Welcome to Project STAIR 2.0!

CORE PD - Session 3

Agenda

Readiness Individual Algebra Teaching of Supporting 2.0

Next Steps

Instructional Adaptations

Decision Making

Goal Setting and Graphing

Assessment Refresher

Introductions

Lizzie McCollom
Southern Methodist University

Charissa Richards
The University of Missouri

Missouri Research Team

Stephanie Hopkins

Cassandra Smith

Charissa Richards

Emily Singell

Michelle Hoffmann

Tara Green

Kim Turner

Gabriella Donofrio

SMU Research Team

Marcia Thomas

Lois Ndungu

Anne Marie Light

Lizzie McCollom

UT Austin Research Team

TEXAS
The University of Texas at Austin

Sarah King

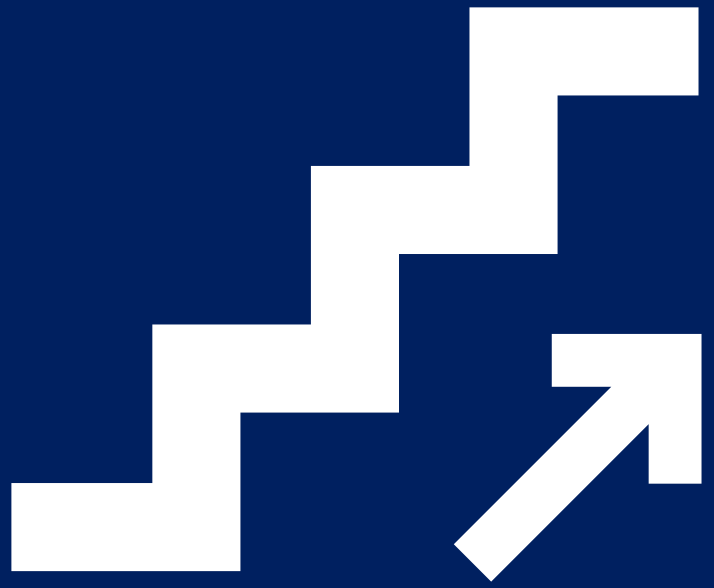
Katie Mason

Jessica Mao

Lauren McKenzie

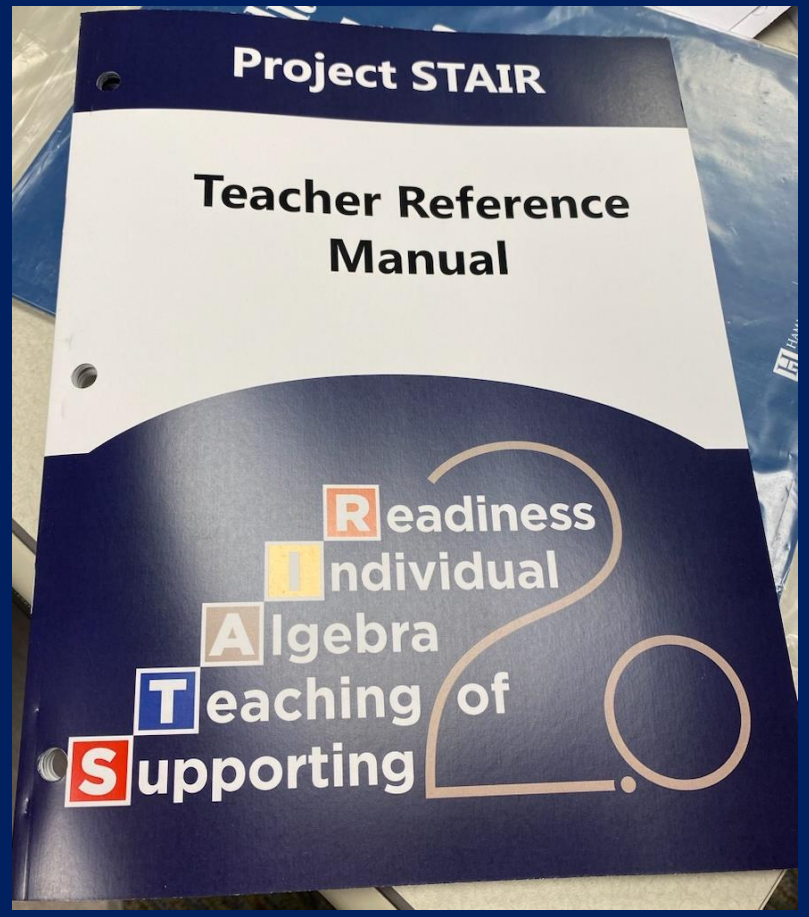
Share Your STAIR

What is your favorite word that rhymes with STAIR? Why?

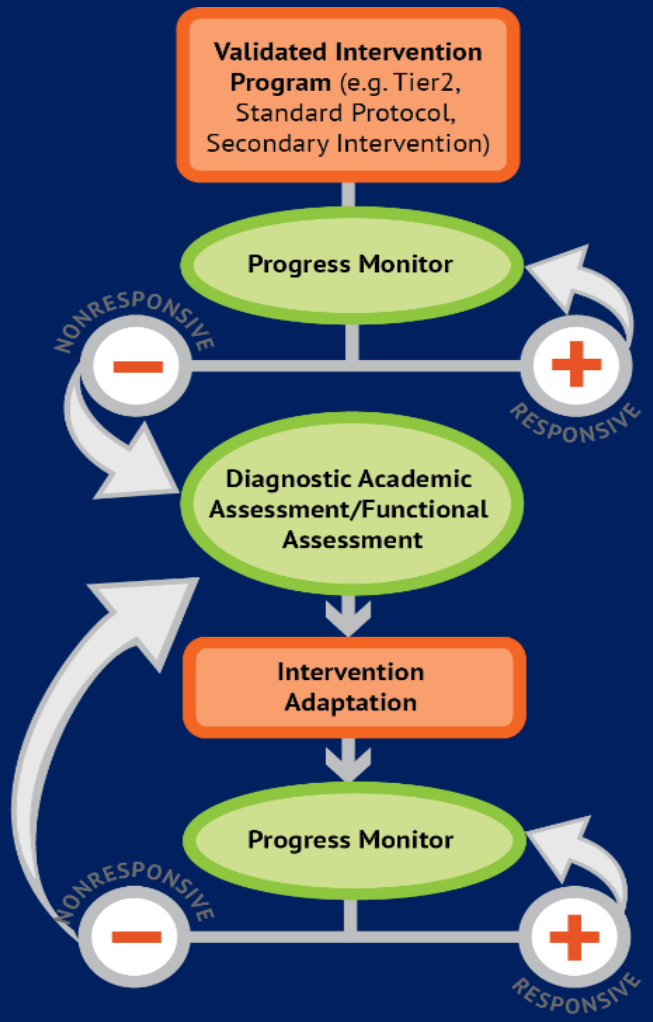


Teacher Manuals

- Each of you have received the STAIR 2.0 teacher reference manual
- This manual will be referenced throughout coaching to support our work
- This manual is yours to keep and continue to reference!



Review: STAIR + DBI Framework



NCII's DBI Framework

Talk through each component of the DBI framework.

Agenda

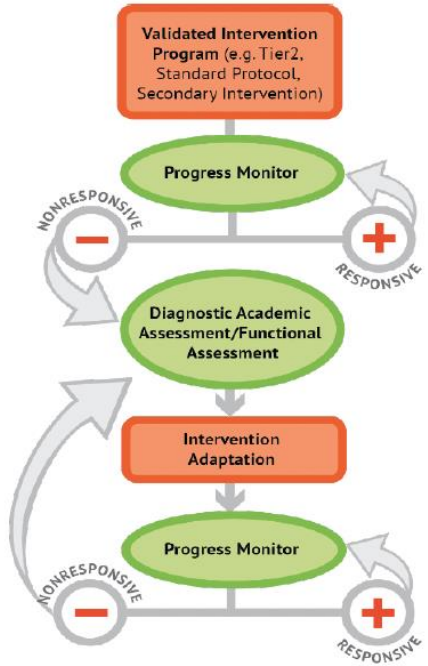
Readiness Individual Algebra Teaching of Supporting 2.0

Assessment Refresher

Readiness Individual Algebra Teaching of Supporting

CORE PD - Session 3
Fall 2023

Assessment Refresher



Readiness Individual Algebra Teaching of Supporting

Three Types of Assessments

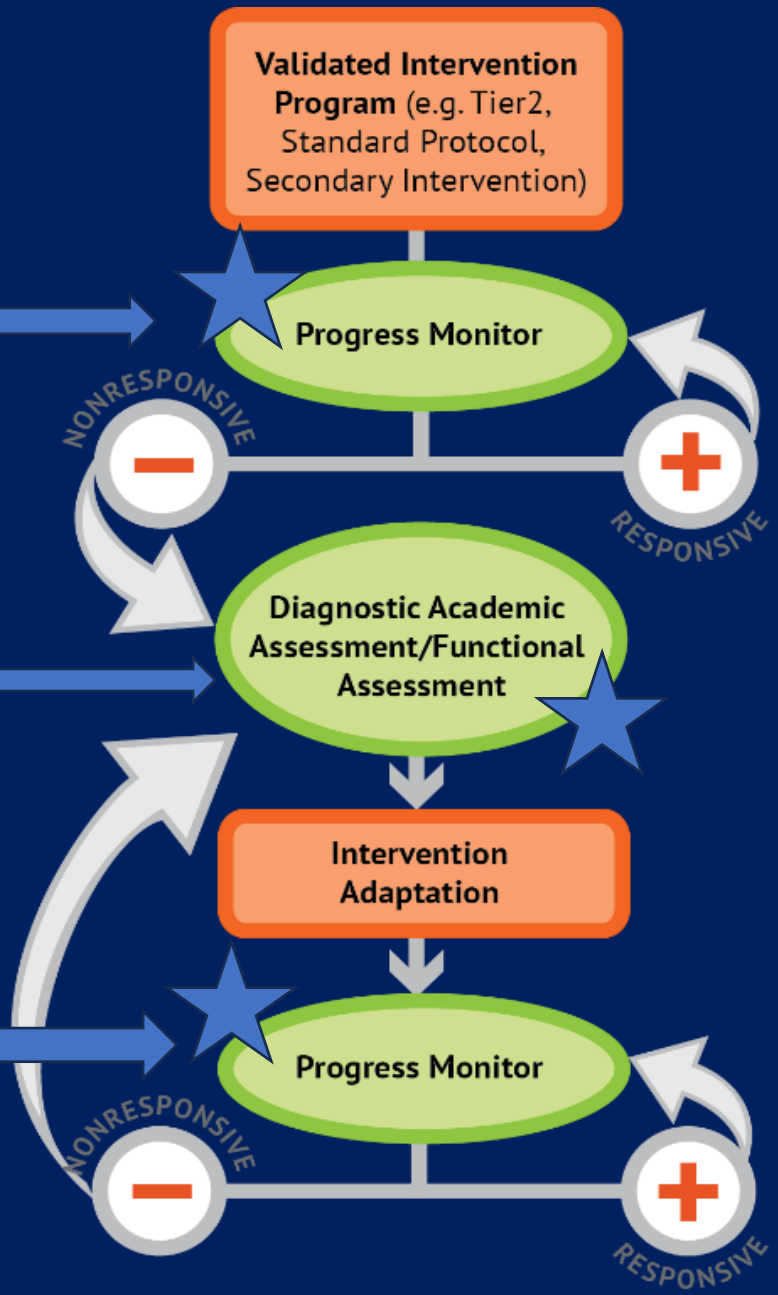
- Universal Screener
  - Completed *once* to **identify** specific **students** at risk
- Diagnostic Assessment
  - Completed *once* to **identify** specific **skill areas** that need targeting
- Progress Monitoring
  - Completed *weekly* to track student **growth**, **monitor goals**, and **alert** us to **make instructional adaptations** as needed

DBI Framework

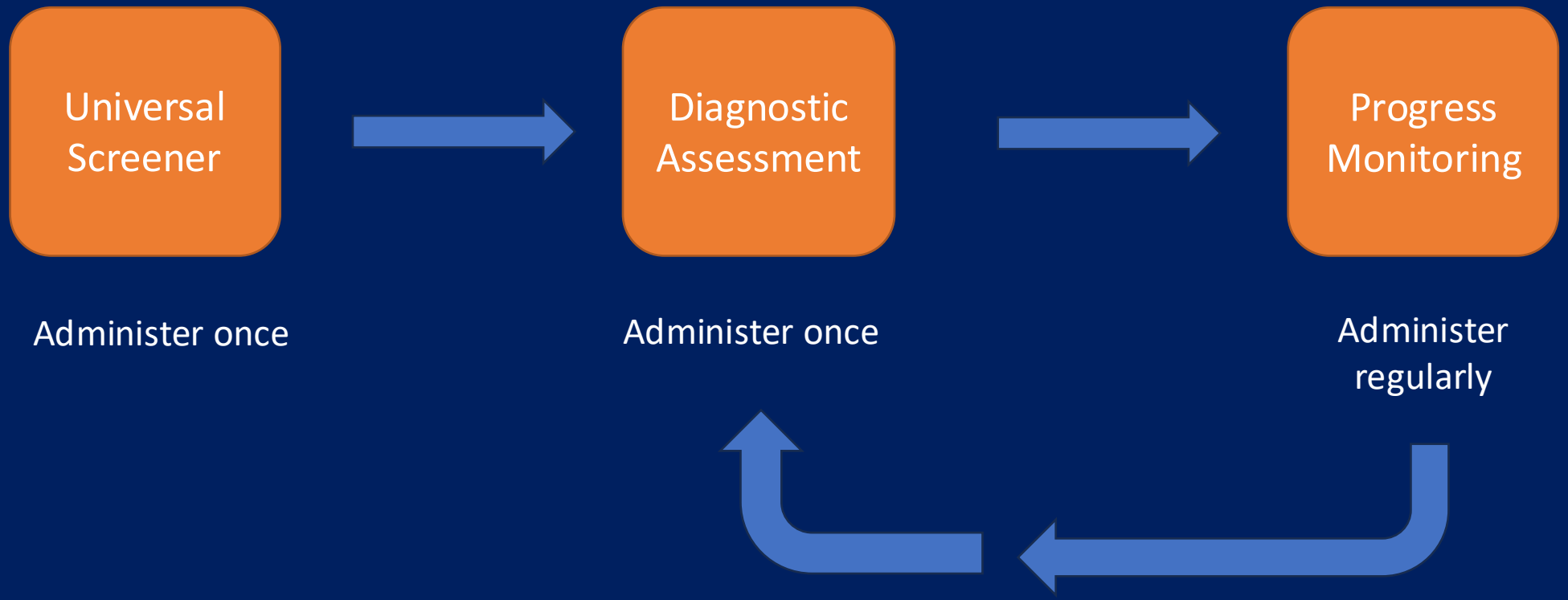
AIMSweb

DOMA

AIMSweb



Readiness Individual Algebra Teaching of Supporting



AIMSweb Progress Monitoring

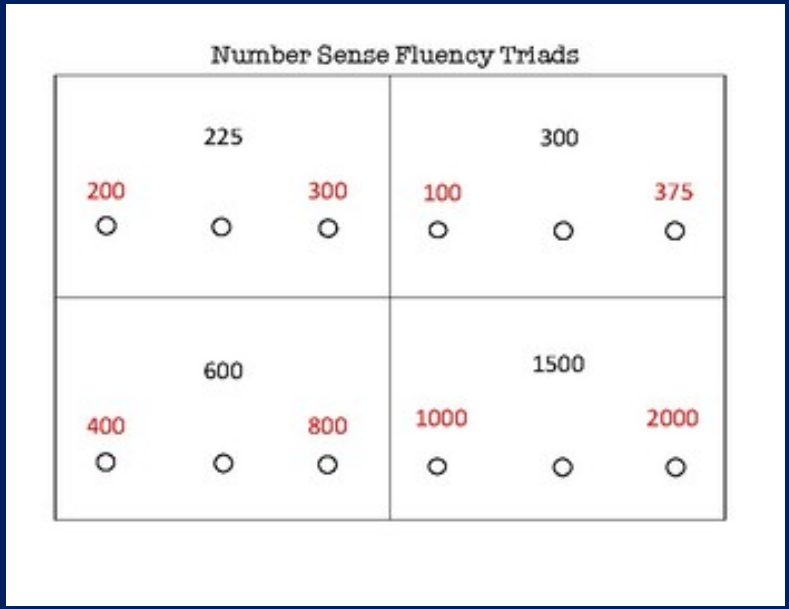
- We will be monitoring **Number Sense Fluency (NSF)**
  - Measures a student's automaticity with comparing numbers within and across number systems and mentally solving one- and two-step computation problems.

- There are two subtests administered within NSF: **Number Comparison Fluency–Triads** (NCF) and **Mental Computation Fluency** (MCF)
- Total of 7-minutes of testing each week

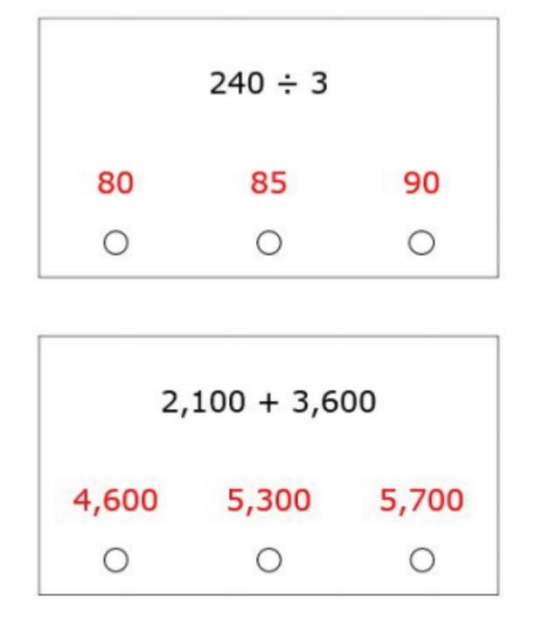
AIMSweb Progress Monitoring

Readiness Individual Algebra Teaching of Supporting 2.0

Number Comparison Fluency–Triads (NCF)



Mental Computation Fluency (MCF)



Agenda

Readiness Individual Algebra Teaching of Supporting 2.0

Goal Setting and Graphing

Assessment Refresher

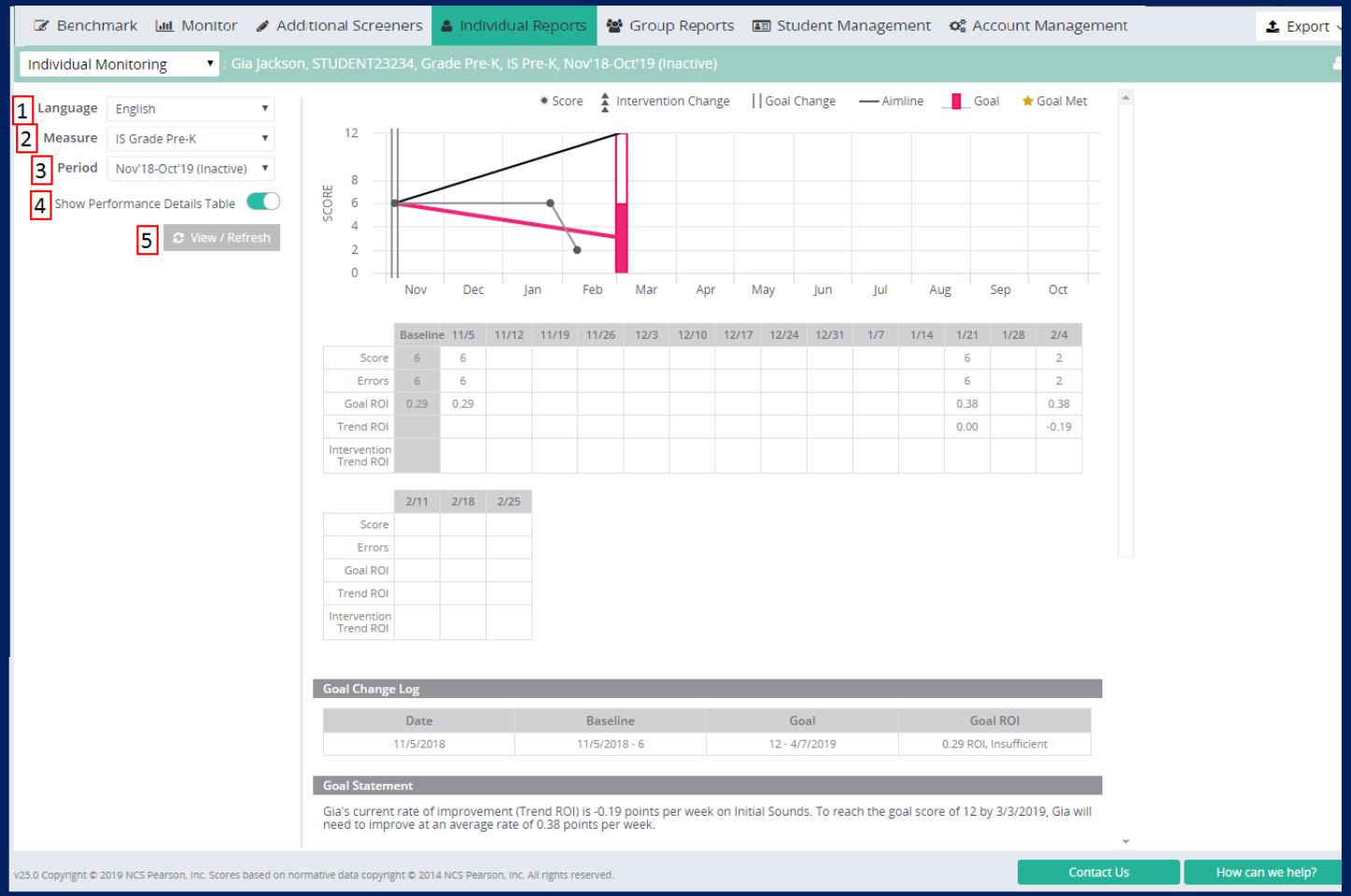
Key Components of Graphing

- *x*-axis - dates
- *y*-axis - score
- Data points
- Aimline
- Projection/trend line
- Goal changes
- Intervention changes

Key Components of Graphing

- **Data Points**
  - Baseline and progress monitoring data points are plotted
- **Aimline**
  - The aimline is drawn from the baseline data to the goal, this is what we will compare the projection line against to see if a student is on track to meet their goal
- **Projection/Trend Line**
  - The projection or trend line is calculated using existing data points, it will extend beyond the most recent data point, showing how the student is expected to continue progressing at their current rate of improvement
- **Goal Changes**
  - On the graph, major changes are noted so we can keep track of big changes, and see if changes impact student progress towards their goal
- **Intervention Changes**
  - Similar to the goal changes, intervention changes are are noted on the graph

Evaluating Progress Using the Graphs



- Select the Individual Reports tab.
- Select Student screen, select the file icon ( ) corresponding to the student you want to view.

Evaluating Progress Using the Graphs

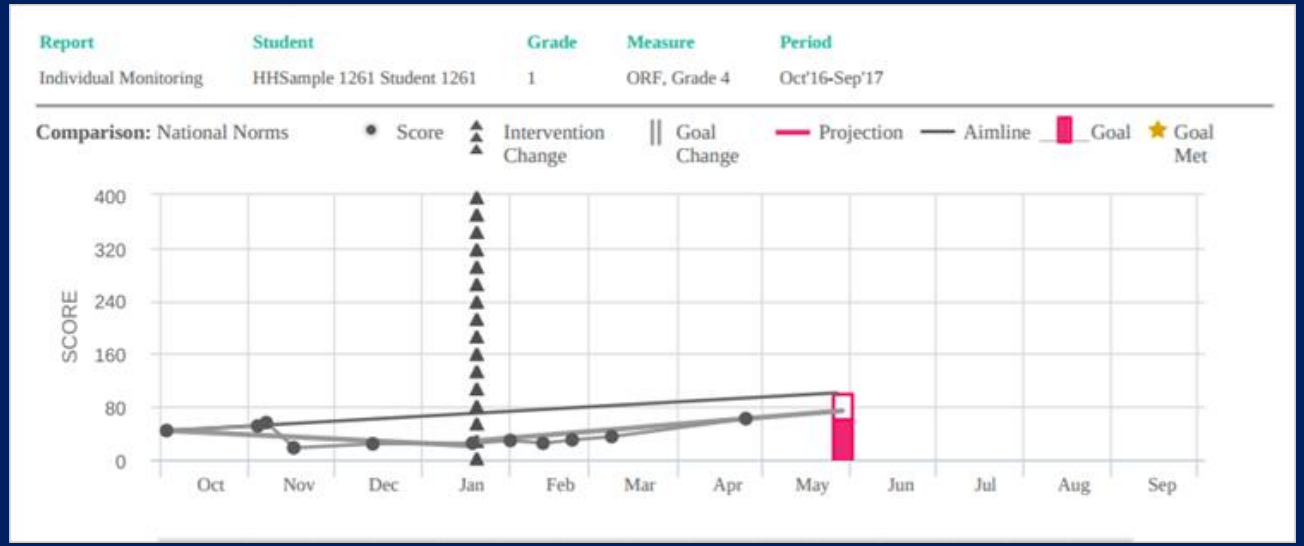
(A) only changes when the goal score (C), goal date, or baseline date change; it does not change when an intervention is added to the schedule.

When changing the goal (D) in the schedule (B) is updated to reflect the new goal from the point of the date of change.

Evaluating Progress Using Graphs

What is a trend line?

- The projection line indicates the average rate of growth based on the student's progress monitoring scores
- The trend line will show in color:
  - green (projected to meet or exceed goal)
  - gray (projected to be near goal)
  - pink (projected to not meet goal)



Agenda

Readiness Individual Algebra Teaching of Supporting 2.0

Decision Making

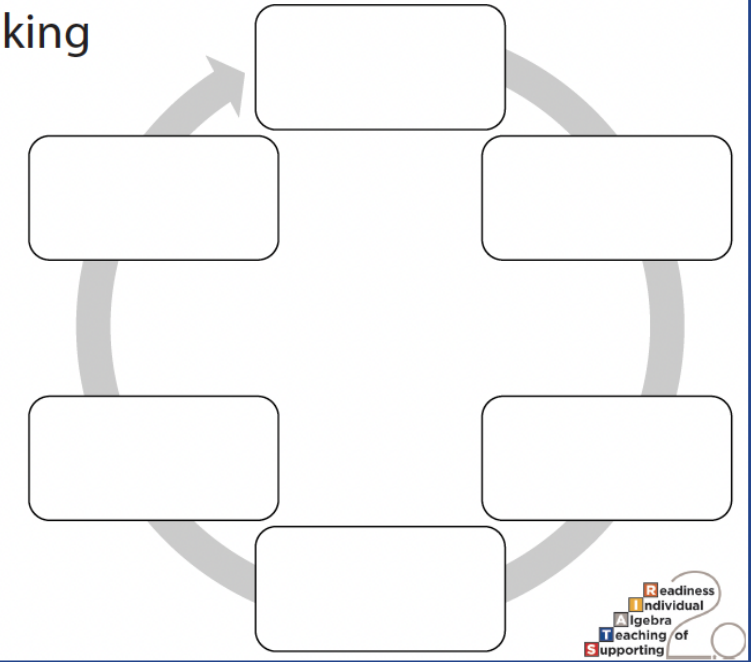
Goal Setting and Graphing

Assessment Refresher

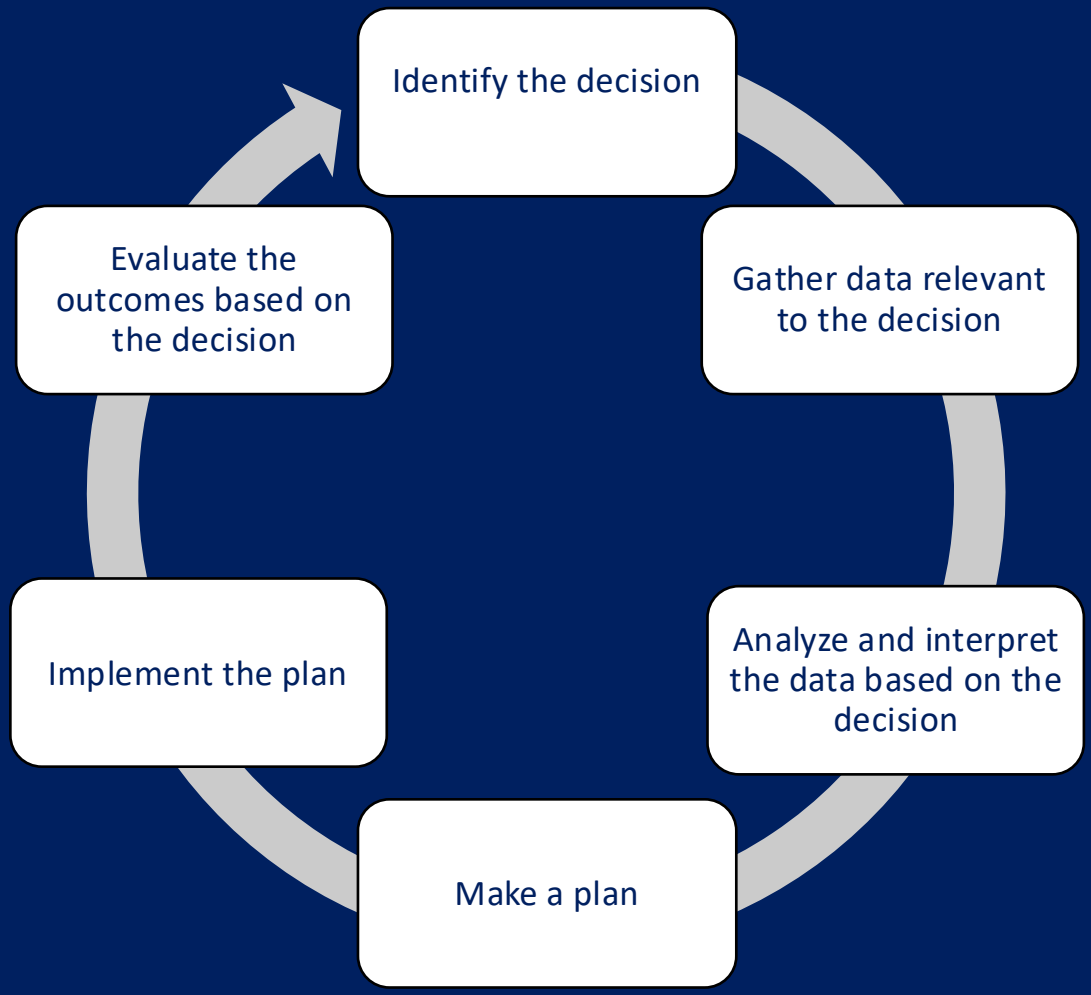
Readiness Individual Algebra Teaching of Supporting

Goal Setting and Graphing

Decision Making



Cycle of Decision Making



Ketterlin-Geller et al., 2019 p.126

Consider Features of the Student's Performance & Progress

- Level
- Trend
- Variability

- Why are these features important?
  - Key indicators of student growth!

Slides adapted from McMaster et al., 2018

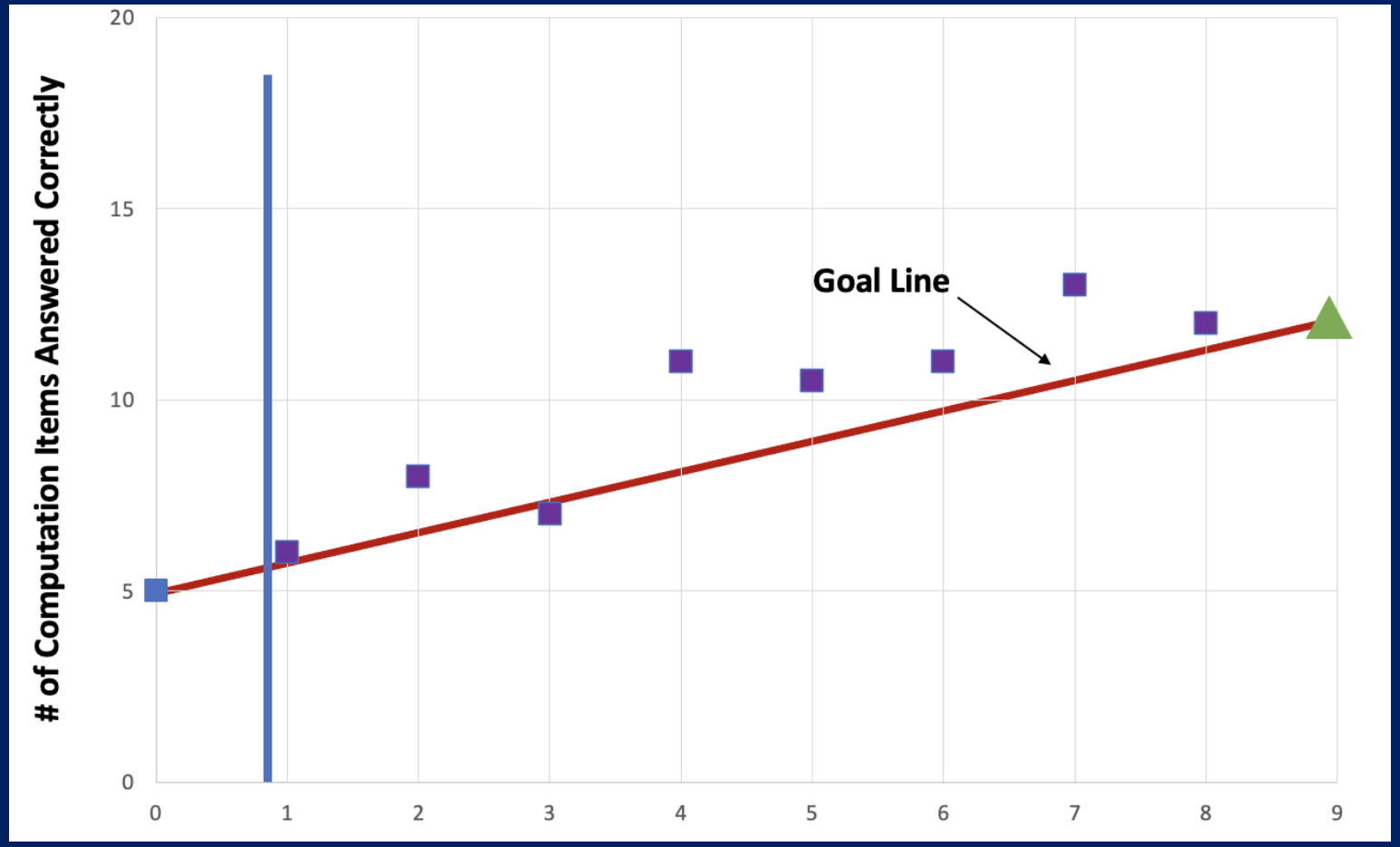
Level

Where data points are at compared to the goal line

Ask yourself:

- Are most points above the goal line?
- Are most points below the goal line?
- Are most points near the goal line?

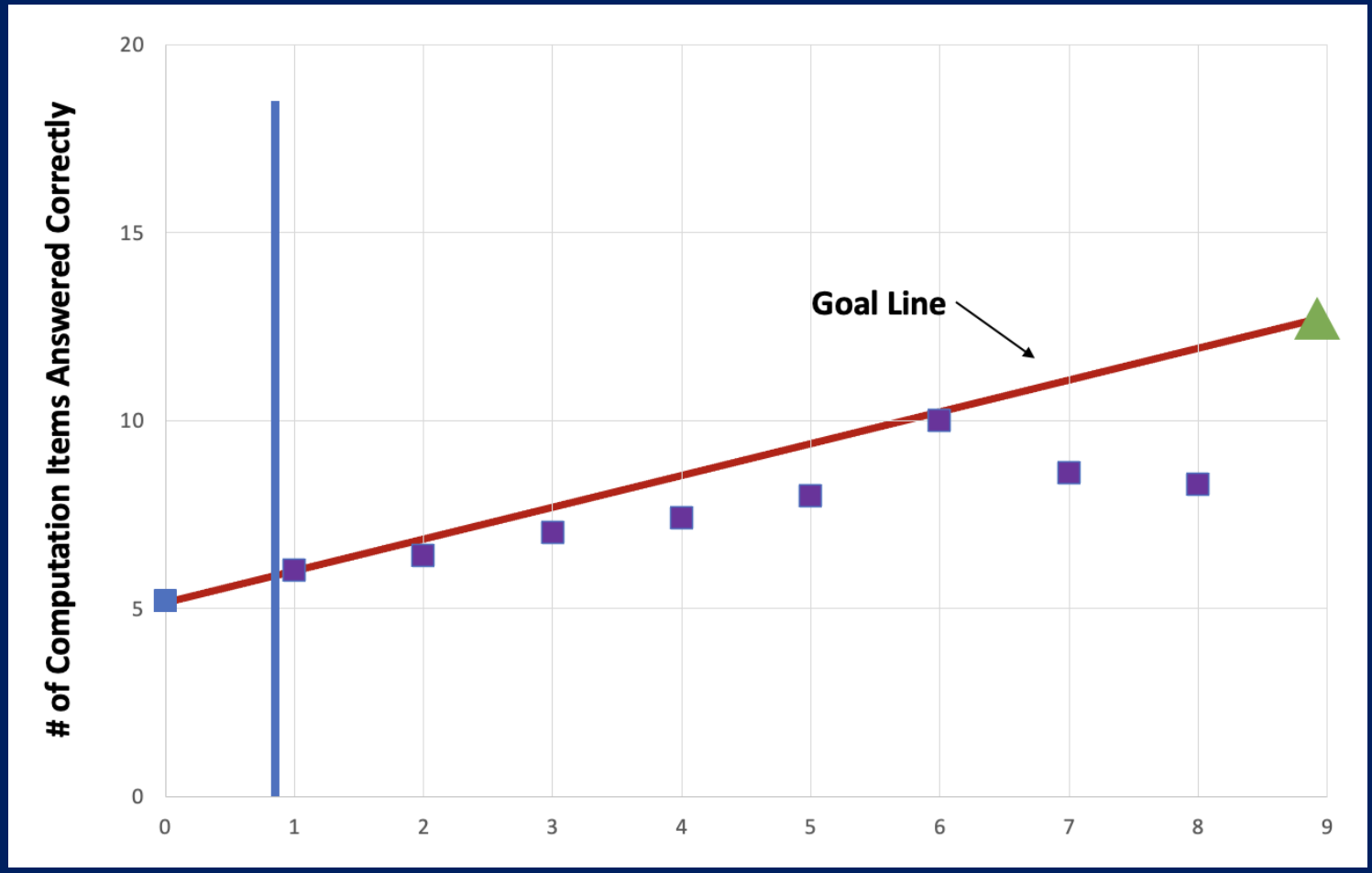
Level - Example #1



Would you adjust the goal line if these were your data?

Slides adapted from McMaster et al., 2018

Level - Example #2



Would you adjust the goal line if these were your data?

Slides adapted from McMaster et al., 2018

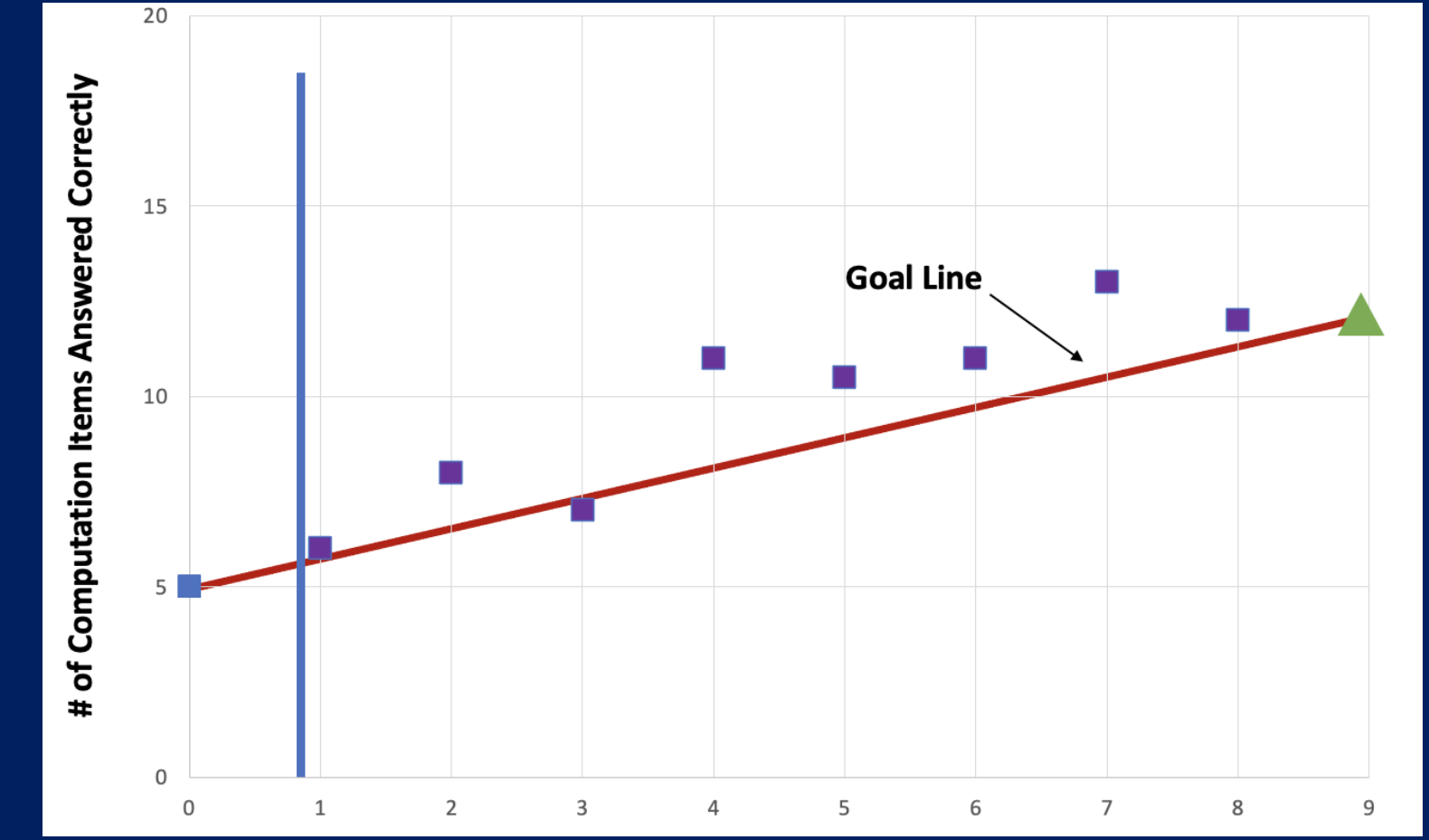
Trend

Where the data's rate of growth (the trend line) is compared to the goal line

Ask yourself:

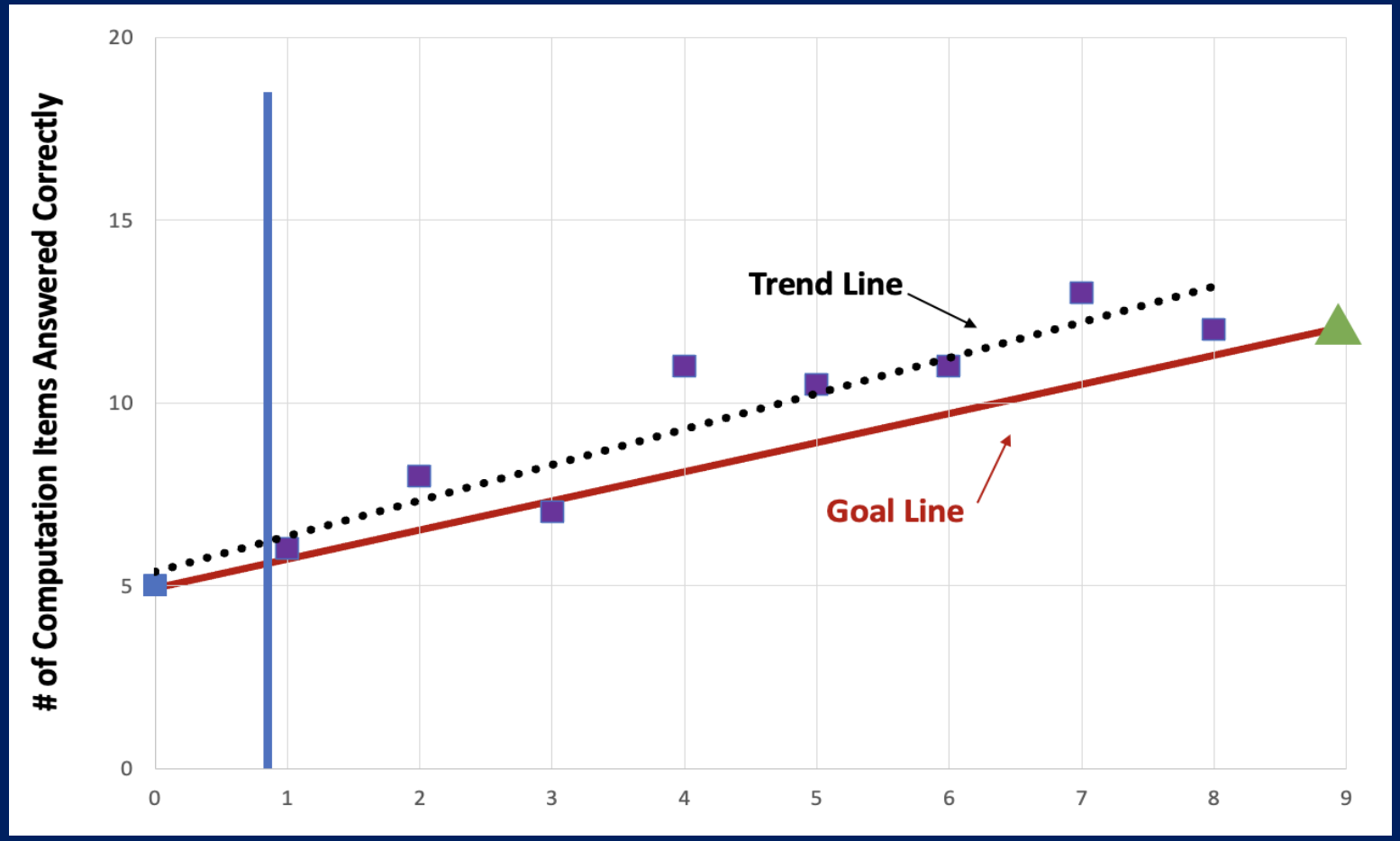
- Is the trend line above or steeper than the goal line?
- Is the trend line the same as or even with the goal line?
- Is the trend line below or flatter than the goal line?

Trend - Example #1



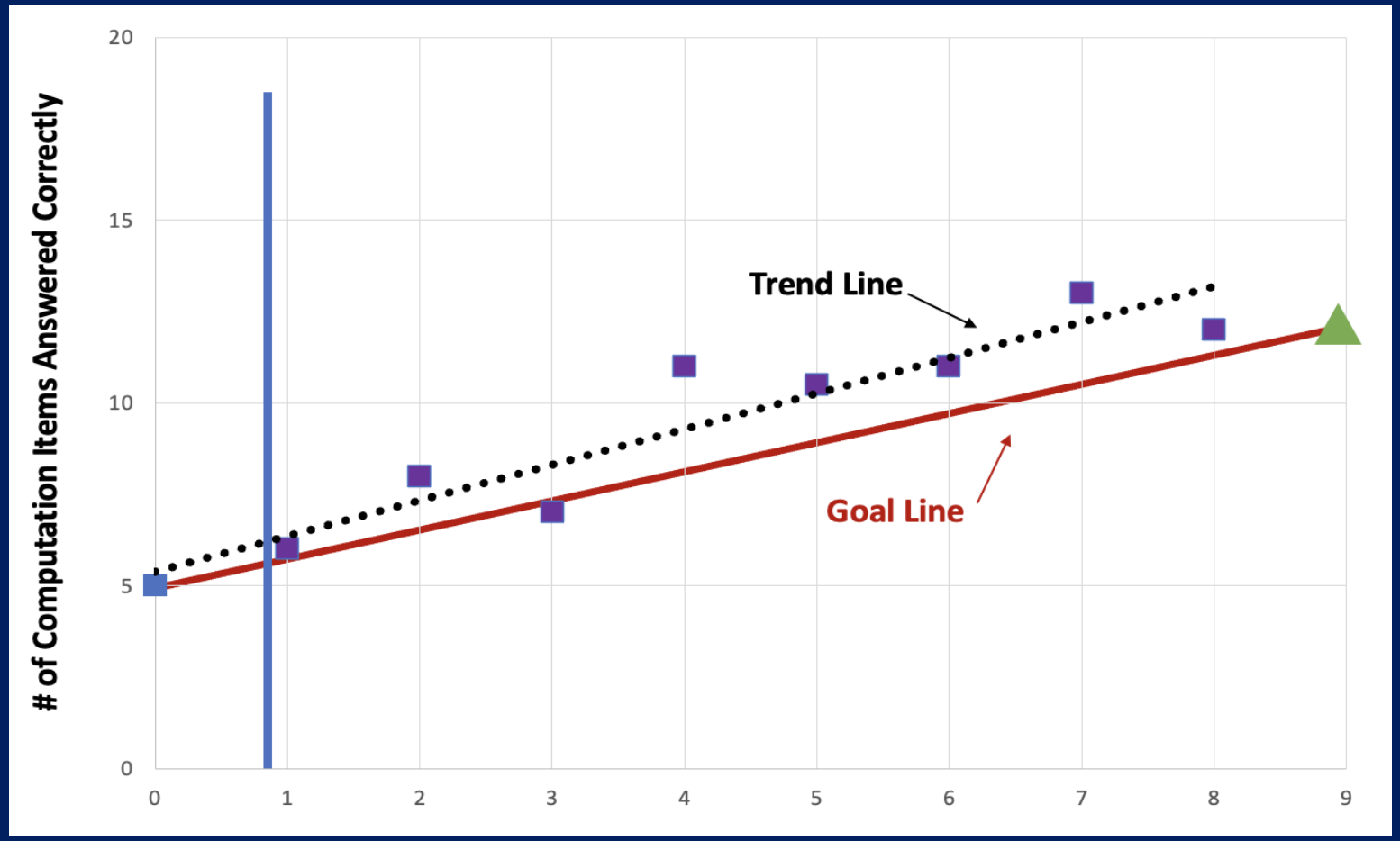
Where do you think the trend line will be in relationship to the goal line?

Trend - Example #1
(with Trend Line)



Was your prediction accurate?

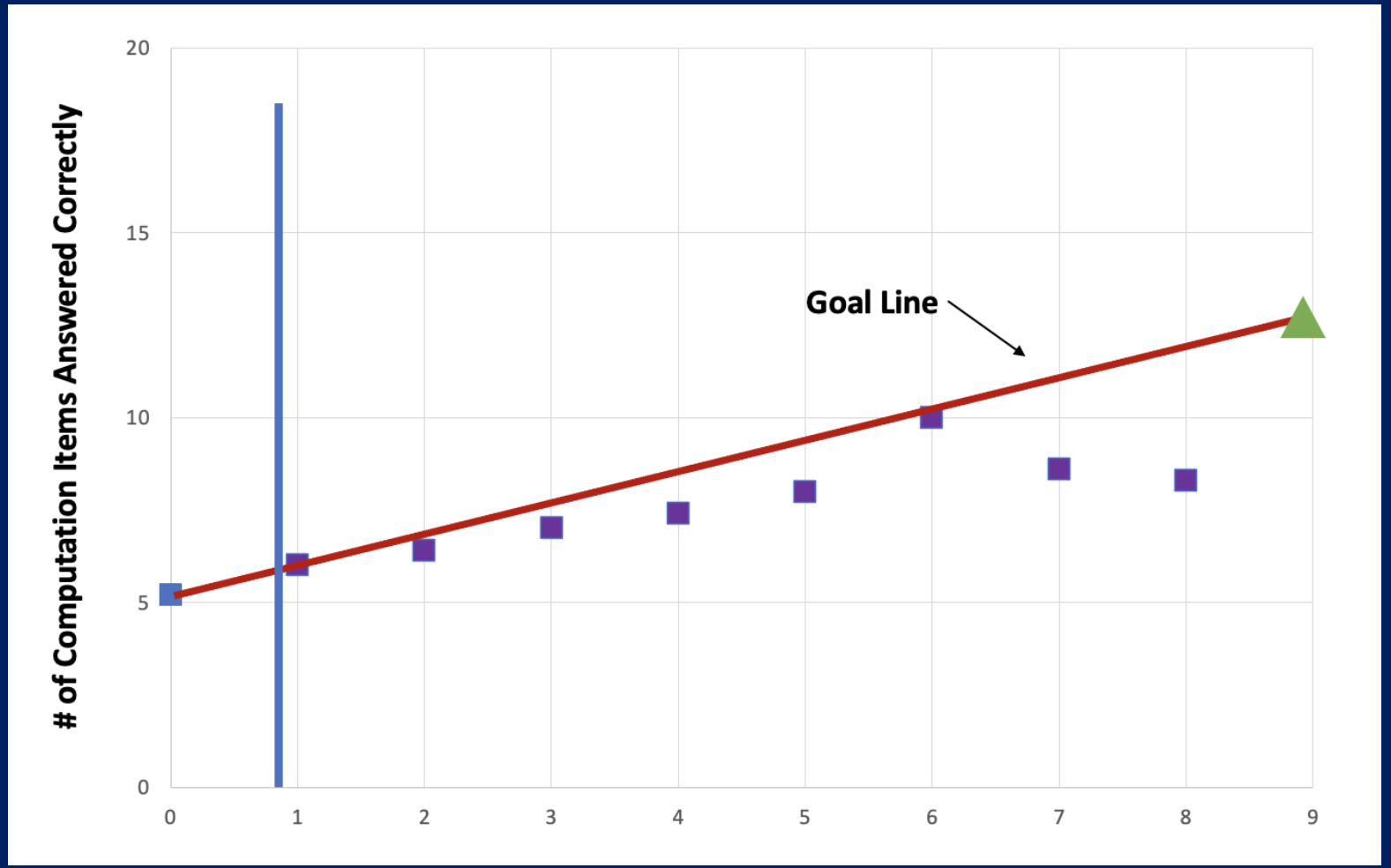
Trend - Example #1
(with Trend Line)



Would you adjust the goal if these were your data?

Slides adapted from McMaster et al., 2018

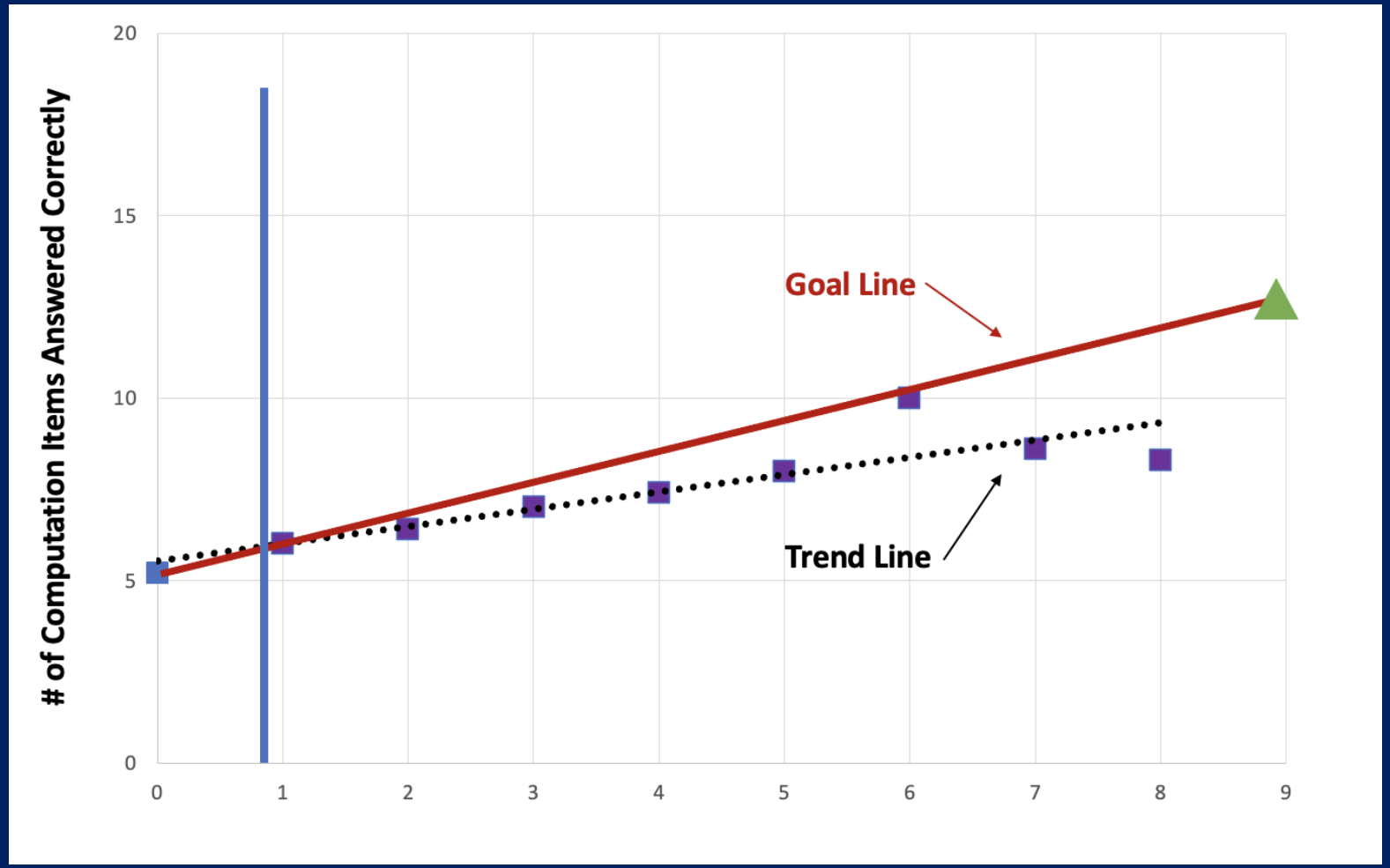
Trend - Example #2



Where do you think the trend line will be in relationship to the goal line?

Trend - Example #2

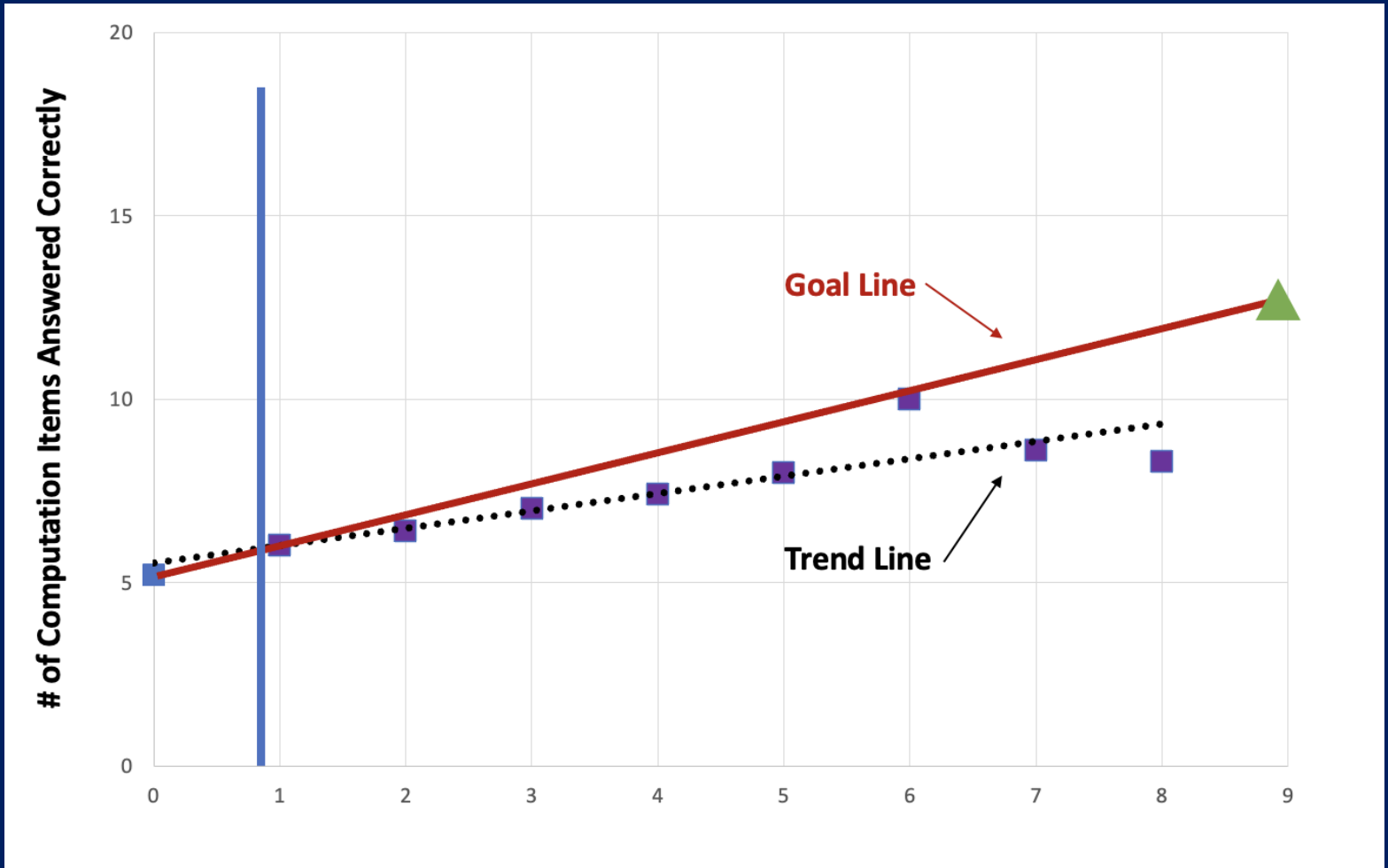
(with Trend Line)



Was your prediction accurate?

Slides adapted from McMaster et al., 2018

Trend - Example #2
(with Trend Line)



Would you adjust the goal if these were your data?

Slides adapted from McMaster et al., 2018

Variability

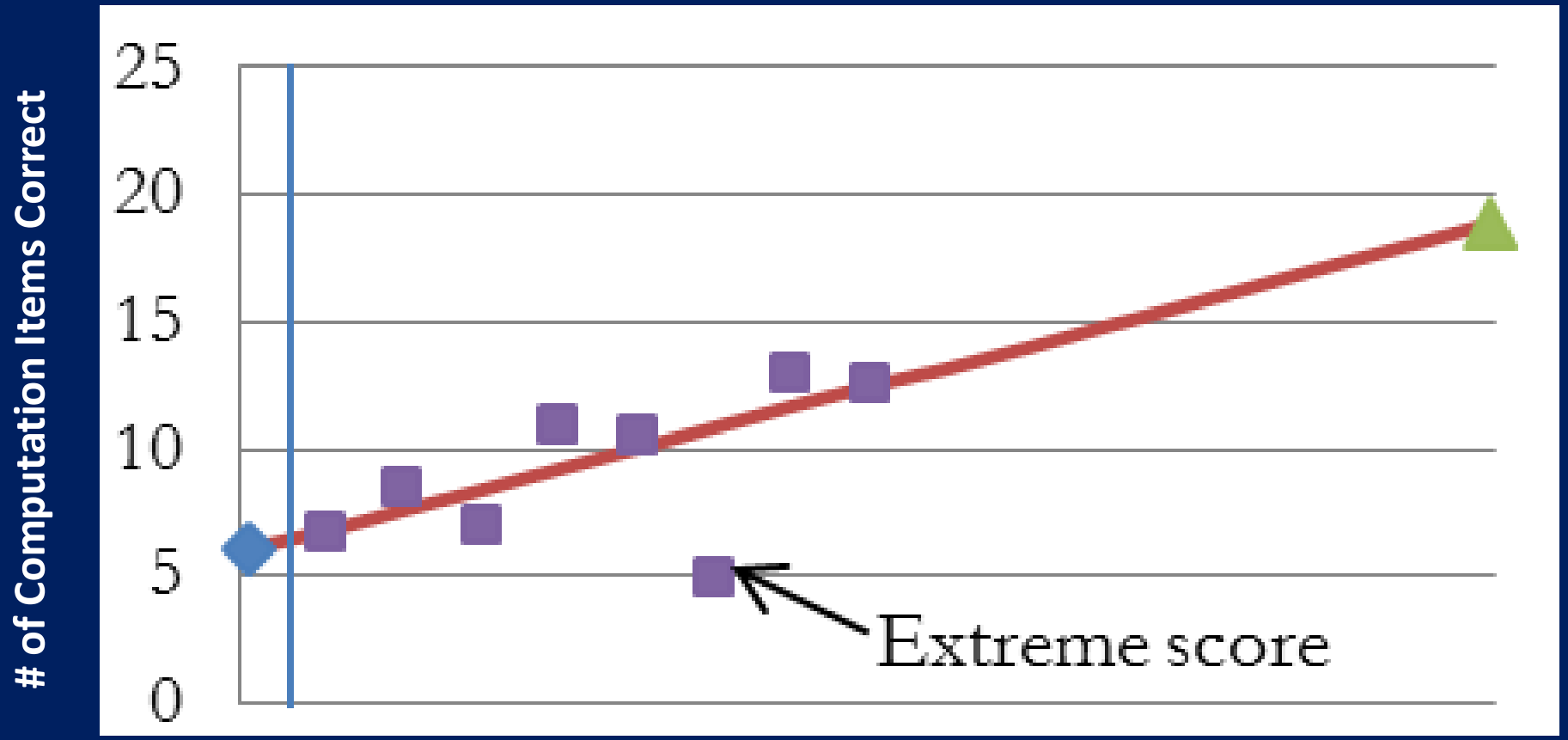
The amount of “bounce” between data points around the goal line

Ask yourself:

- Is there a lot of variability between scores?
- Are the scores relatively stable?

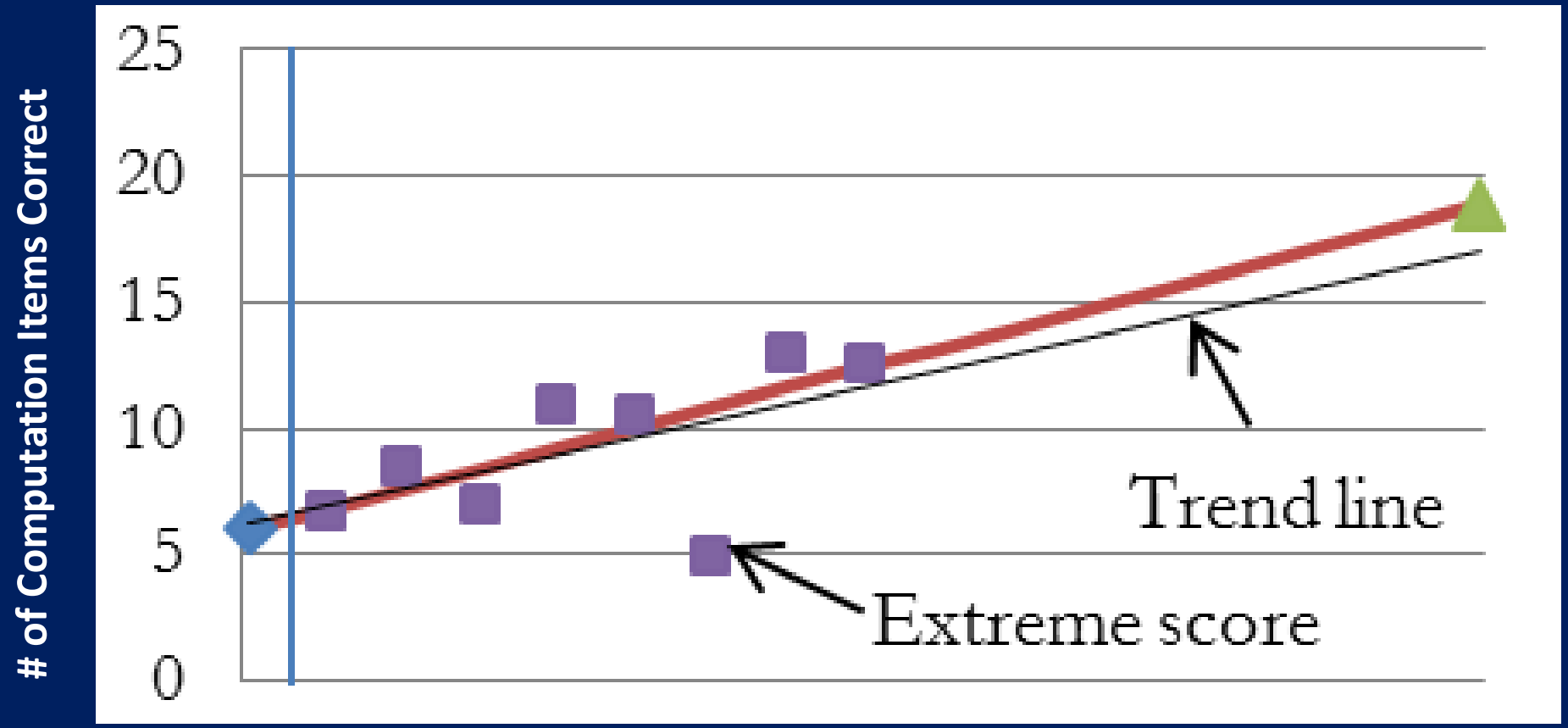
Great variability can make it difficult to determine if the student is making sufficient progress.

Variability – Example #1

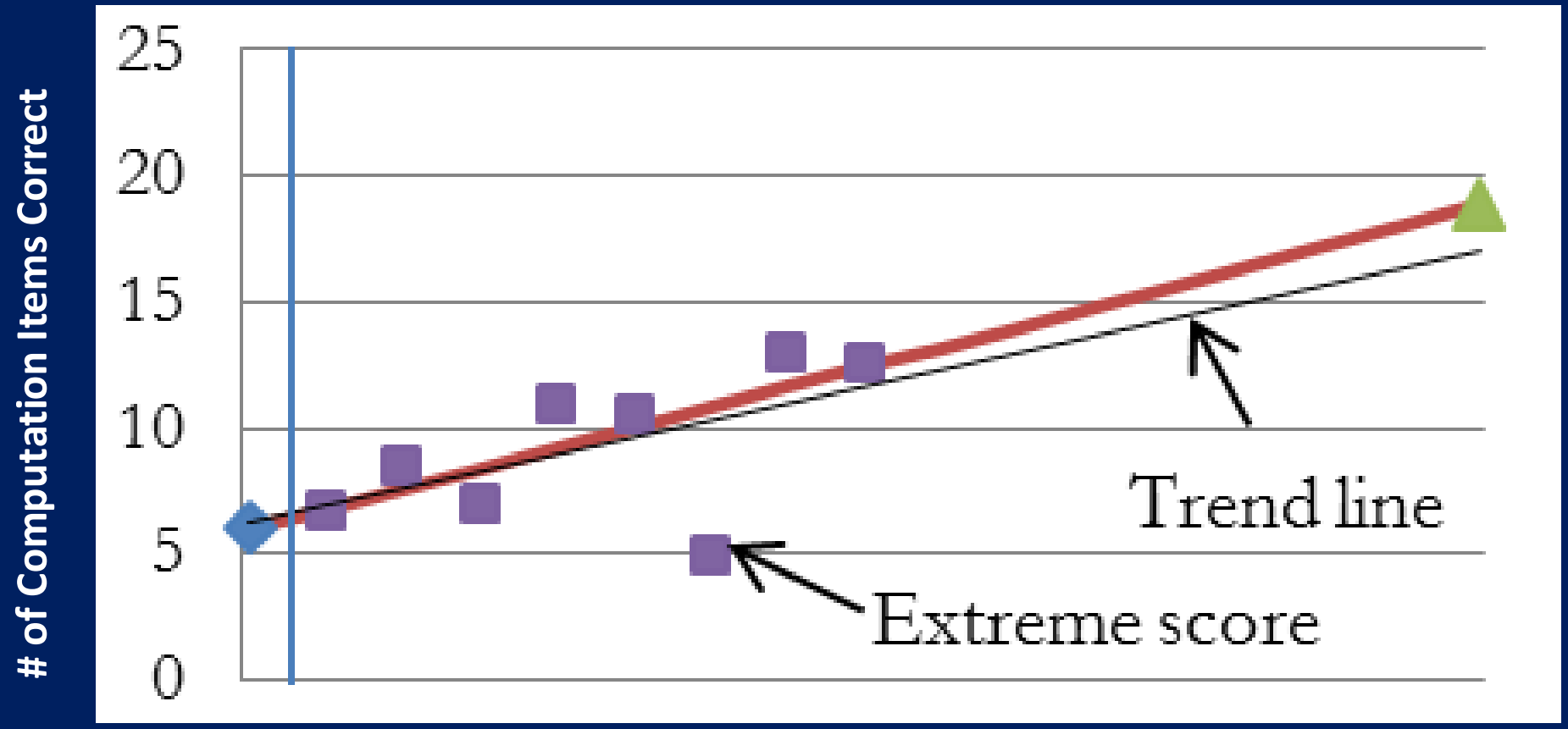


Where do you think the trend line will be in relationship to the goal line?

Variability – Example #1

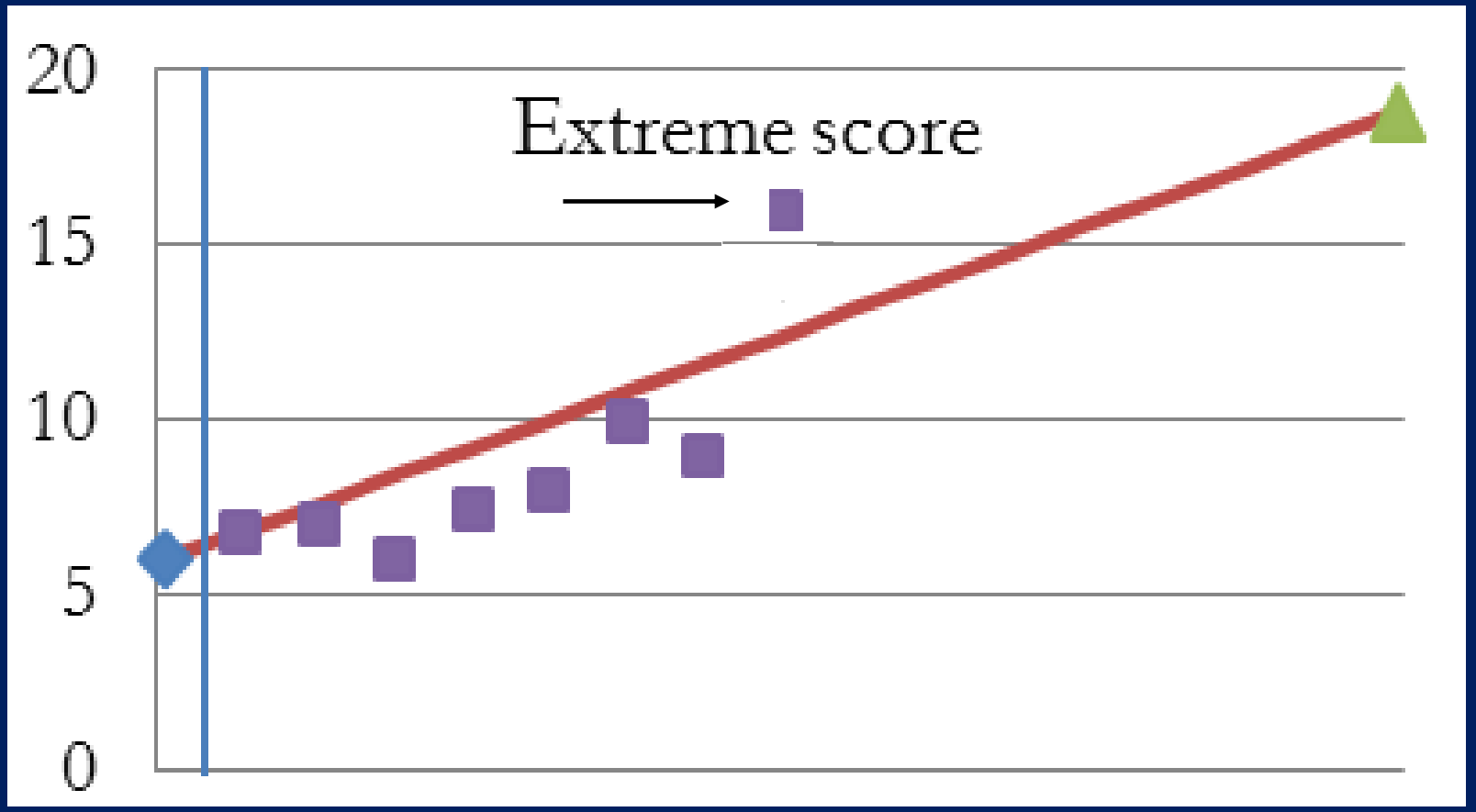


Variability – Example #1



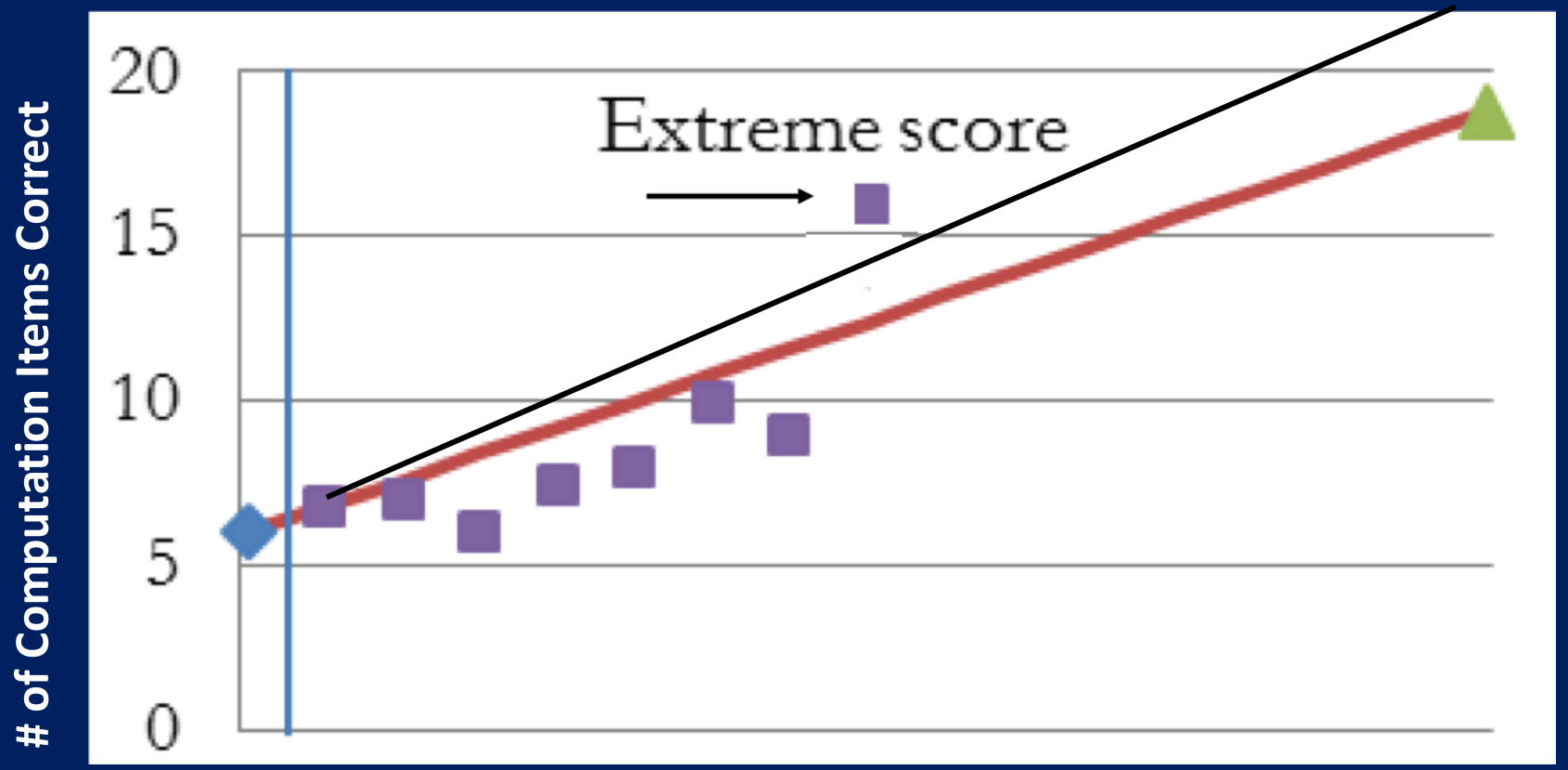
What would you do if you saw this outlier?

Variability – Example #2

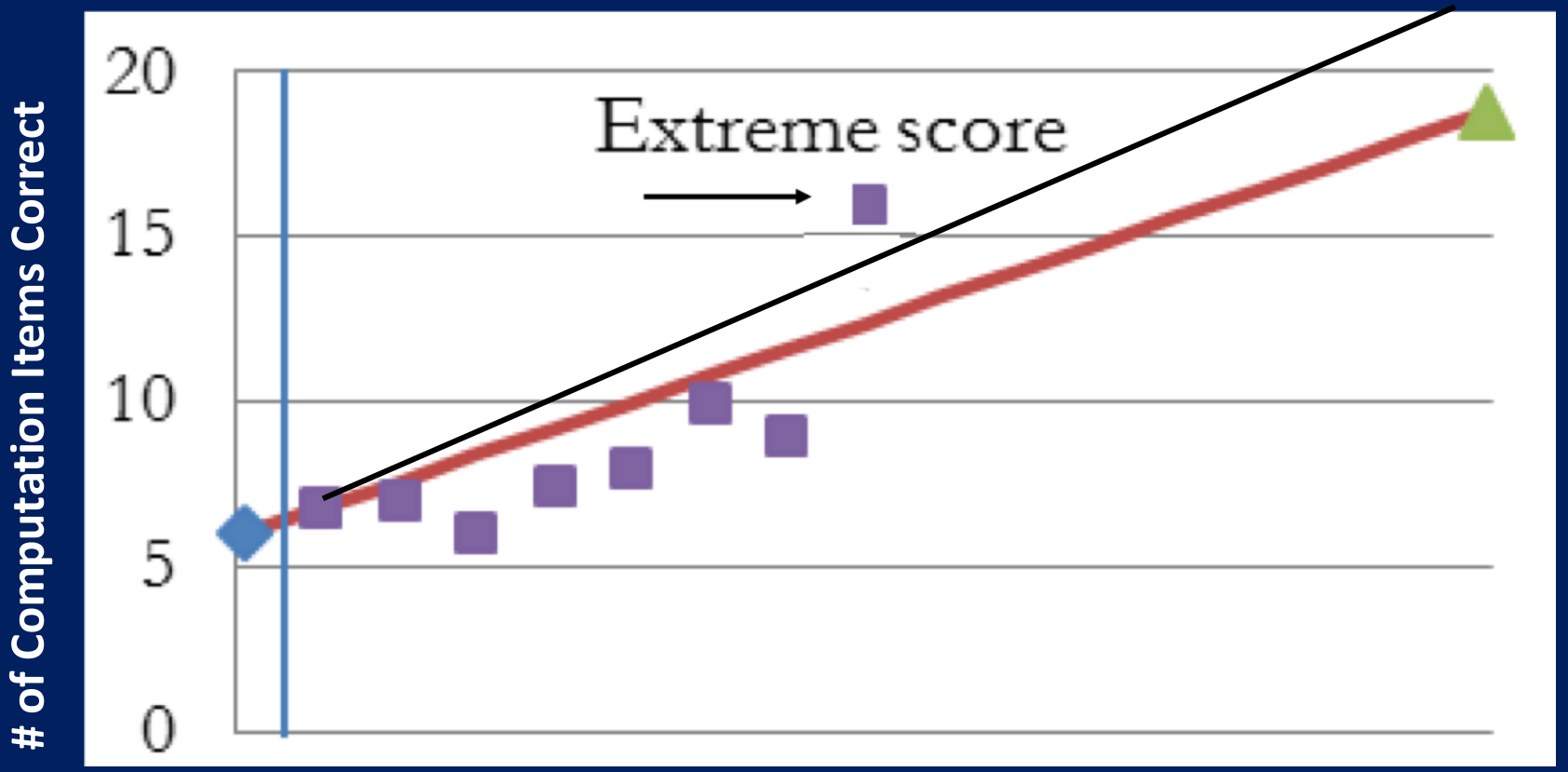


Where do you think the trend line will be in relationship to the goal line?

Variability – Example #2

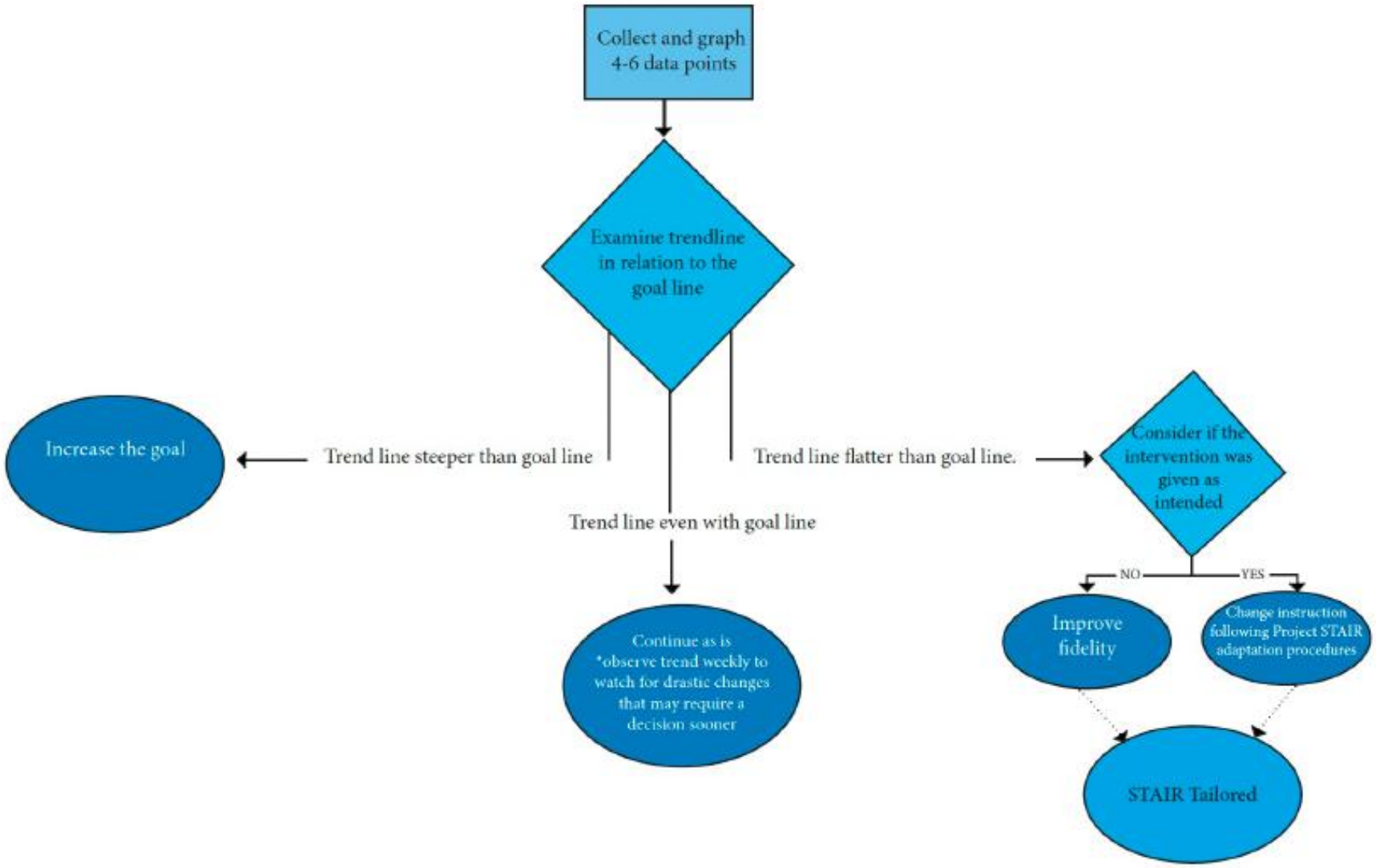


Variability – Example #2



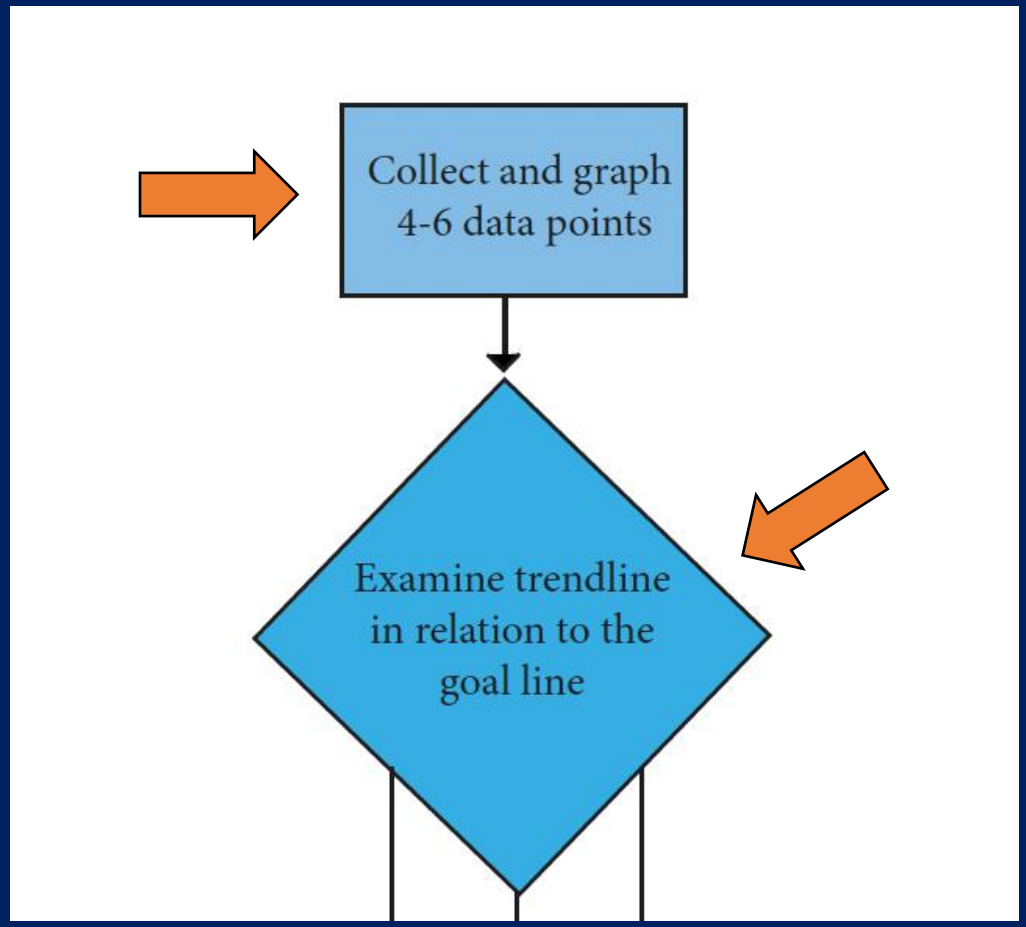
What would you do if you saw this outlier?

Decision Flow Chart

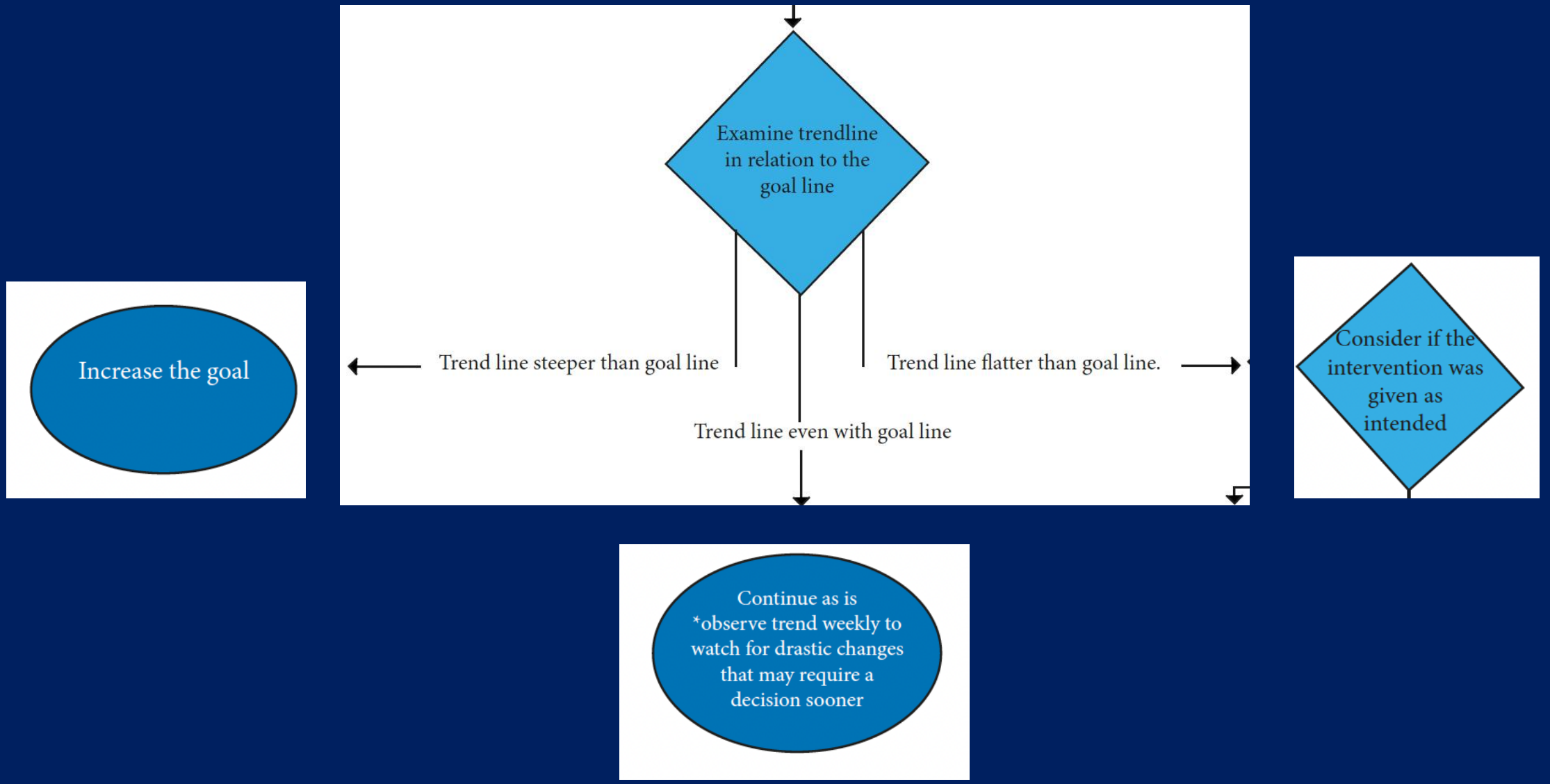


Readiness Individual Algebra Teaching of Supporting

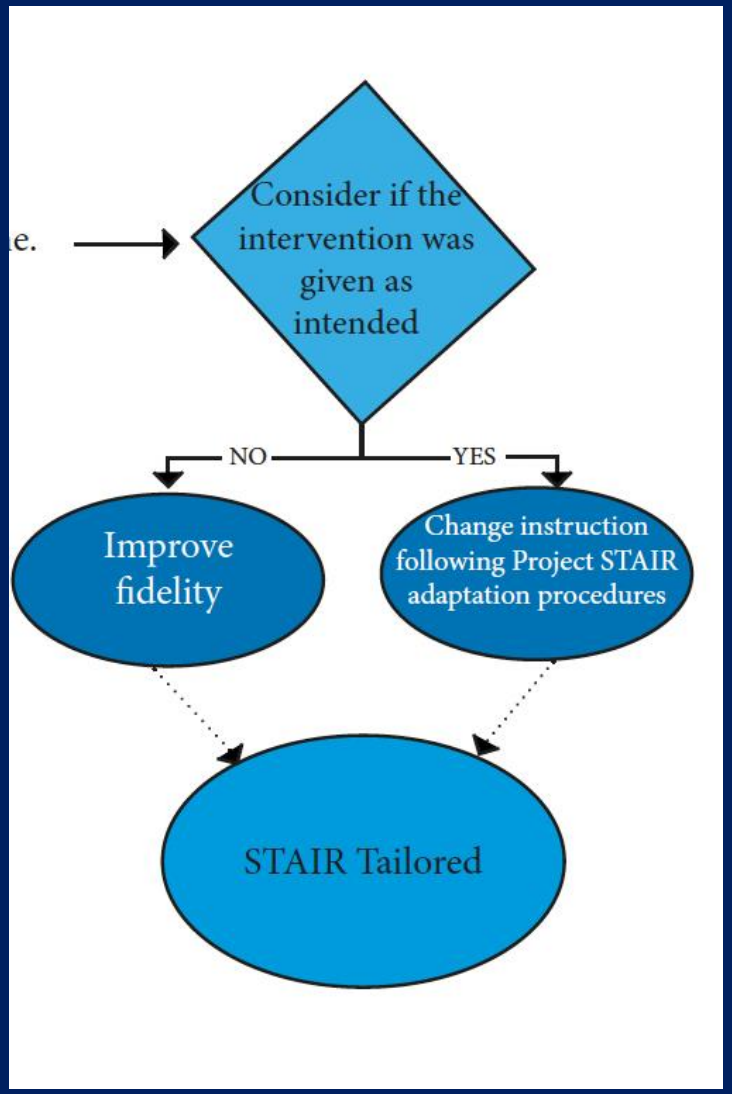
STAIR 2.0 Decision Flow Chart



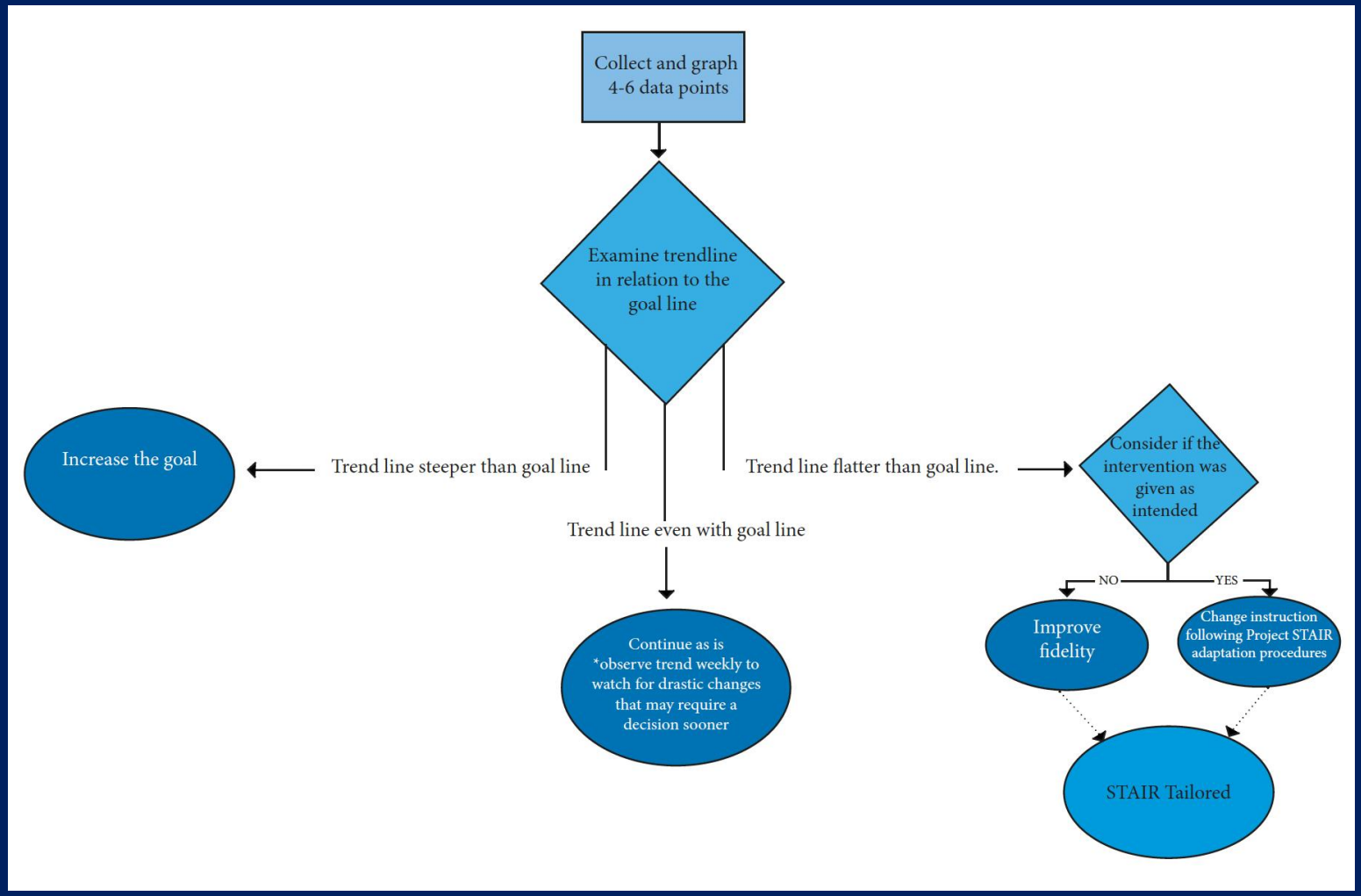
STAIR 2.0 Decision Flow Chart



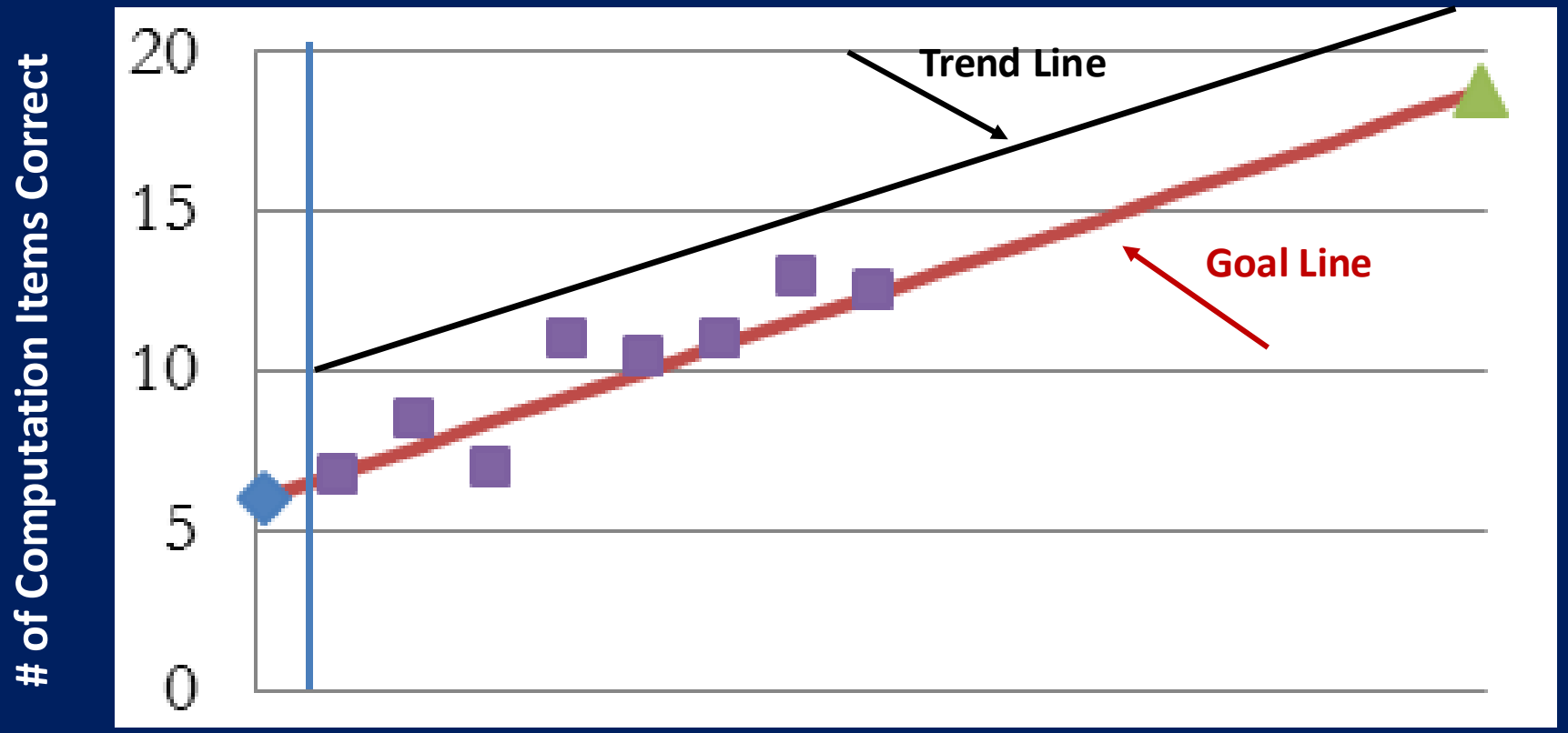
STAIR 2.0 Decision Flow Chart



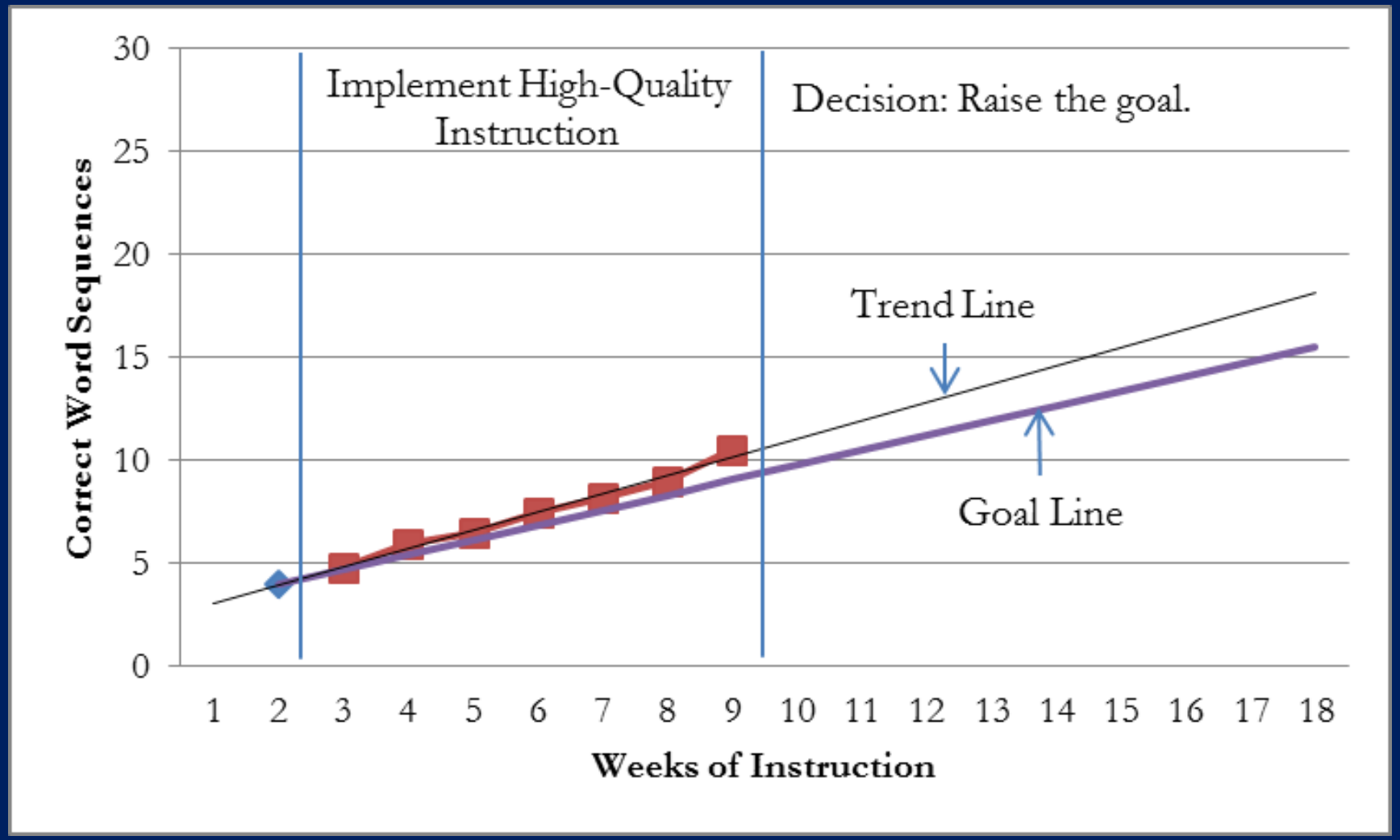
STAIR 2.0 Decision Flow Chart



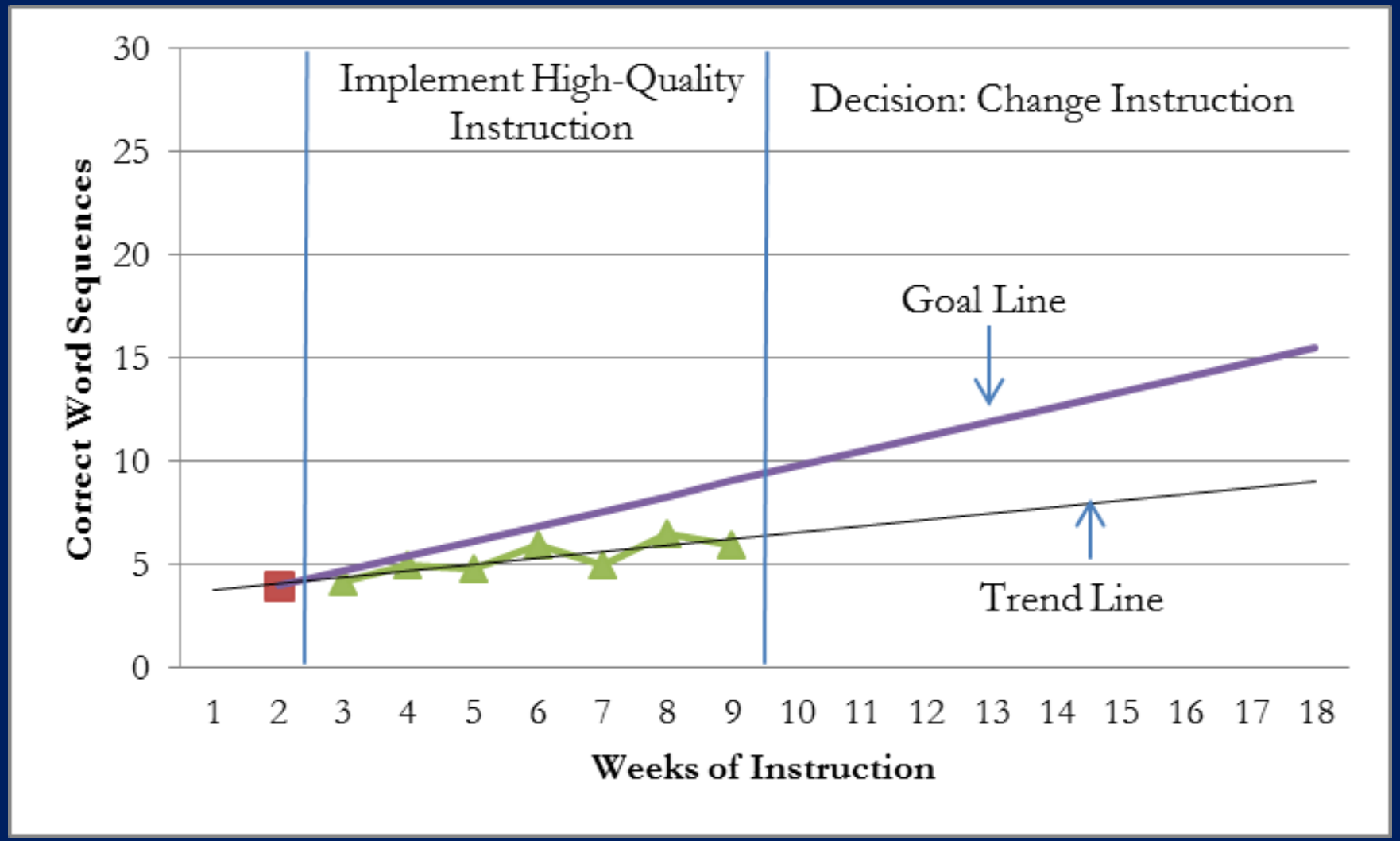
Trend Line Even with the Goal Line



Trend Line Above the Goal Line



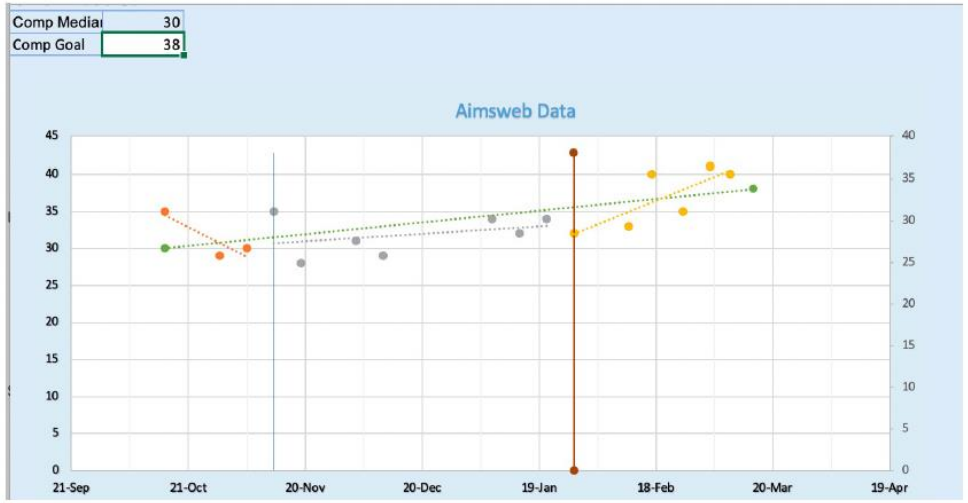
Trend Line Below the Goal Line



DBI Case Example

Let's Practice

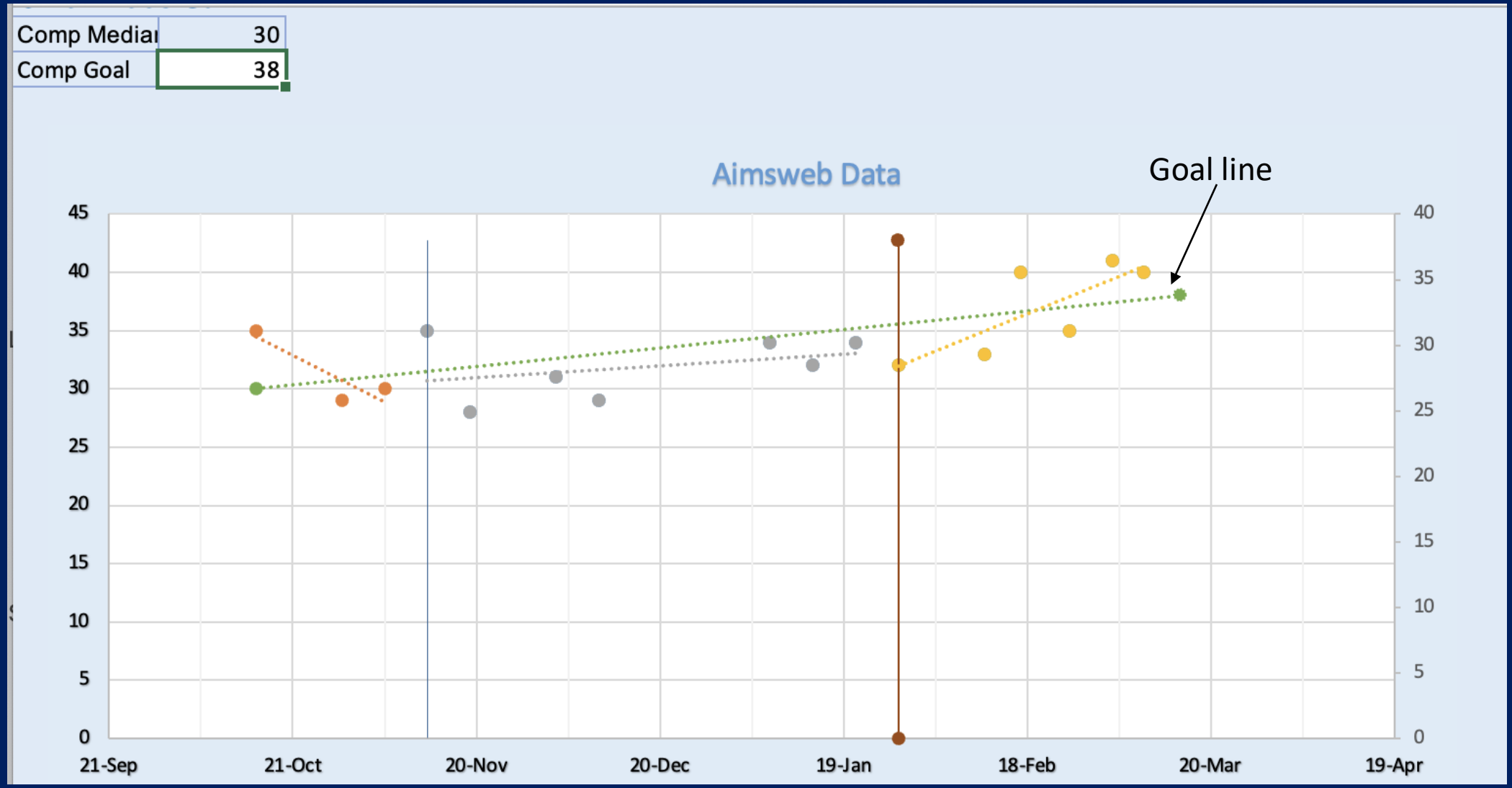
Practice #1



Level:
Trend:
Variability:
Decision:

Let's Practice! – Practice #1

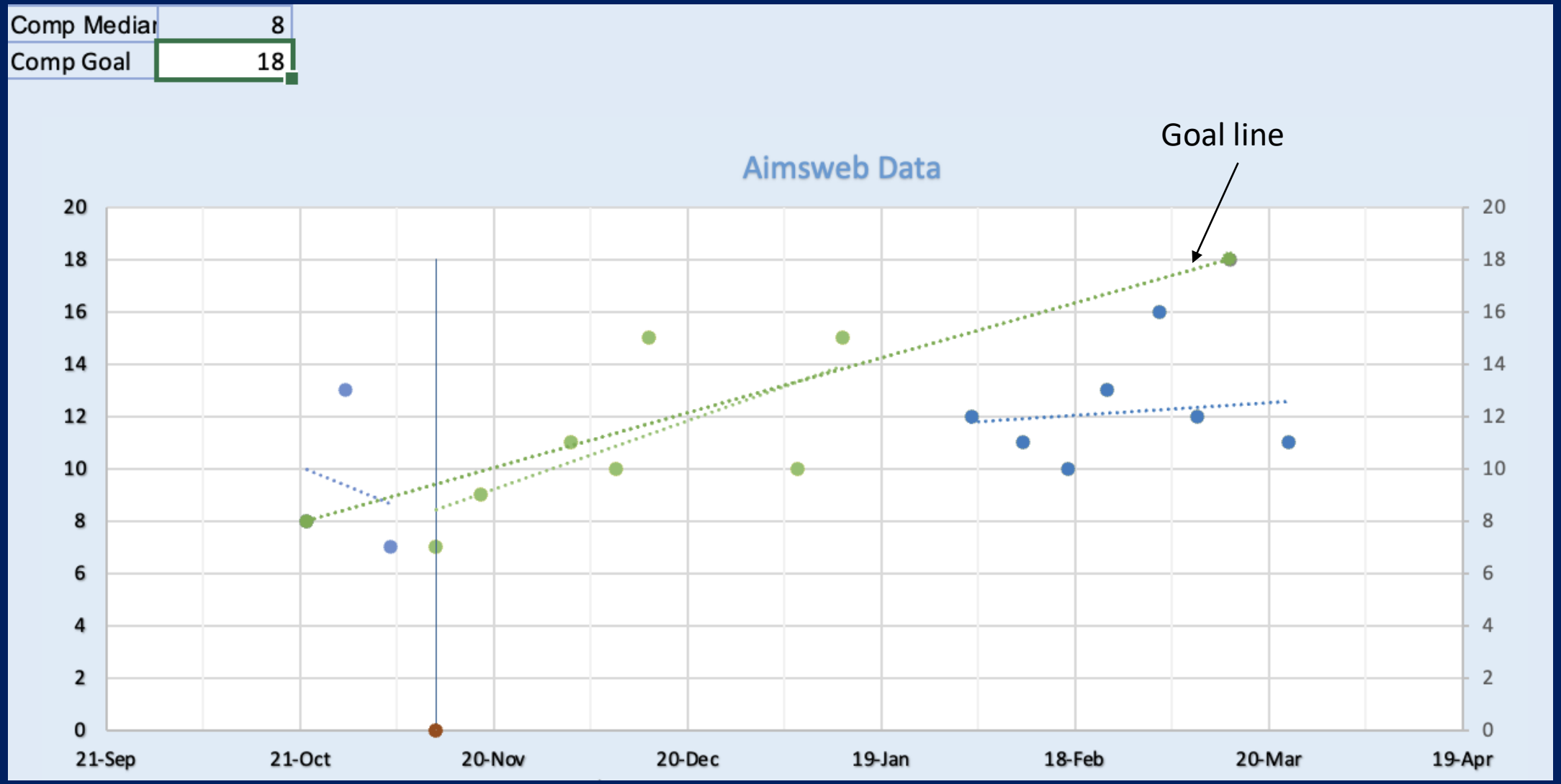
Readiness Individual Algebra Teaching of Supporting



Identify the following: Level, Trend, Variability, and Decision

Let's Practice! – Practice #2

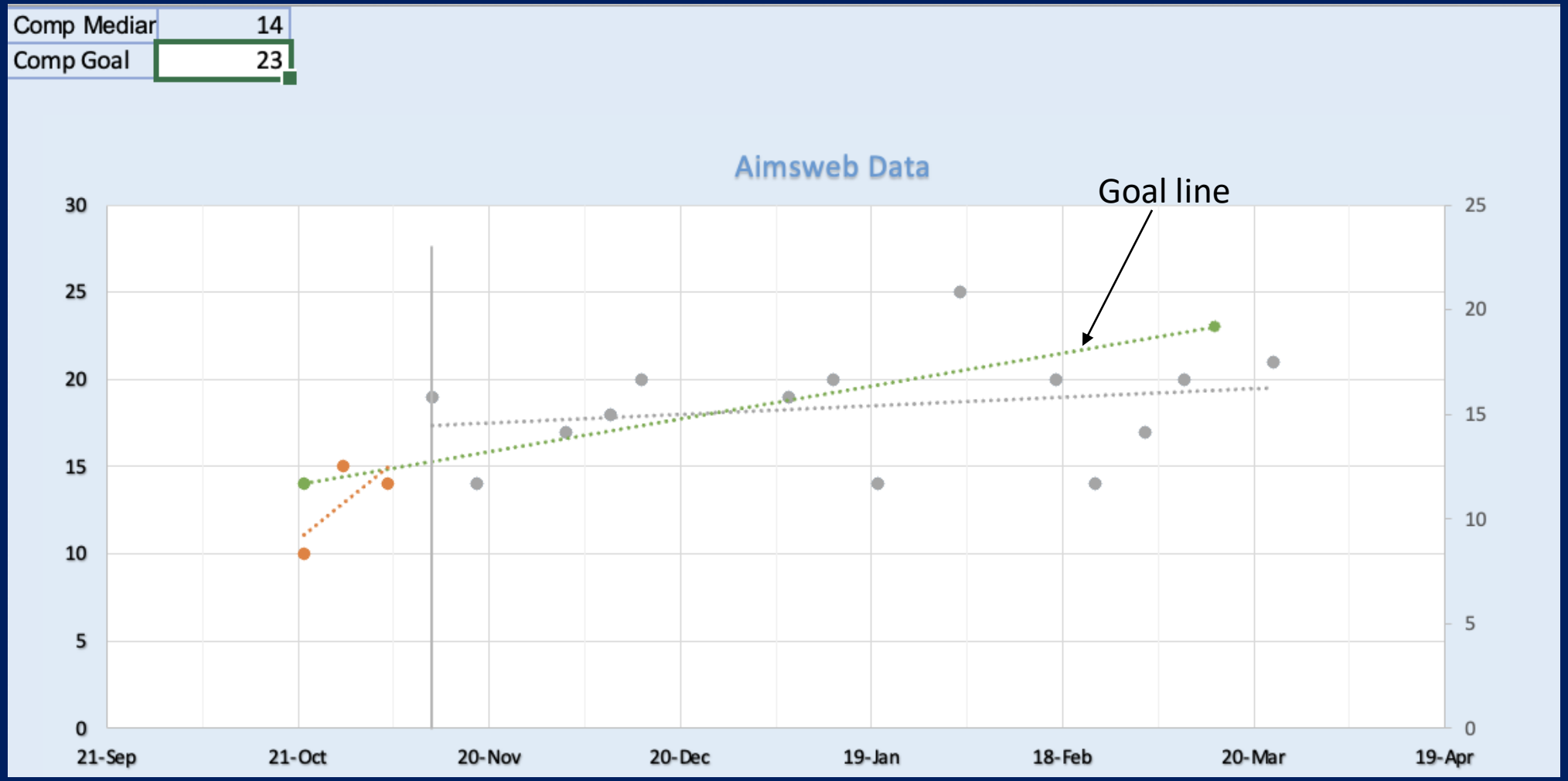
Comp Median	8
Comp Goal	18



Identify the following: Level, Trend, Variability, and Decision

Let's Practice! – Example #3

Readiness Individual Algebra Teaching of Supporting



Identify the following: Level, Trend, Variability, and Decision

Agenda

Readiness Individual Algebra Teaching of Supporting 2.0

Instructional Adaptations

Decision Making

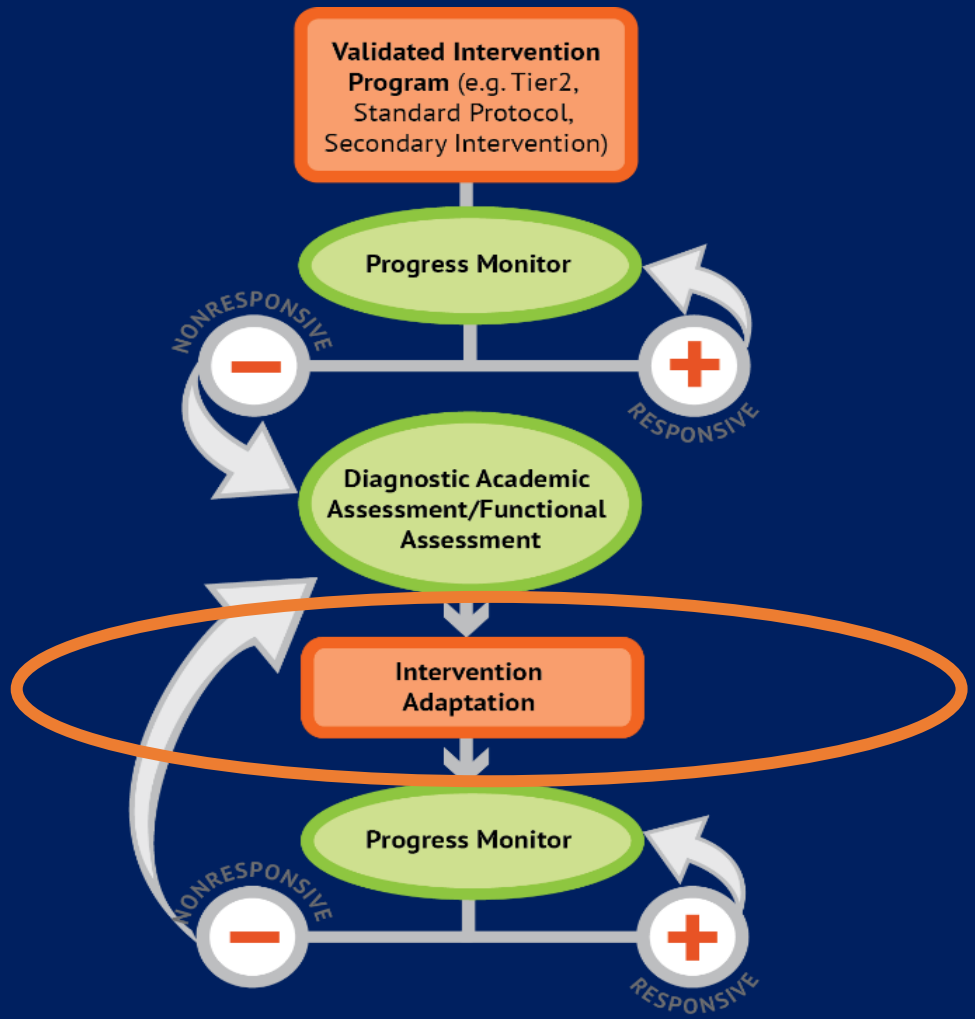
Goal Setting and Graphing

Assessment Refresher

Instructional Adaptations

Implement with greater fidelity	
Embed behavioral supports	
Increase dosage	
Adapt math content	
Utilize explicit instruction	
Explicity teach transfer	

Instructional Adaptations



When to Make Instructional Adaptations

- If your students are not responding to the grade level curriculum, you will need to intervene.

- We recommend starting with **one intensification strategy** at a time and use data to determine whether there are changes in student learning.

- Once you choose an intensification strategy, be consistent and implement it regularly to determine results.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content
- Utilize explicit instruction
- Explicitly teach transfer

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Cover, Copy, and Compare:

1. Create a sheet for the student. This sheet should contain 10 problems and cover material the student needs to practice. All problems should be answered.
2. Ask the student to look at each problem and read it aloud.
3. Ask the student to cover the problem with an index card.
4. Ask student to copy the entire problem to the right of the covered problem.
5. Ask student to lift up index card and compare his or her copy to the original.
6. Repeat for all problems.
7. Conduct three times per week.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Math Fact Flash Cards

__ Tutor greets student.
__ Tutor starts timer.
__ Tutor begins flash card activity immediately.
__ Tutor reminds student of flash card procedures; answers questions if necessary.
__ Tutor sets timer for 1 minute.
__ Tutor allows student to respond to cards.
__ Tutor prompts student to Count Up if incorrect.
__ Tutor stops presenting cards when timer goes off.
__ Tutor prompts student to count correct cards.
__ Tutor encourages student to "beat the score."
__ Tutor sets timer for 1 minute.
__ Tutor allows student to respond to cards.
__ Tutor prompts student to Count Up if incorrect.
__ Tutor stops presenting cards when timer goes off.
__ Tutor prompts student to count correct cards.
__ Tutor prompts student to graph the higher number.
__ Tutor records flash card score in attendance log.
__ Tutor rewards student with gold coin.

Word Problem Warm-Up

__ Tutor presents word problem from previous session's Pirate Problems.
__ Tutor encourages student to talk through solution steps.
__ Tutor assists with explanation, as needed.
__ Tutor rewards student with gold coin.

Tutoring Lesson

__ Tutor begins tutoring lesson immediately.
__ Tutor prompts student to describe Counting Up strategy.
__ Tutor quizzes student on 4 math facts, reminding student to Count Up as necessary.

__ Tutor presents story problem #1.
__ Tutor allows time for student to respond.
__ Tutor praises/corrects student's responses.
__ Tutor rewards student with gold coin.

__ Tutor presents story problem #2.
__ Tutor allows time for student to respond.
__ Tutor praises/corrects student's responses.
__ Tutor rewards student with gold coin.

__ Tutor presents story problem #3.
__ Tutor allows time for student to respond.
__ Tutor praises/corrects student's responses.
__ Tutor rewards student with gold coin.

Sorting Activity

__ Tutor begins sorting activity immediately.
__ Tutor reminds student of sorting procedures and answers questions as necessary.
__ Tutor sets timer for 2 minutes.
__ Tutor reads cards out loud for student.
__ Tutor allows student to place cards on sorting mat without interrupting.
__ Tutor prompts student to stop when timer goes off.
__ Tutor goes through correction procedure with up to 3 cards from "incorrect" pile.
__ Tutor goes through cards with student, counting the number of correct cards.
__ Tutor rewards student with gold coin.
__ Tutor records sorting cards score on Attendance Log.

Pirate Problems Daily Review

__ Tutor begins Pirate Problems Daily Review immediately.
__ Tutor reminds student of Pirate Problems procedures; answers questions as necessary.
__ Tutor sets timer for 2 minutes.
__ Tutor allows student to work independently for 2 minutes.
__ Tutor prompts student to stop when timer goes off.
__ Tutor sets timer for 2 more minutes (for word problem on back).
__ Tutor allows student to work independently for 2 more minutes.
__ Tutor prompts student to stop when timer goes off.
__ Tutor corrects the problems while student watches.
__ Tutor models Counting Up strategy for incorrectly answered items.
__ Tutor writes score on corner of sheet.
__ Tutor records Pirate Problems score in attendance log.
__ Tutor rewards student with gold coin.

__ Tutor prompts student to count coins and mark on map.
__ Tutor dismisses student to return to class.
__ Tutor stops timer.
__ Tutor records time of session in attendance log.
__ Tutor records date in attendance log.

Strategies for Instructional Adaptations

Implement with greater fidelity

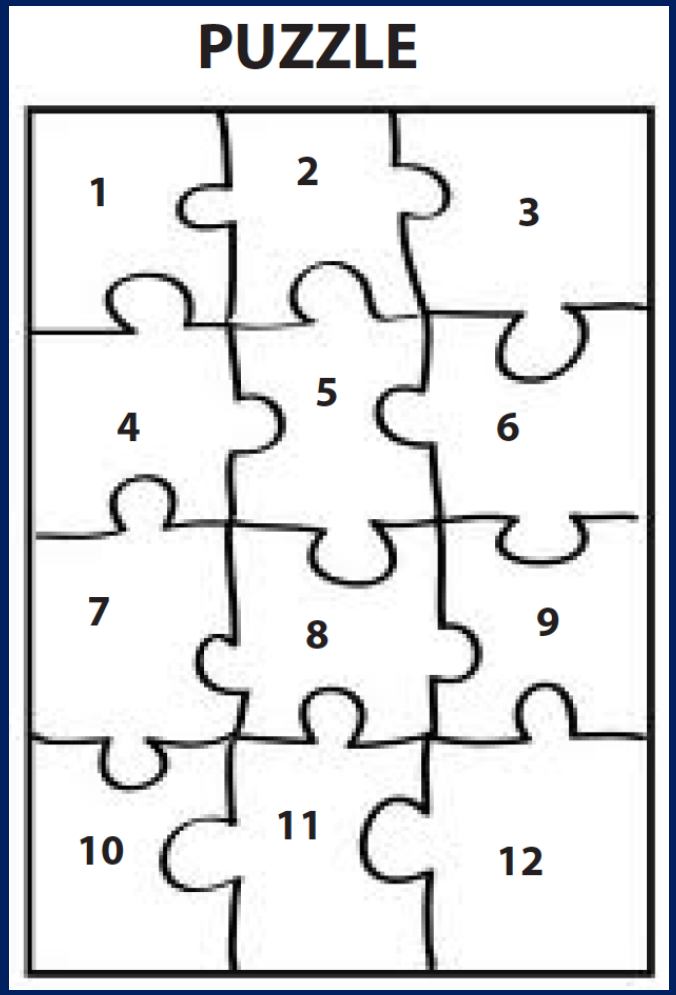
1. Describe the fidelity checklists available to you.
2. Describe how you know when you are implementing a program or strategy with high fidelity.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Embed behavioral supports

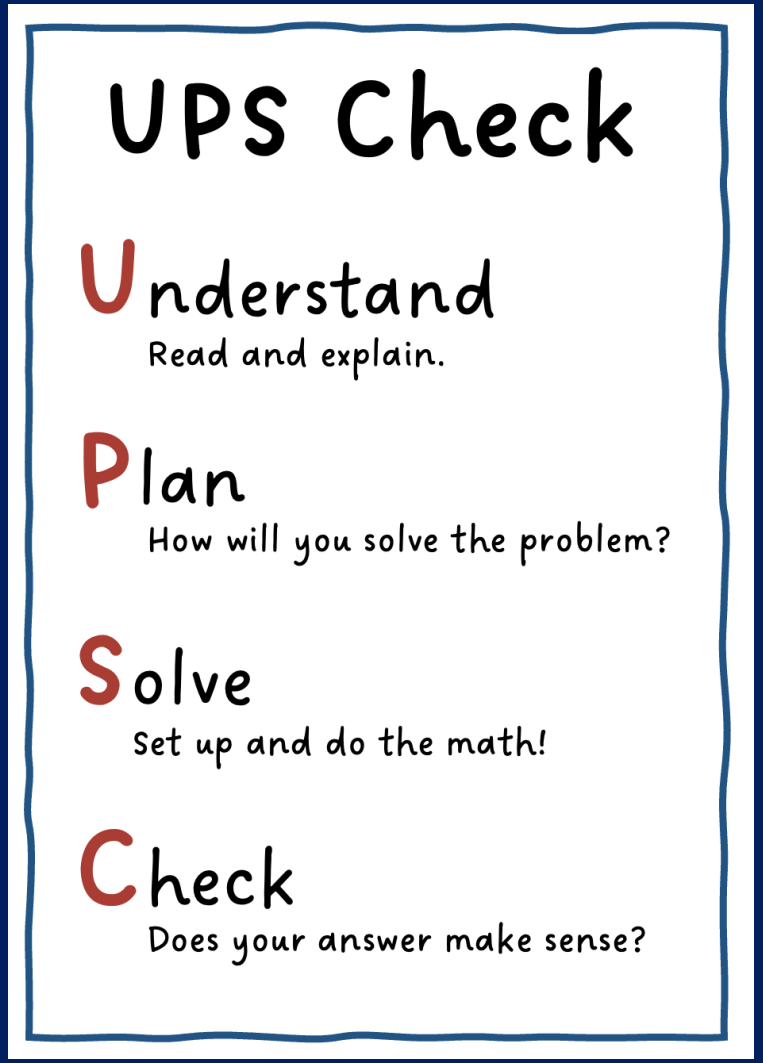


Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Embed behavioral supports



Strategies for Instructional Adaptations

Implement with greater fidelity

Embed behavioral supports

1. What are the behavioral challenges of your students?
2. Which behavioral supports are helpful during math intervention?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

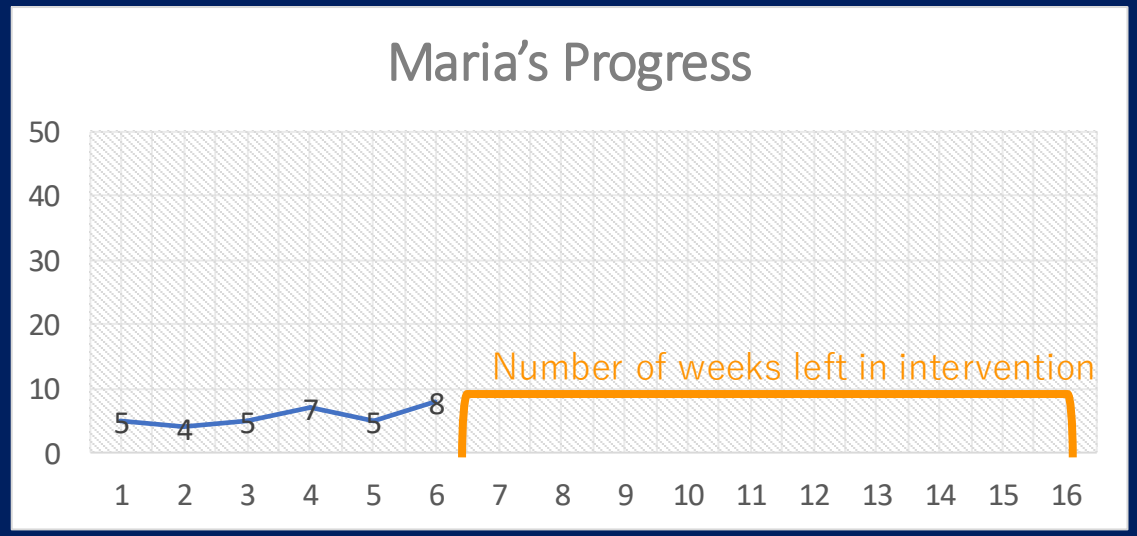
- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage

Strategies for Instructional Adaptations

Implement with greater fidelity

Embed behavioral supports

Increase dosage



Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Embed behavioral supports

Increase dosage

1. Is increasing dosage a feasible option for you. Why or why not?
2. What are ways to maximize the math practice of students if you cannot increase the dosage?

Strategies for Instructional Adaptations

Implement with greater fidelity

Embed behavioral supports

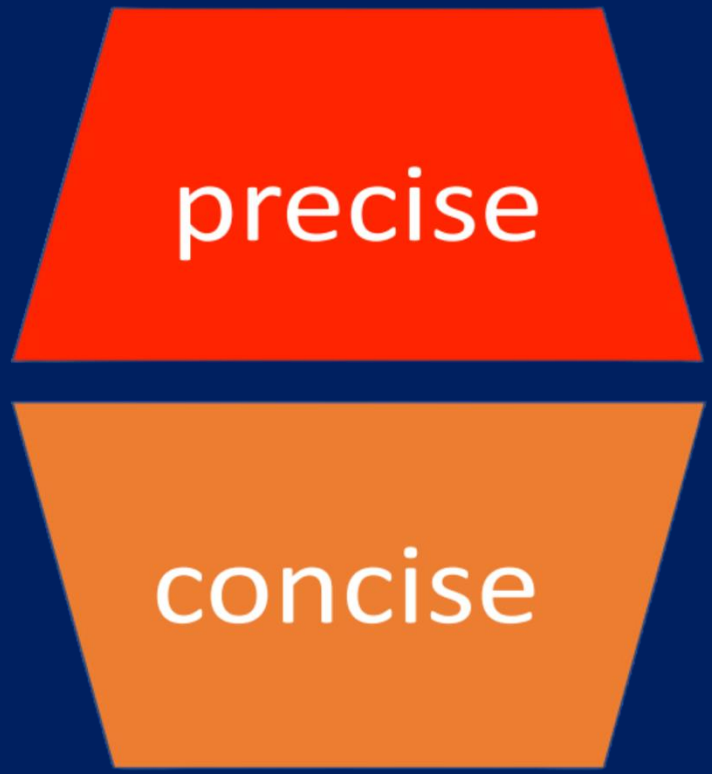
Increase dosage

Adapt mathematics content

Strategies for Instructional Adaptations

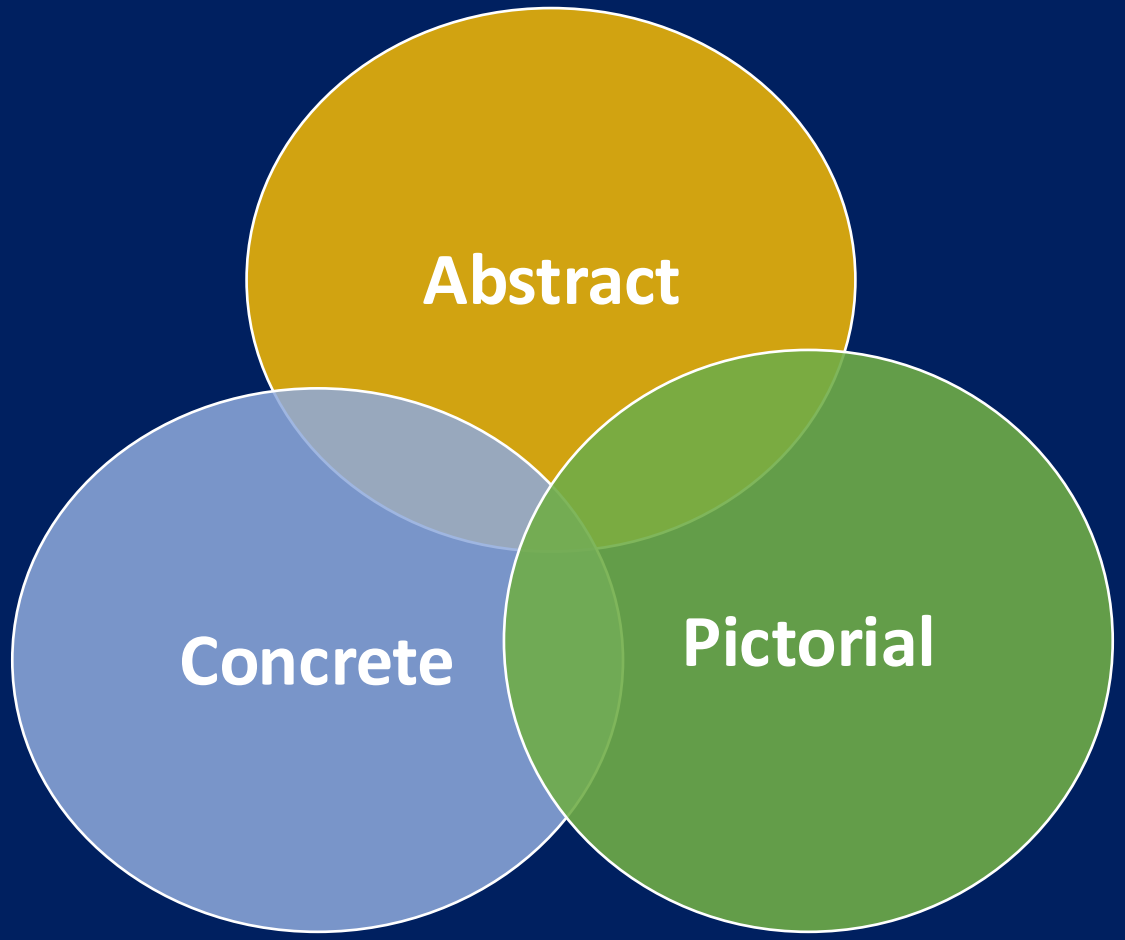
Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content



Strategies for Instructional Adaptations

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content



Readiness Individual Algebra Teaching of Supporting

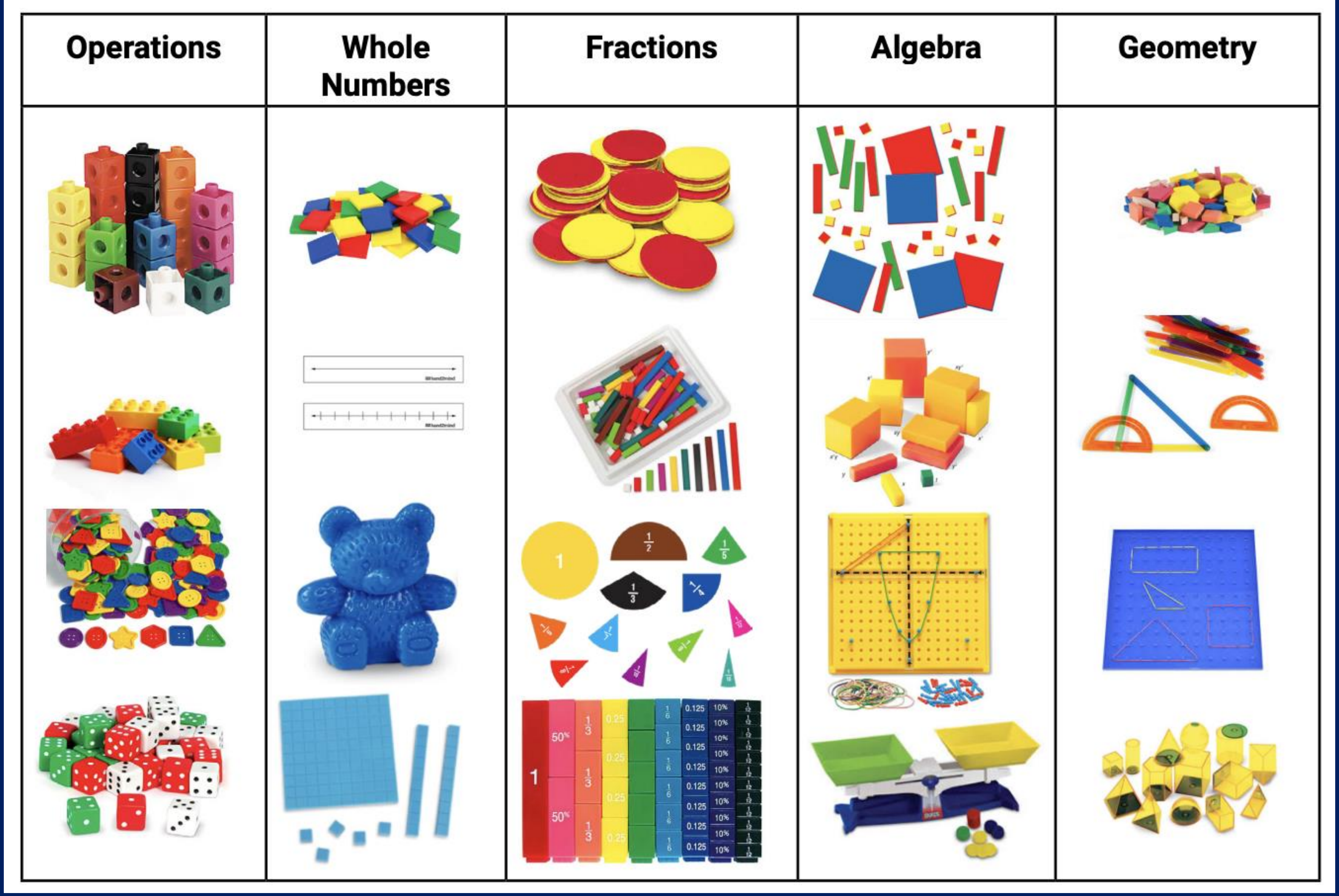
Strategies for Instructional Adaptations

Implement with greater fidelity

Embed behavioral supports

Increase dosage

Adapt mathematics content



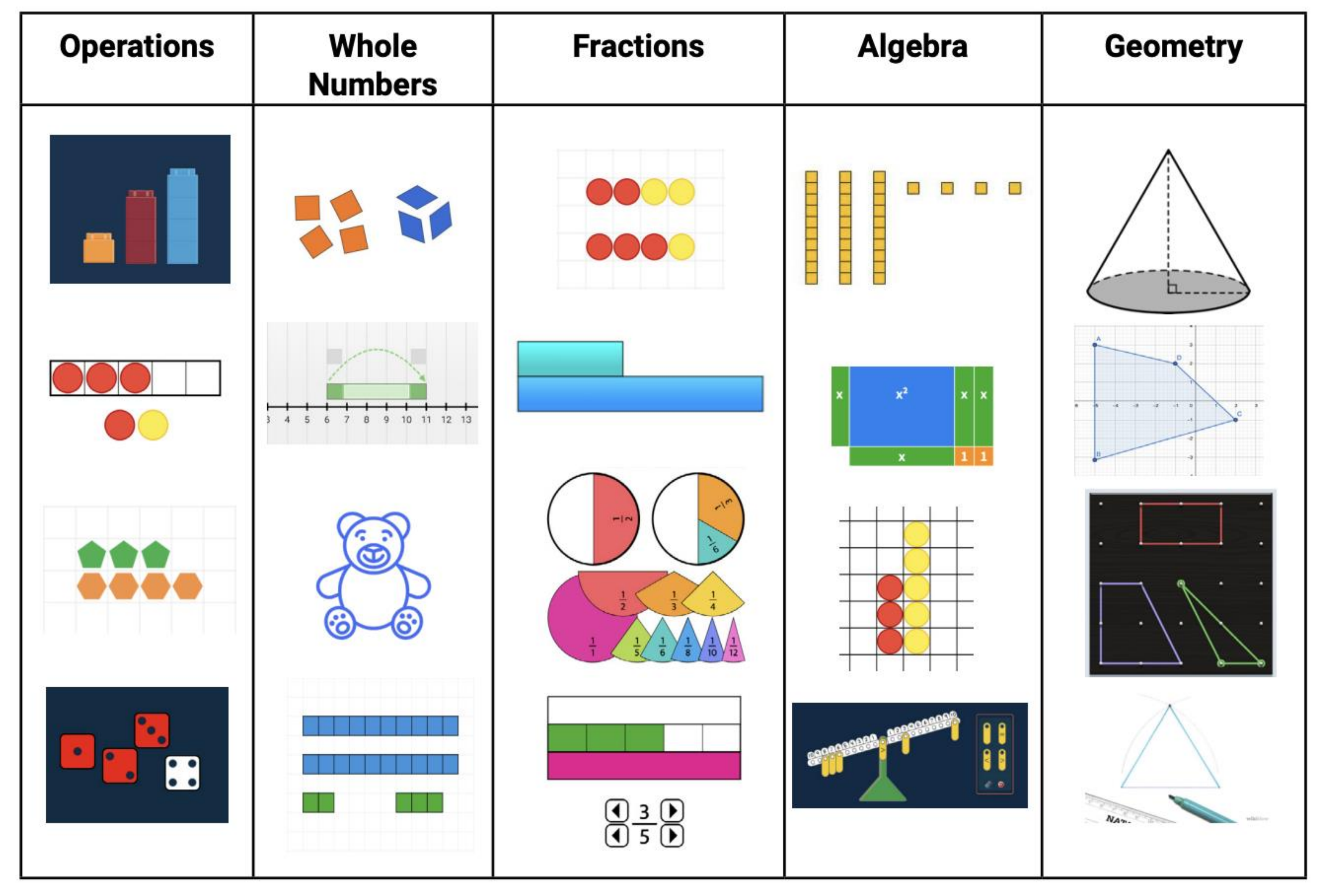
Strategies for Instructional Adaptations

Implement with greater fidelity

Embed behavioral supports

Increase dosage

Adapt mathematics content



Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

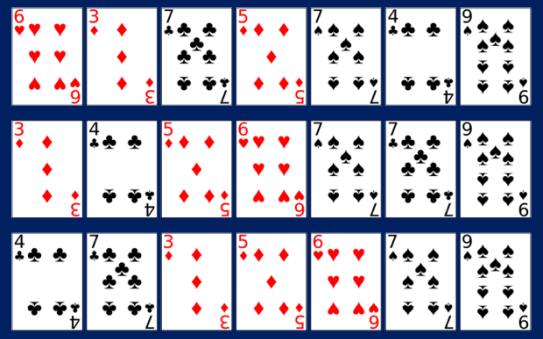
- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

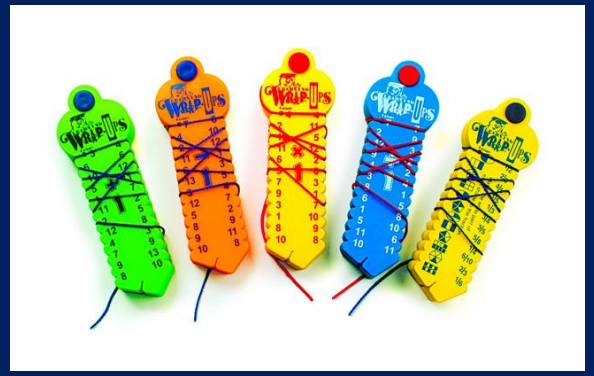
Addition	Subtraction
Multiplication	Division

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

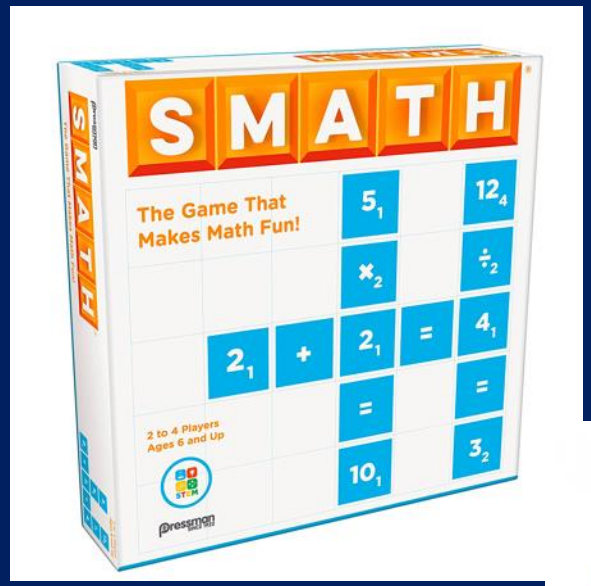




Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

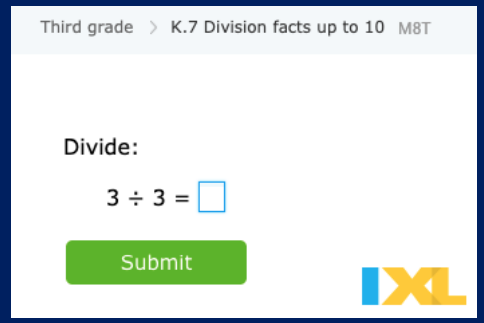
- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

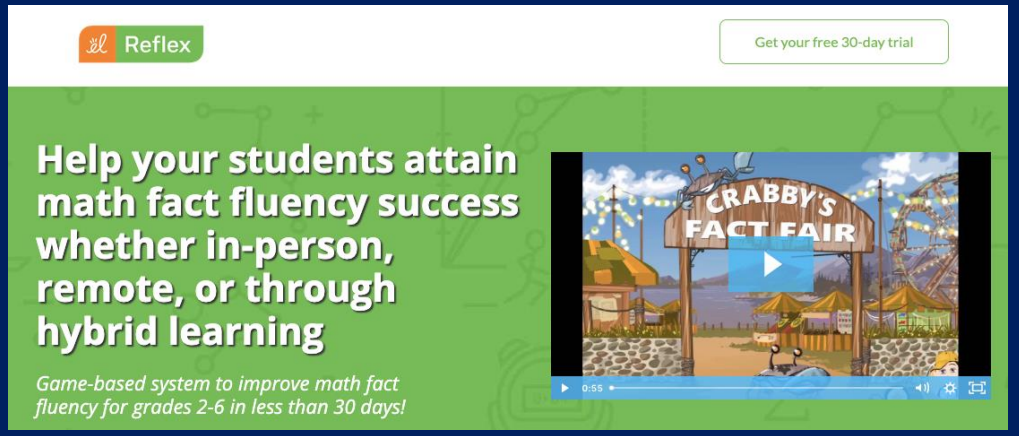


Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

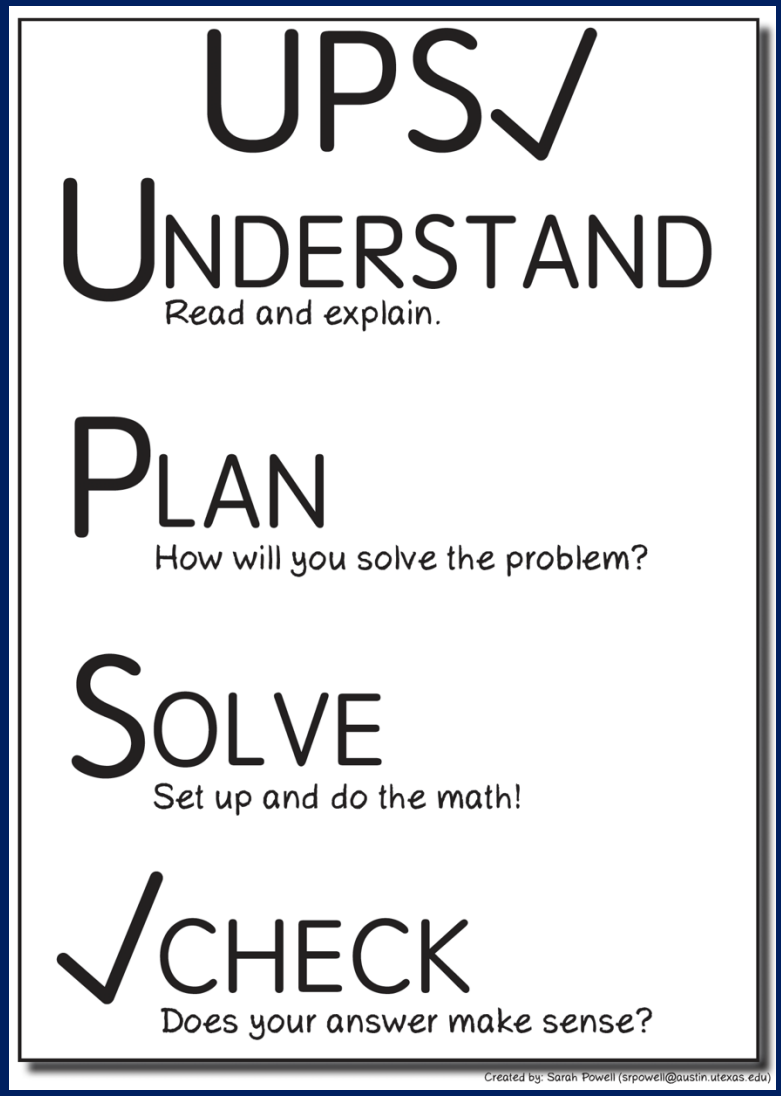




Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content



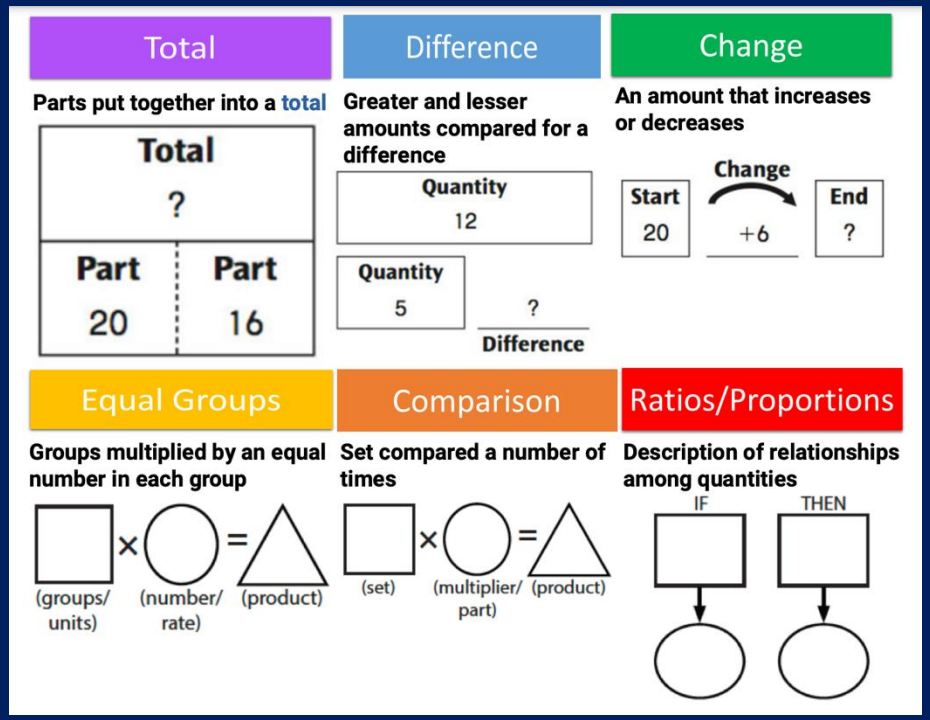
Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

EXAMPLE: SCHEMAS

Total	Max baked 40 cookies and 75 brownies. How many baked goods did Max bake?
Difference	The Brazos River is 840 miles. The Red River is 1,360 miles. How much longer is the Red River?
Change	There were 23 passengers on the bus. Then, 13 more passengers boarded the bus. How many passengers are on the bus now?
Equal Groups	Mark has 2 boxes of crayons. There are 24 crayons in each box. How many crayons does Mark have?
Comparison	Jill picked 6 apples. Meg picked 2 times as many apples as Jill. How many apples did Meg pick?
Ratios/Proportions	There are 176 slices of bread in 8 loaves. If there are the same number of slices in each loaf, how many slides of bread are in 5 loaves?



Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content

1. What are the most meaningful ways to adapt math content?
2. What additional materials might you need?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content
- Utilize explicit instruction

MODELING

Step-by-step explanation

Planned examples

PRACTICE

Guided practice

Independent practice

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback

Strategies for Instructional Adaptations

Modeling includes a step-by-step explanation and clarity in the language used during explanations.

MODELING

Step-by-step explanation

Planned examples

PRACTICE

Guided practice

Independent practice

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

MODELING	PRACTICE
Step-by-step explanation	Guided practice
Planned examples	Independent practice

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

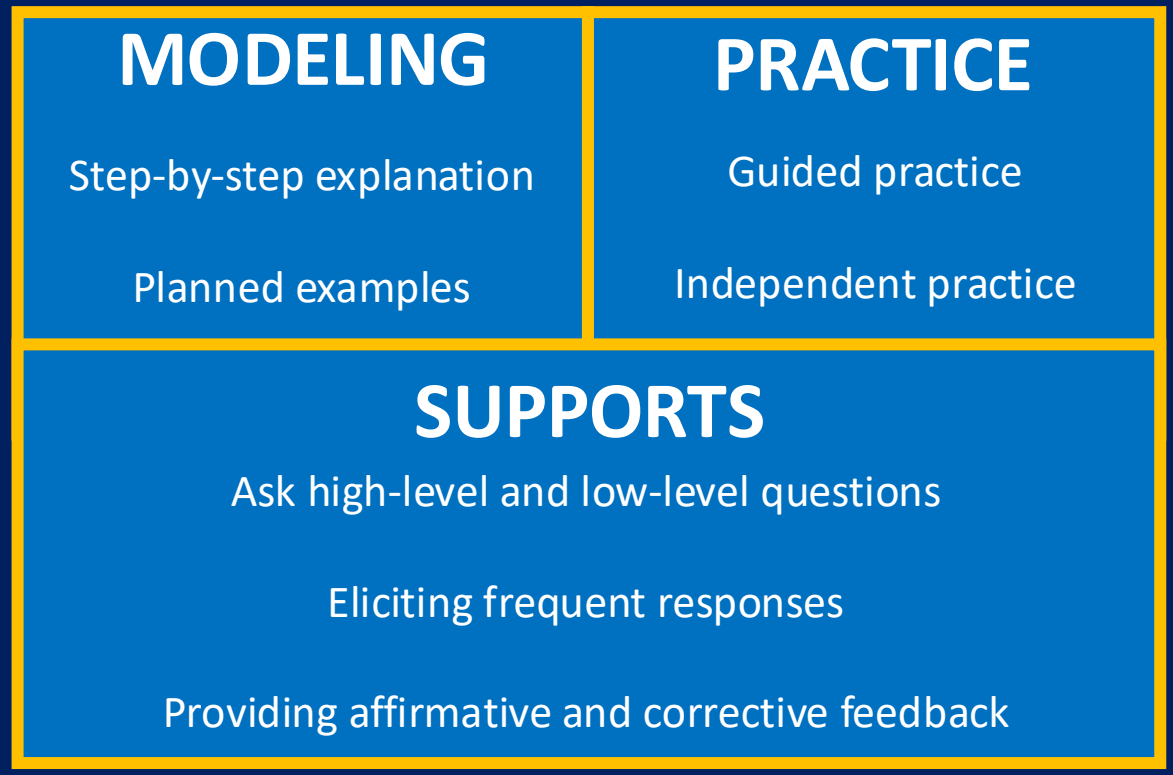
Providing affirmative and corrective feedback

Practice includes practice with the teacher (i.e., guided practice) as well as independent practice.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

During modeling and practice, teachers should use **supports**…



…such as asking a variety of question types, eliciting student responses and providing immediate corrective feedback while maintaining a brisk pace.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

MODELING

Step-by-step explanation

Planned examples

State the goal and its importance.

Model steps.

Use precise math language.

To solve 26 plus 79, we first decide about the operation. Do we add, subtract, multiply, or divide?

Add!

The plus sign tells us to add. We'll add 26 plus 79 using the partial sums strategy. Say that with me.

Partial sums.

With the partial sums strategy, we start adding with the greatest place value. In this problem, is that the tens or ones?

It's the tens place.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

MODELING

Step-by-step explanation

Planned examples

There are different ways to show division. Which show division?

$24 / 6$

$28 \div 7$

$35\sqrt{5}$

$32 \div 8$

$42 \div 7$

$25 - 5$

Use examples.

Use non-examples.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

PRACTICE

Guided practice

Independent practice

Teacher and students practice together.

Let's work together on this problem. First...

Strategies for Instructional Adaptations

PRACTICE

Guided practice

Independent practice

Students practice with teacher support.

Now you'll practice a problem on your own. Don't forget to use your attack strategy!

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback

Ask students a lot of questions – and ask different types of questions.

What is 7 times 9?

How would you solve this problem?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback

Vary responses, such as: classwide, individual, partner, write on paper, write on whiteboard, show with manipulatives, or thumbs up.

Turn and discuss the formula for volume of a rectangular prism with your partner.

Show how to set up this problem with your algebra tiles.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback

Excellent work using the order of operations!

Let's look at that again. Tell me how you added in the hundreds column.

Provide affirmative feedback to help students know what they are doing well.

Provide corrective feedback, when necessary.

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content
- Utilize explicit instruction

1. Why is explicit instruction important for the learning of foundational math content?
2. How could you strengthen your explicit instruction?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting 2.0

Implement with greater fidelity

Embed behavioral supports

Increase dosage

Adapt mathematics content

Utilize explicit instruction

Explicitly teach transfer

- Explicitly name the similar characteristics of the old and new problems or contexts.

- For example, you could pose these problems:
  1. *Morgan spent $42 for shoes. This was $14 less than twice what they spent for a shirt. How much was the shirt?*
  2. *Pat wanted to organize their button collection. There were 42 buttons in the collection. 14 buttons were lost from a container that had twice as many than what were originally in the container. How many buttons were in the container?*

- Next, ask students to identify the relationships in these two problems—how are they similar? How can solving the first problem help them solve the second problem?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

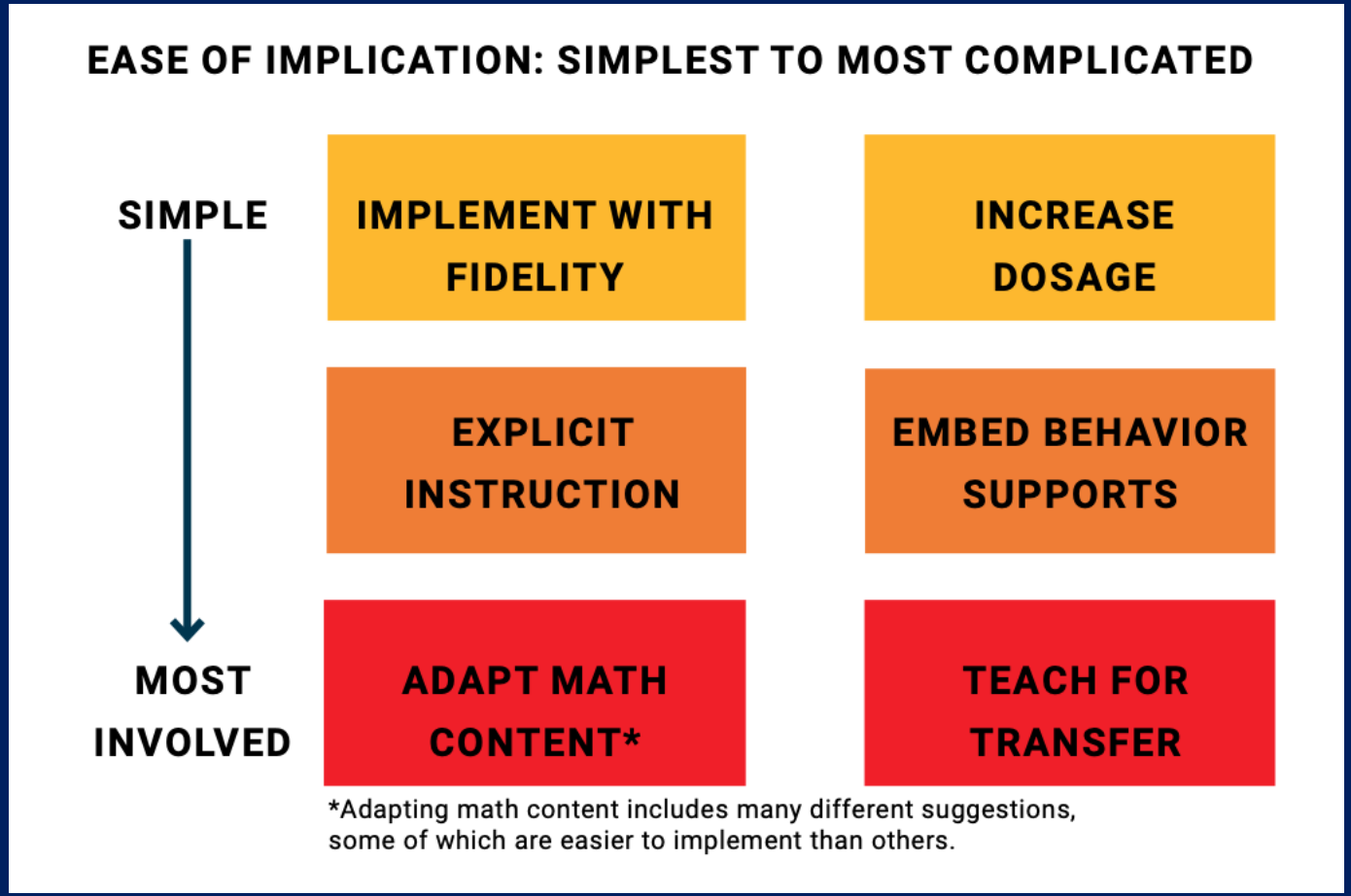
- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content
- Utilize explicit instruction
- Explicitly teach transfer

1. What foundational knowledge is important for your students in order to transfer that knowledge?
2. How do you support explicit teaching of transfer?

Strategies for Instructional Adaptations

Readiness Individual Algebra Teaching of Supporting

- Implement with greater fidelity
- Embed behavioral supports
- Increase dosage
- Adapt mathematics content
- Utilize explicit instruction
- Explicitly teach transfer



Take a few moments to identify some strengths and growth opportunities.

Then share with your elbow partner.

Instructional Adaptations

STRENGTHS	GROWTH OPPORTUNITIES

Readiness Individual Algebra Teaching of Supporting 2.0

Next Steps

Instructional Adaptations

Decision Making

Goal Setting and Graphing

Assessment Refresher

Next Steps

- Professional Development is complete!
- Teachers will work with students to complete the diagnostic assessment
  - DOMA (coaches will provide student login information)
  - This can be completed over a series of days
  - Teachers will receive a detailed print out of each students findings
- If you haven't had your first coaching meeting yet – your coach will reach out to schedule (once student data collection is completed).

Any outstanding project questions?

Thank You!

Erica Lembke
lembkee@missouri.edu

Leanne Ketterlin Geller
lkgeller@smu.edu

Sarah Powell
srpowell@austin.utexas.edu

College of Education & Human Development
University of Missouri

SMU

TEXAS
The University of Texas at Austin