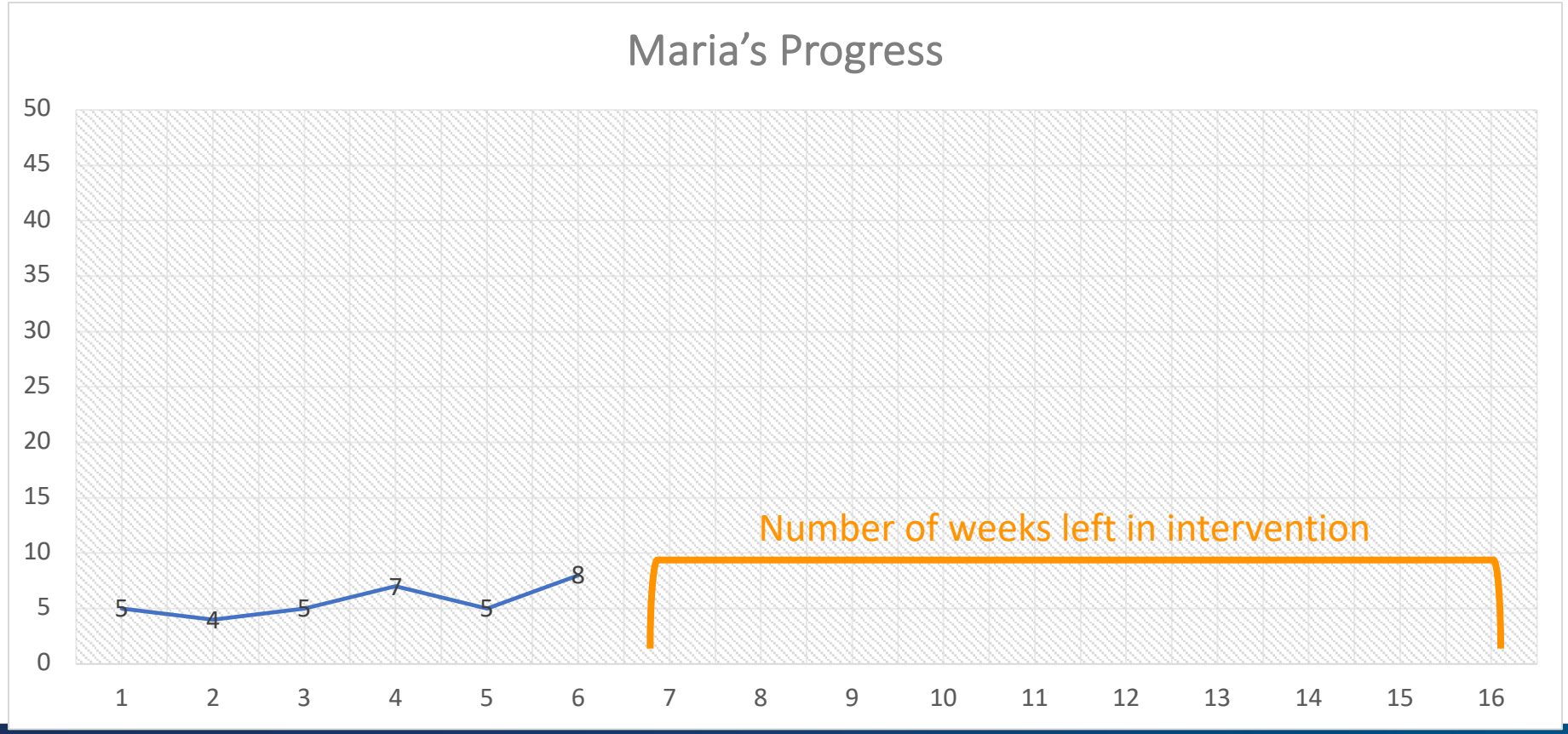
0.4

$0.4 \times 1.5 = 0.6$

Intra-individual

1. Identify student's (slope) **0.4**
2. Multiply slope by 1.5 **$0.4 \times 1.5 = 0.6$**
3. Multiply by number of weeks in intervention **$0.6 \times$**

Intra-individual



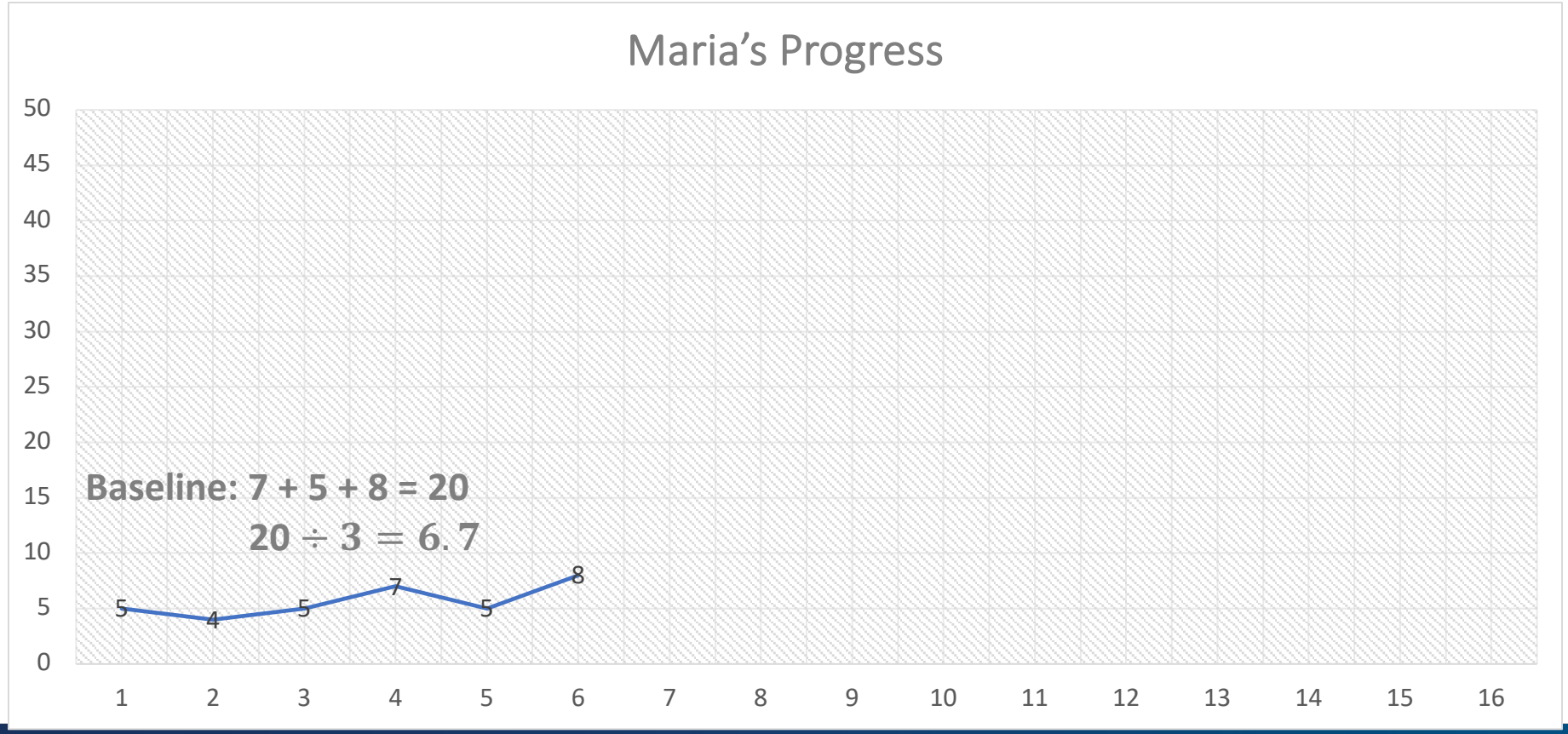
Intra-individual

1. Identify student's (slope) 0.4
2. Multiply slope by 1.5 $0.4 \times 1.5 = 0.6$
3. Multiply by number of weeks in intervention $0.6 \times 10 = 6$

Intra-individual

1. Identify student's (slope) — 0.4
2. Multiply slope by 1.5 — $0.4 \times 1.5 = 0.6$
3. Multiply by number of weeks in intervention — $0.6 \times 10 = 6$
4. Add to student's baseline score — 6

Intra-individual

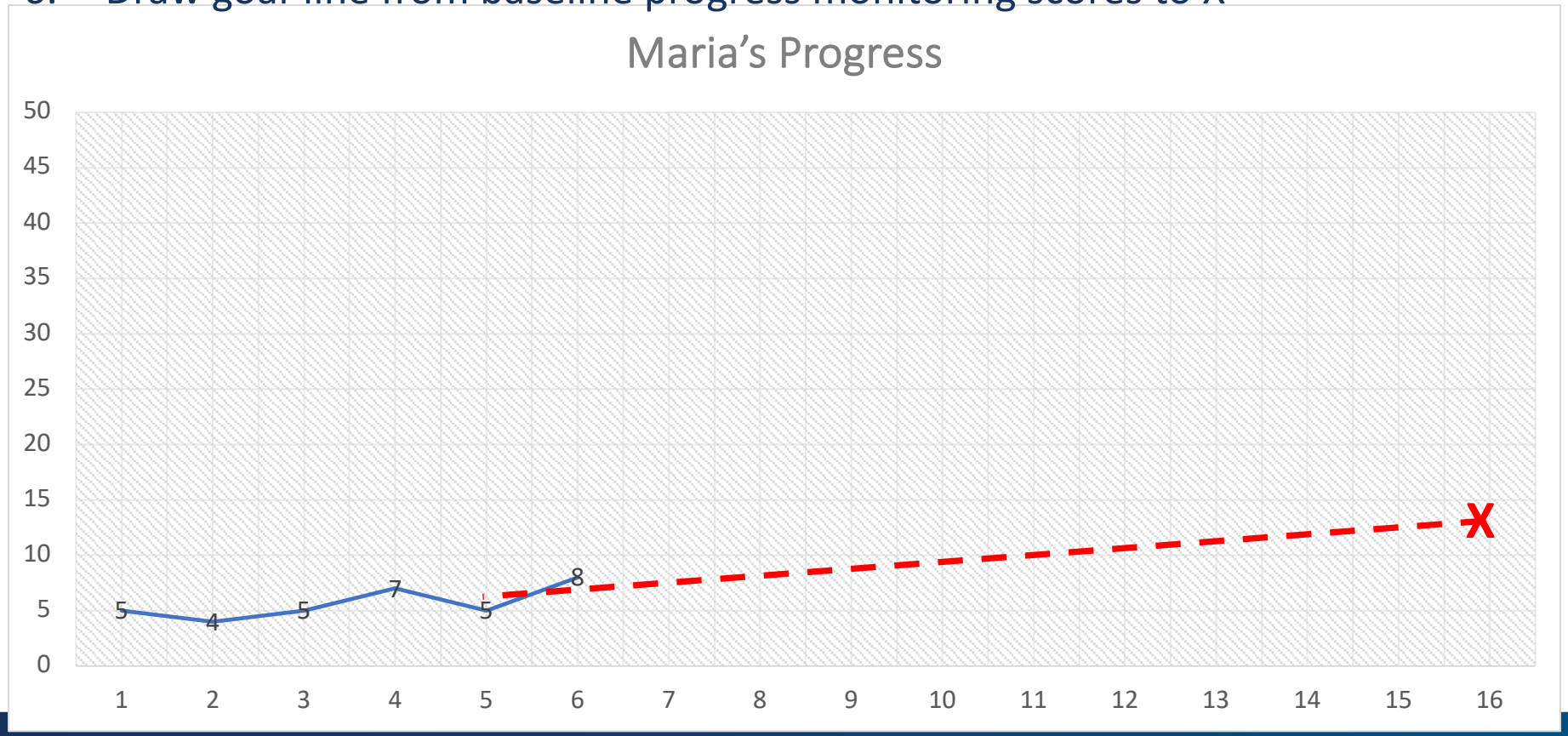


Intra-individual

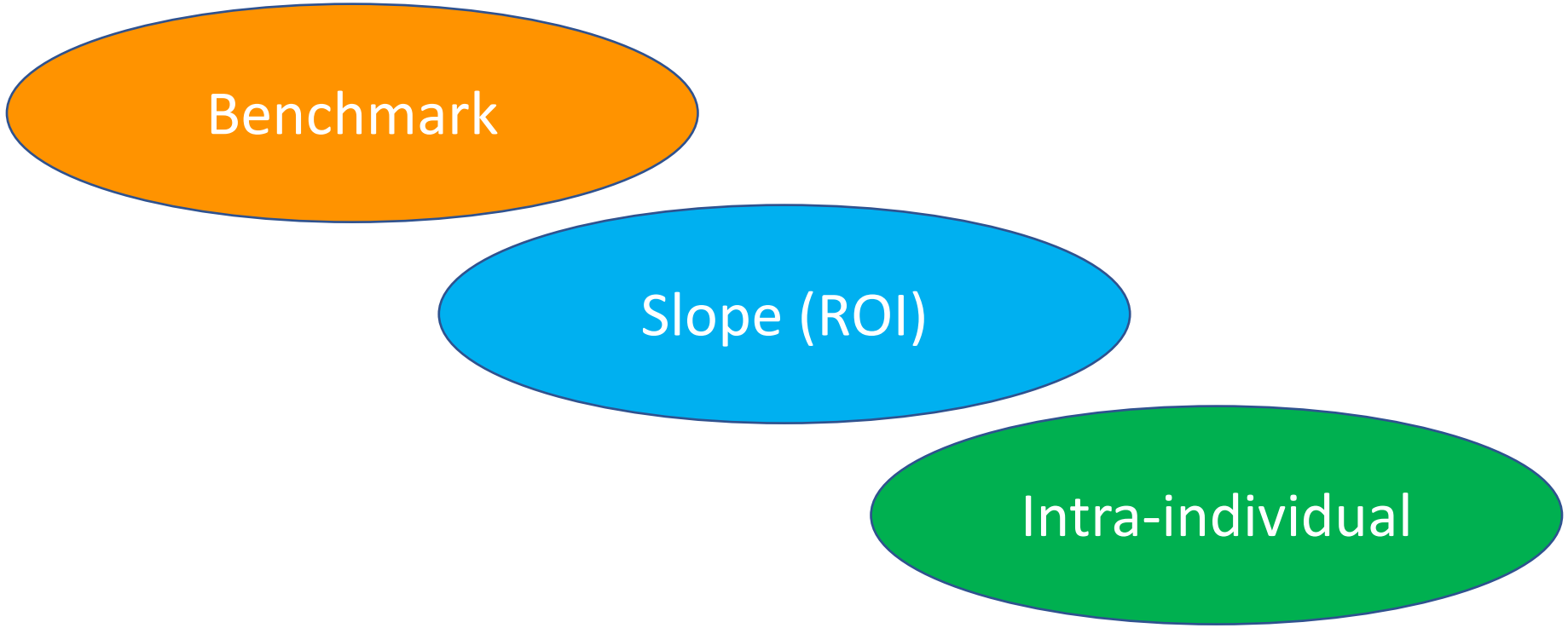
1. Identify student's (slope) — 0.4
2. Multiply slope by 1.5 — $0.4 \times 1.5 = 0.6$
3. Multiply by number of weeks in intervention — $0.6 \times 10 = 6$
4. Add to student's baseline score — $6 + 6.7 = 12.7$

Intra-individual

5. Mark goal on student graph with an X
6. Draw goal-line from baseline progress monitoring scores to X

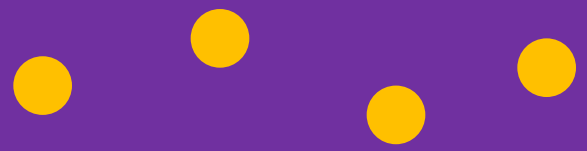


To Review



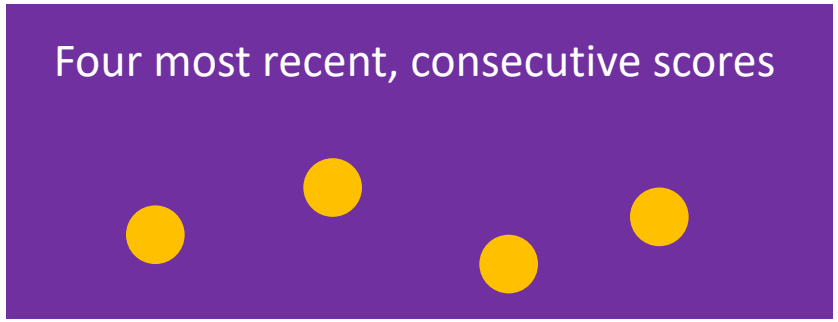
Determining Response

Four most recent, consecutive scores



Trendline

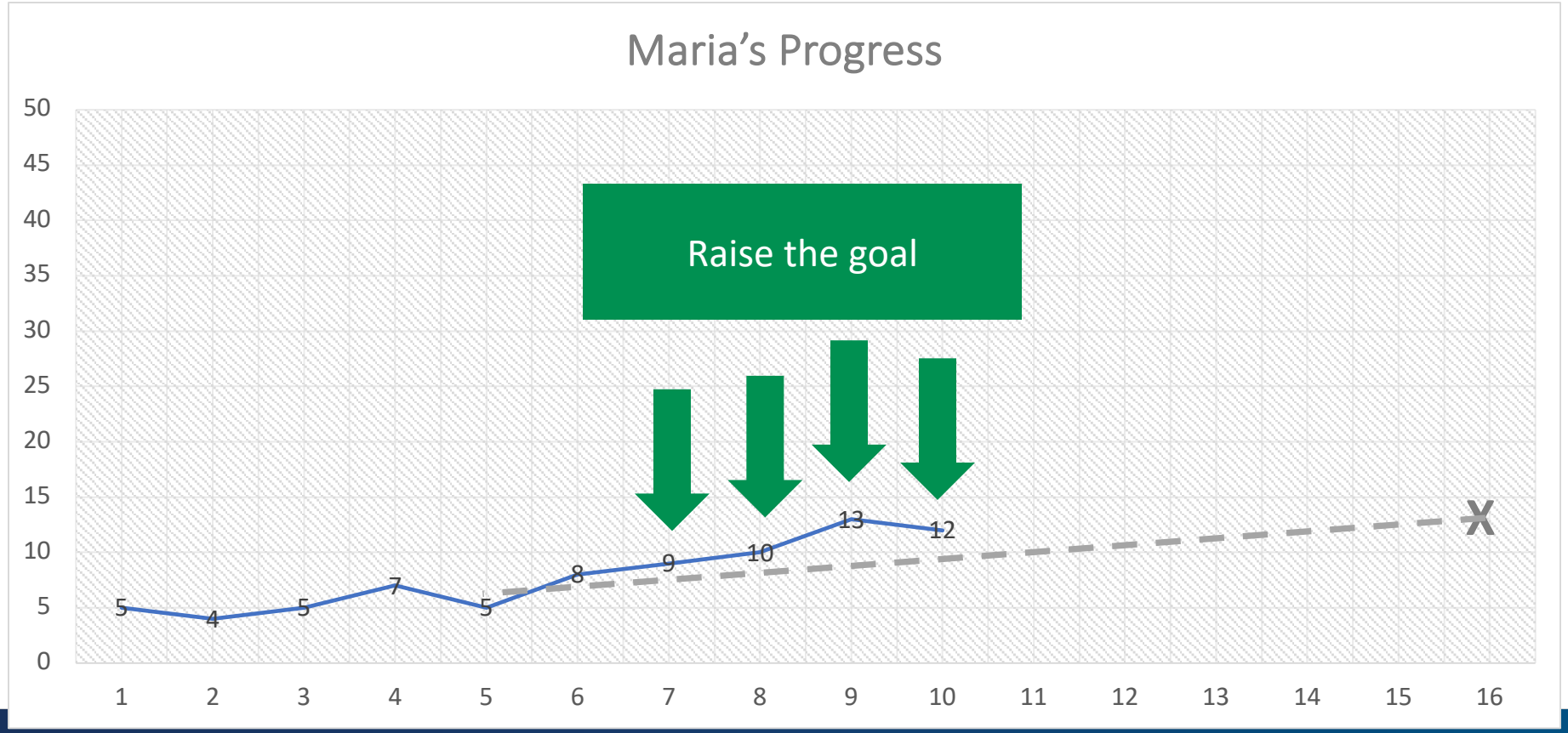
Determining Response



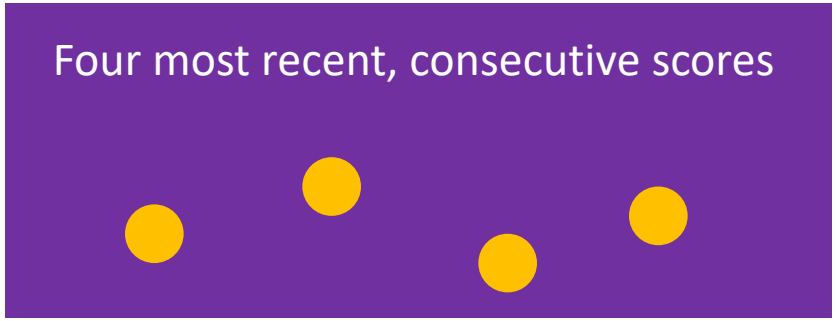
- If at least 6 weeks of instruction have occurred:
  - If all four most recent scores fall **above** the goal-line, increase the goal.

Determining Response

Four most recent, consecutive scores



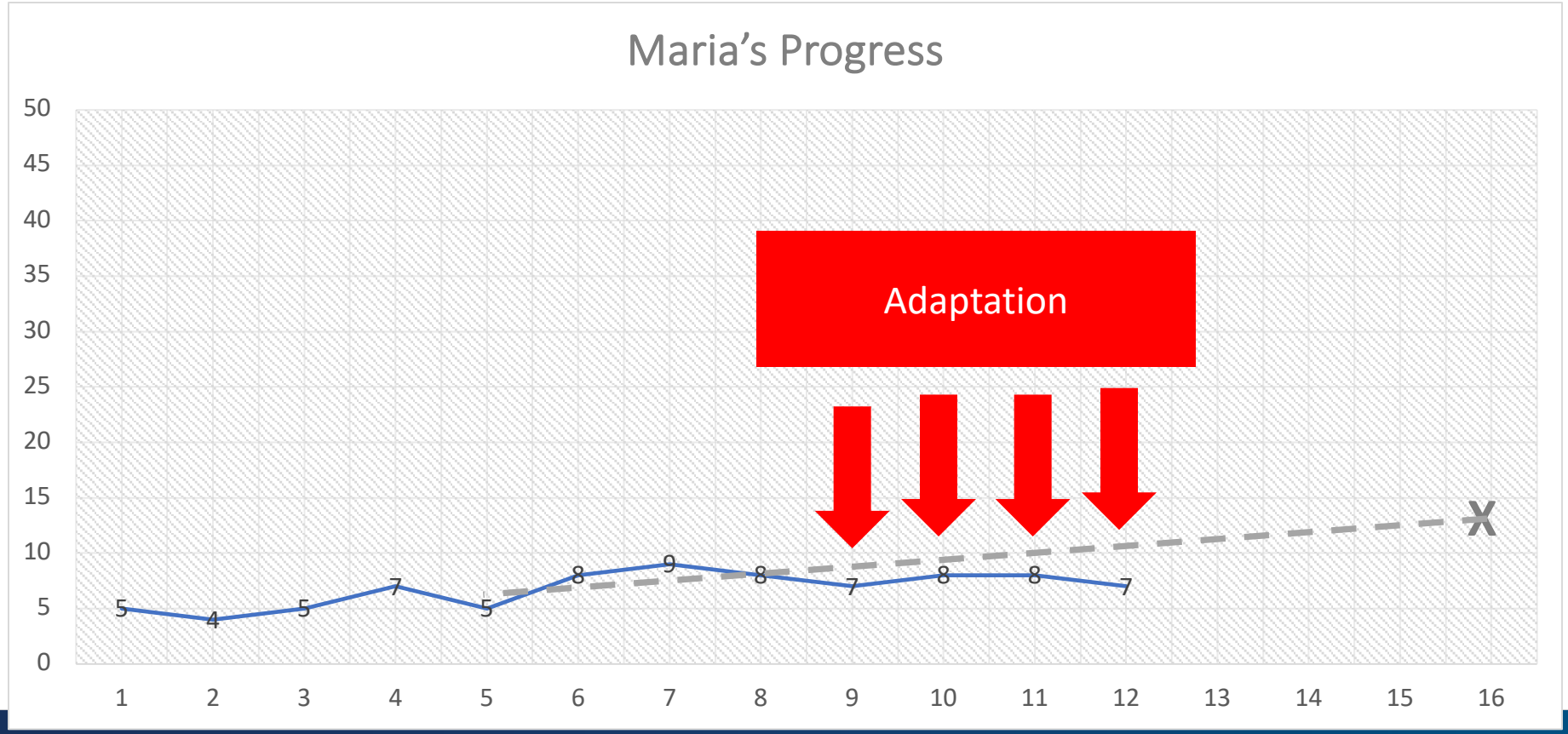
Determining Response



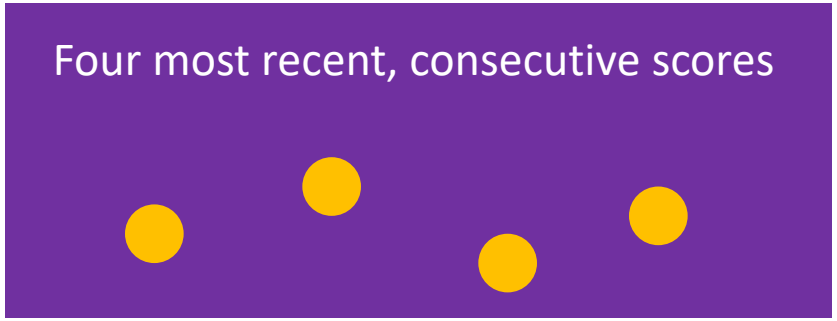
- If at least 6 weeks of instruction have occurred:
  - If all four most recent scores fall **above** the goal-line, increase the goal.
  - If all four most recent scores fall **below** the goal-line, adapt the intervention.

Determining Response

Four most recent, consecutive scores



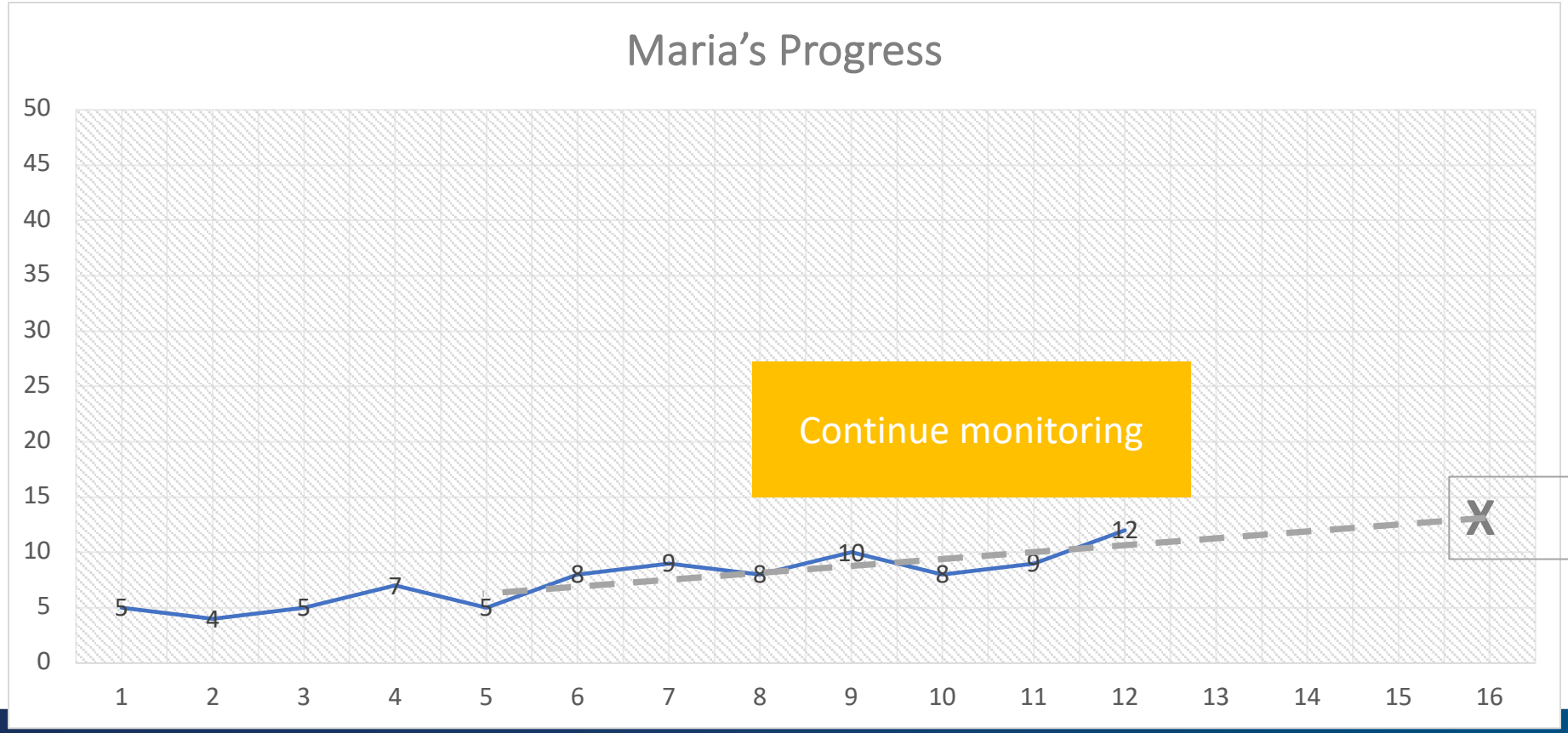
Determining Response



- If at least 6 weeks of instruction have occurred:
  - If all four most recent scores fall **above** the goal-line, increase the goal.
  - If all four most recent scores fall **below** the goal-line, adapt the intervention.
  - If the four most recent scores fall both **above and below** the goal-line, continue monitoring data.

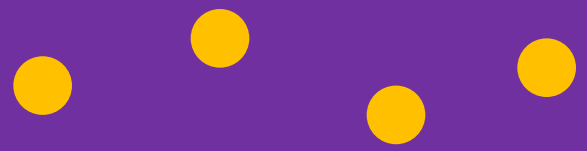
Determining Response

Four most recent, consecutive scores



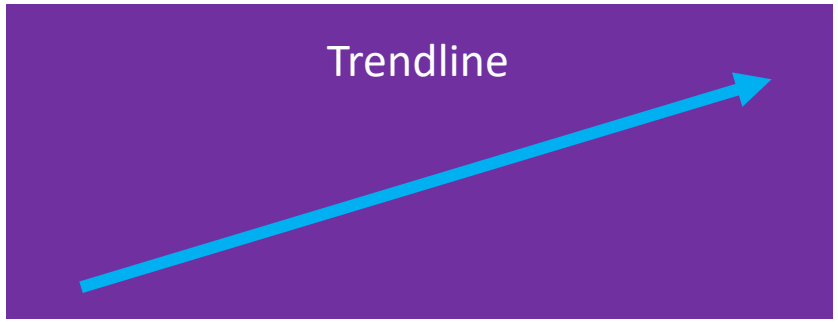
Determining Response

Four most recent, consecutive scores



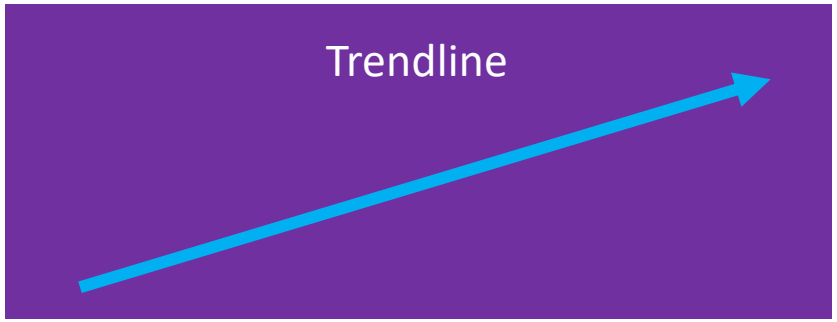
Trendline

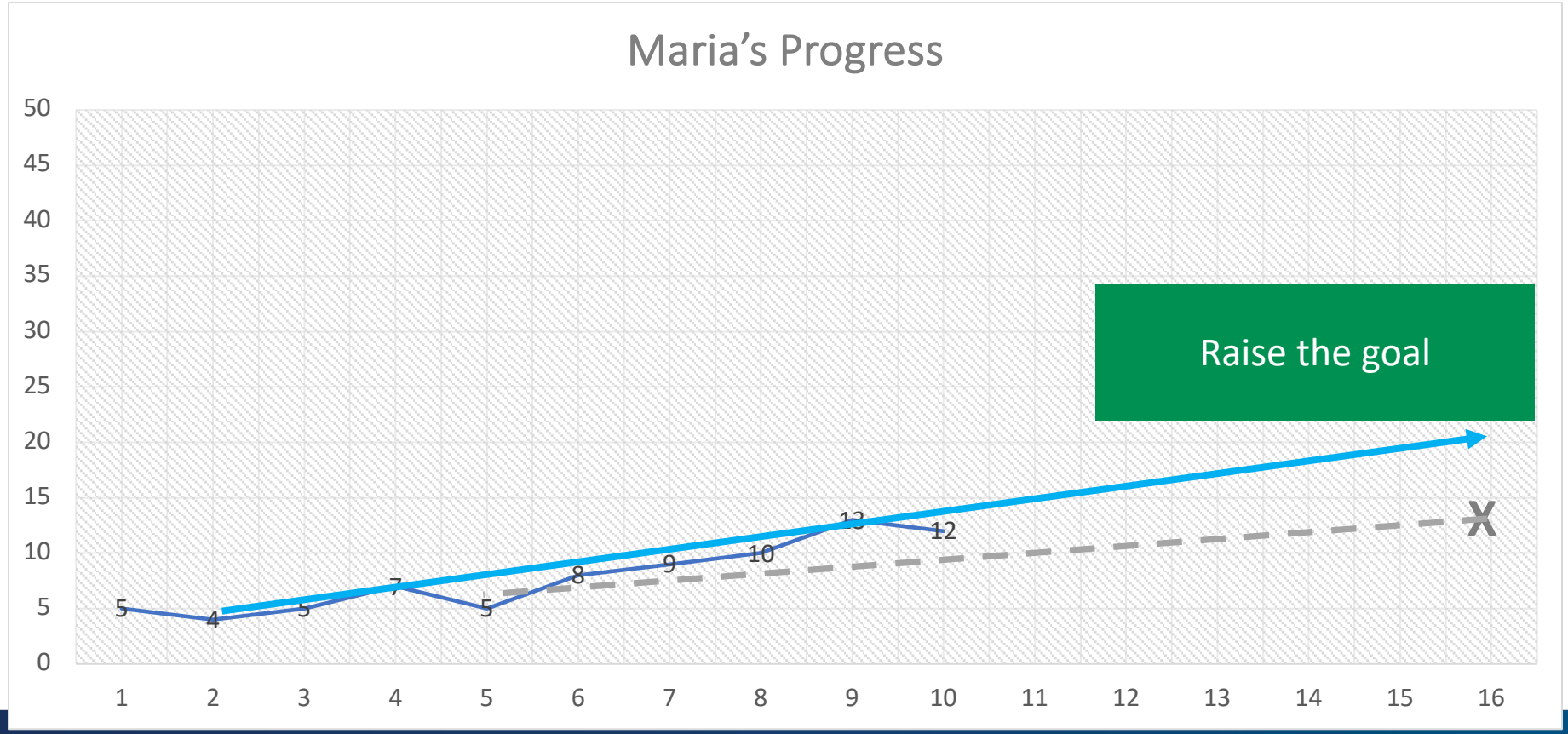
Determining Response



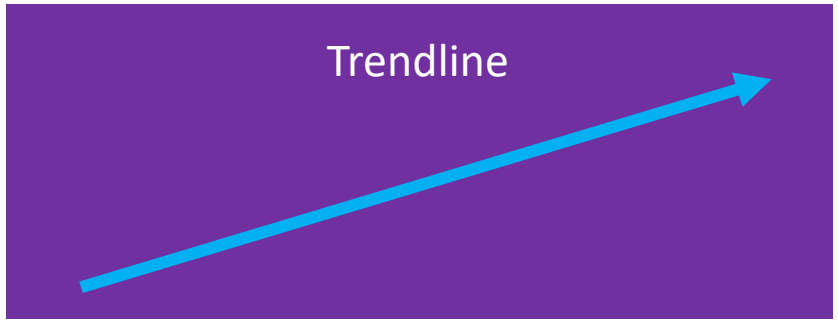
- If the trend-line is **steeper** than the goal line, then increase the goal.

Determining Response





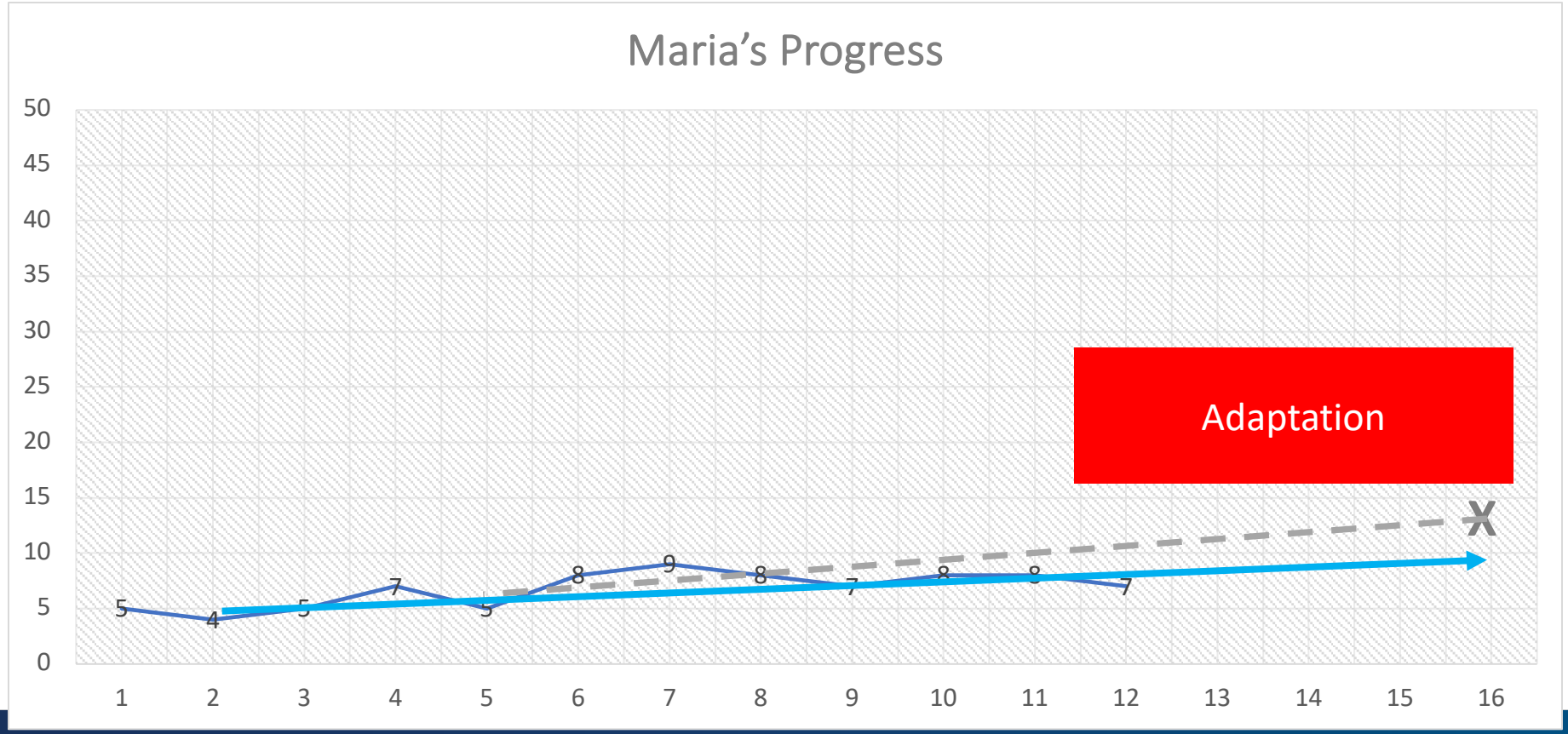
Determining Response



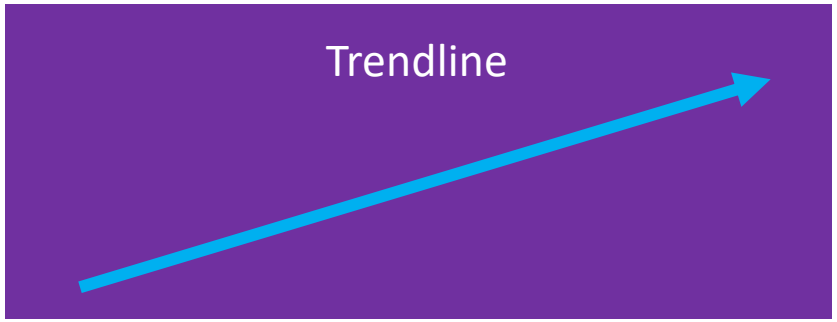
- If the trend-line is **steeper** than the goal line, then increase the goal.
- If the trend-line is **flatter** than the goal line, then adapt the intervention.

Determining Response

Four most recent, consecutive scores



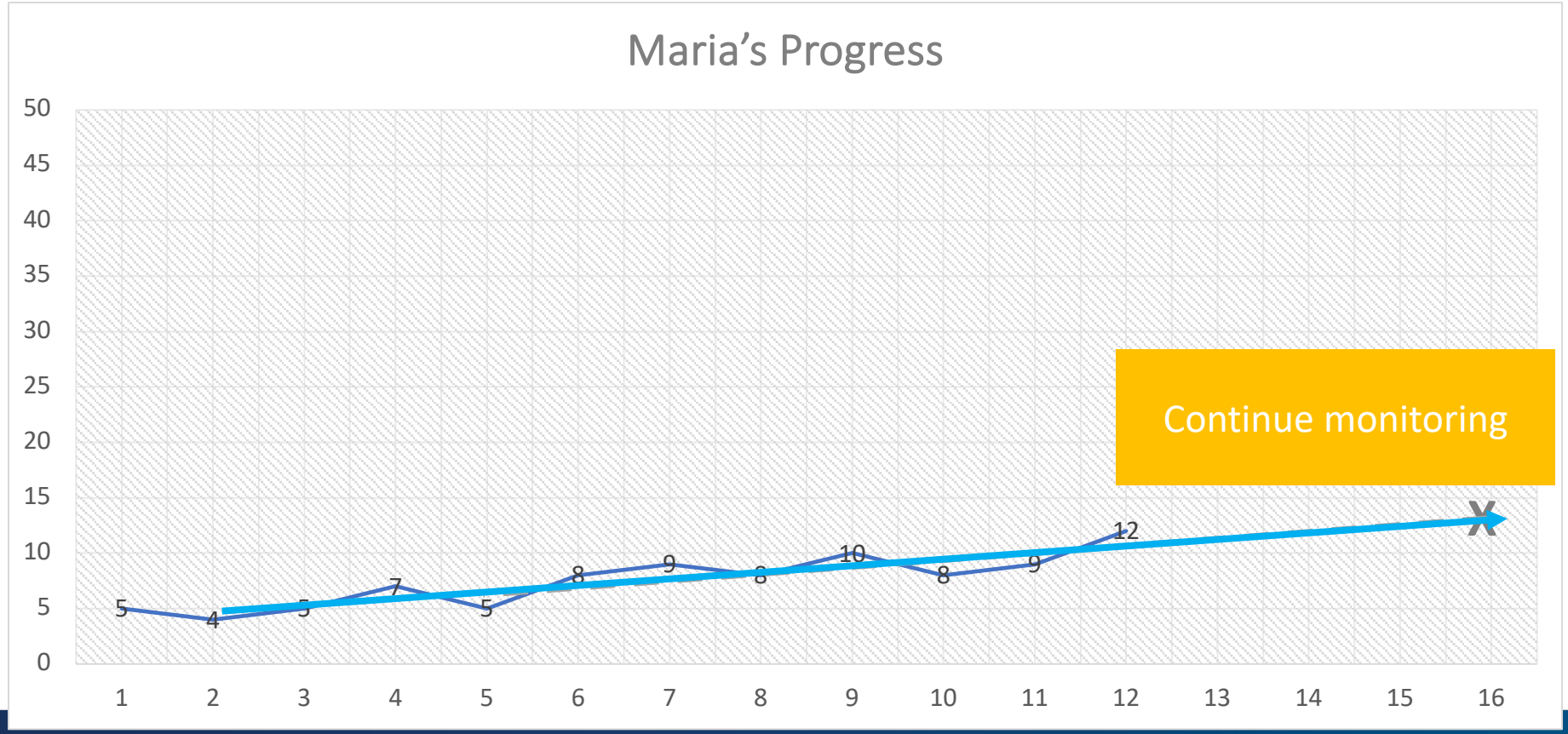
Determining Response



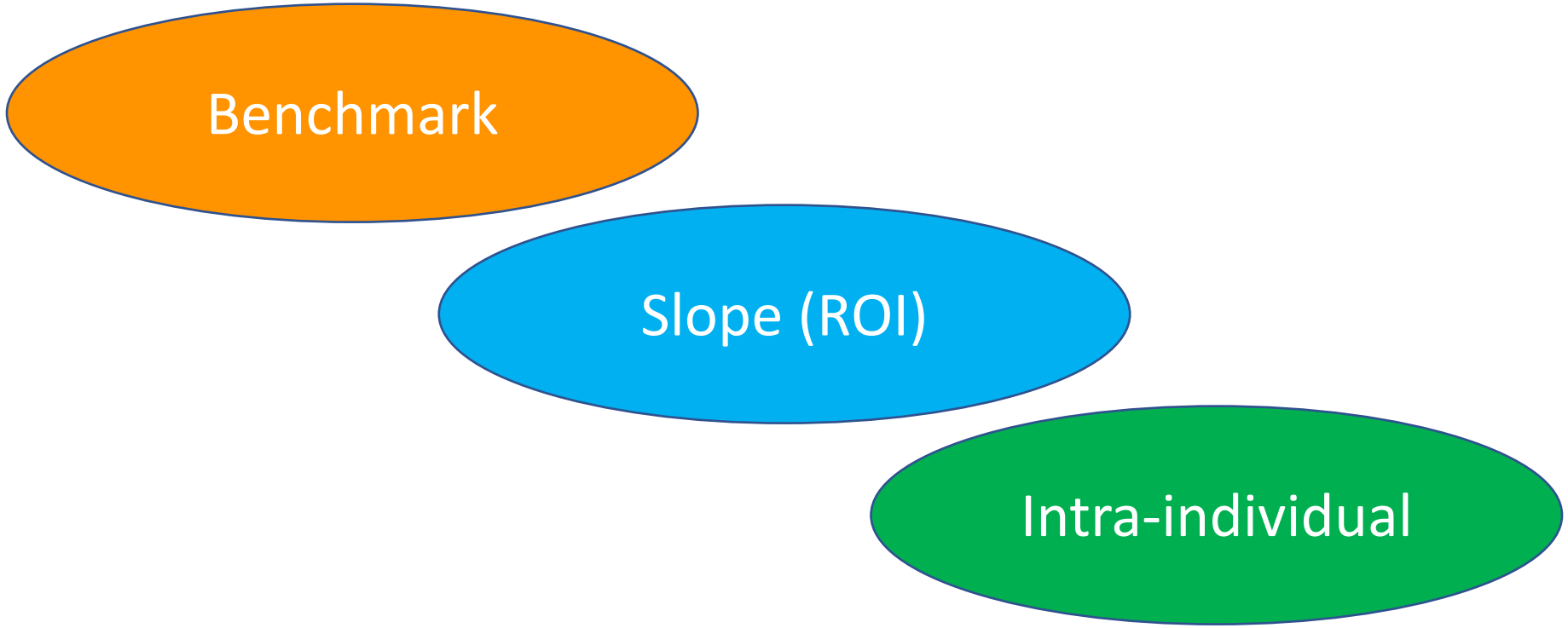
- If the trend-line is **steeper** than the goal line, then increase the goal.
- If the trend-line is **flatter** than the goal line, then adapt the intervention.
- If the trend-line and goal-line are **fairly equal**, continue monitoring progress.

Determining Response

Four most recent, consecutive scores

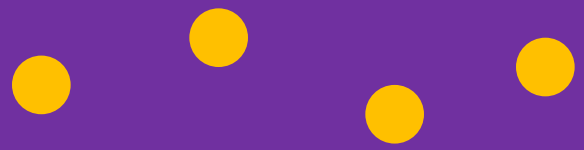


To Review

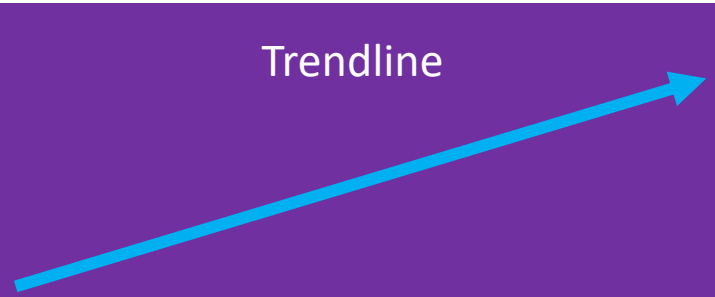


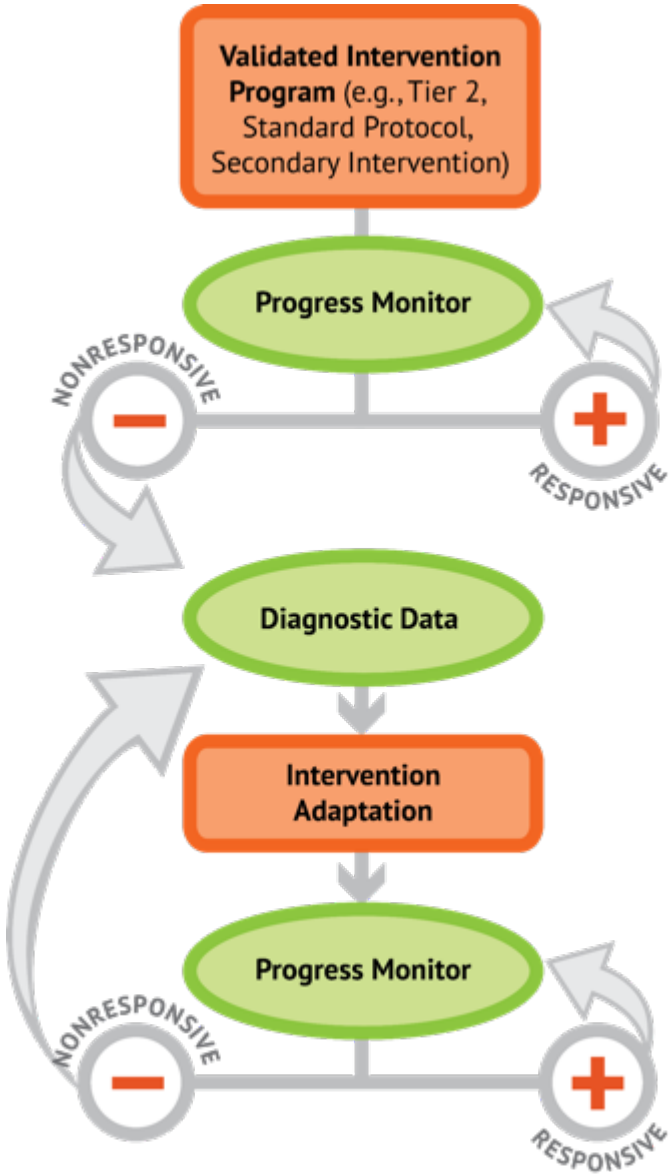
To Review

Four most recent, consecutive scores



Trendline





Sarah R. Powell, Ph.D.

Associate Professor
The University of Texas at Austin

www.sarahpowellphd.com

srpowell@utexas.edu

@sarahpowellphd