


59

Precision Teaching

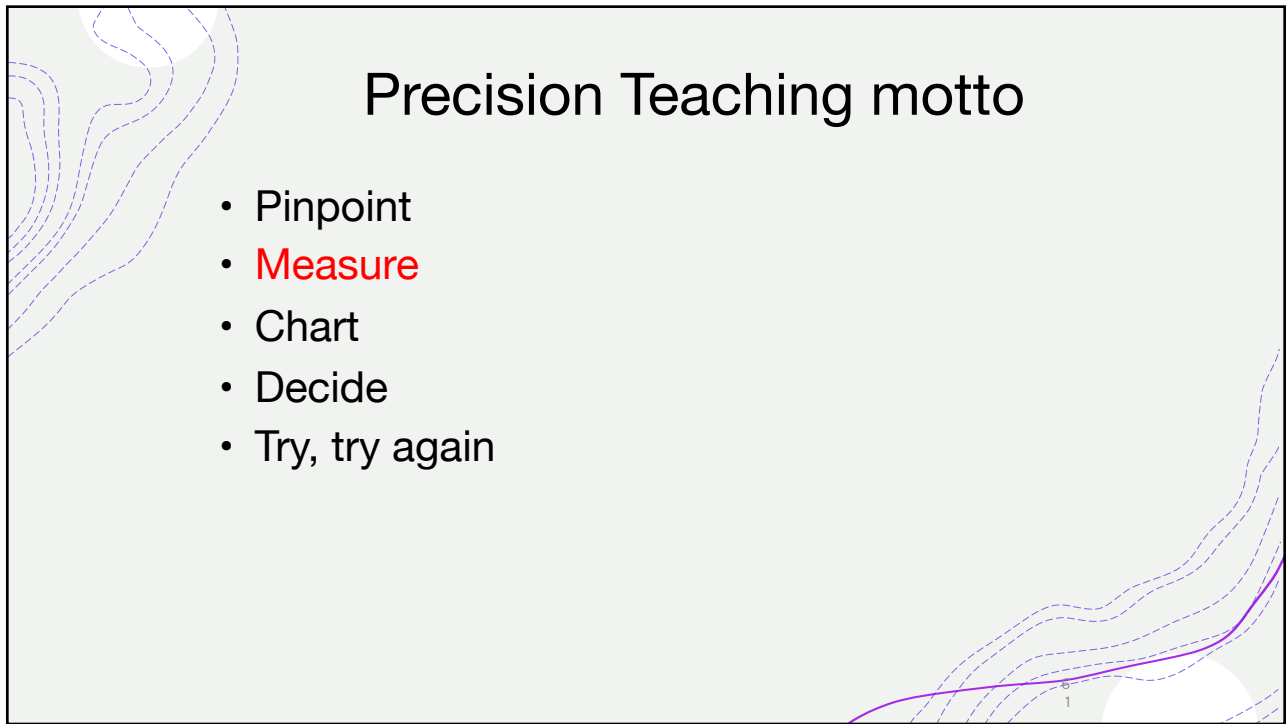
- + Founded by Ogden Lindsley
- + Extension of laboratory procedures in applied settings
- + Measurement systems designed for teacher to track learning performance
- + System thought to allow teachers to be more precise in their work
- + Expansion of the idea of standard visual display



60

Precision Teaching motto


- Pinpoint
- **Measure**
- Chart
- Decide
- Try, try again



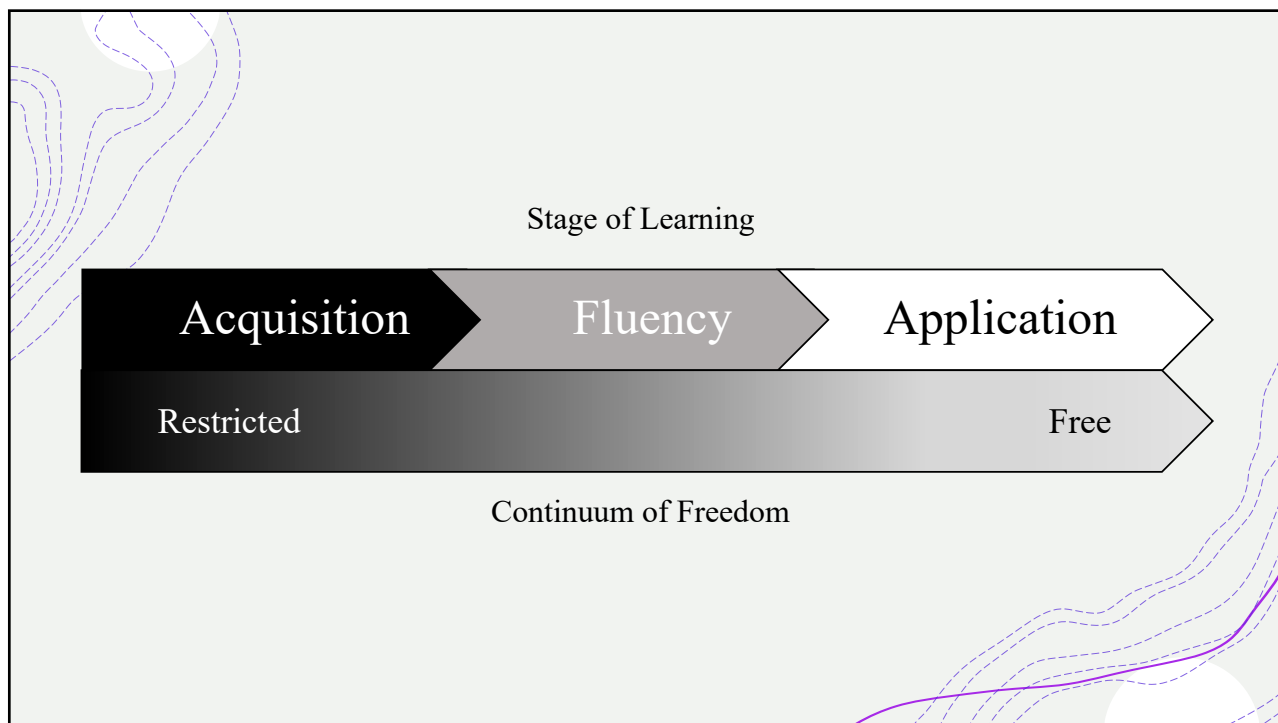
61

Discrete Trial Vs. Free Operant

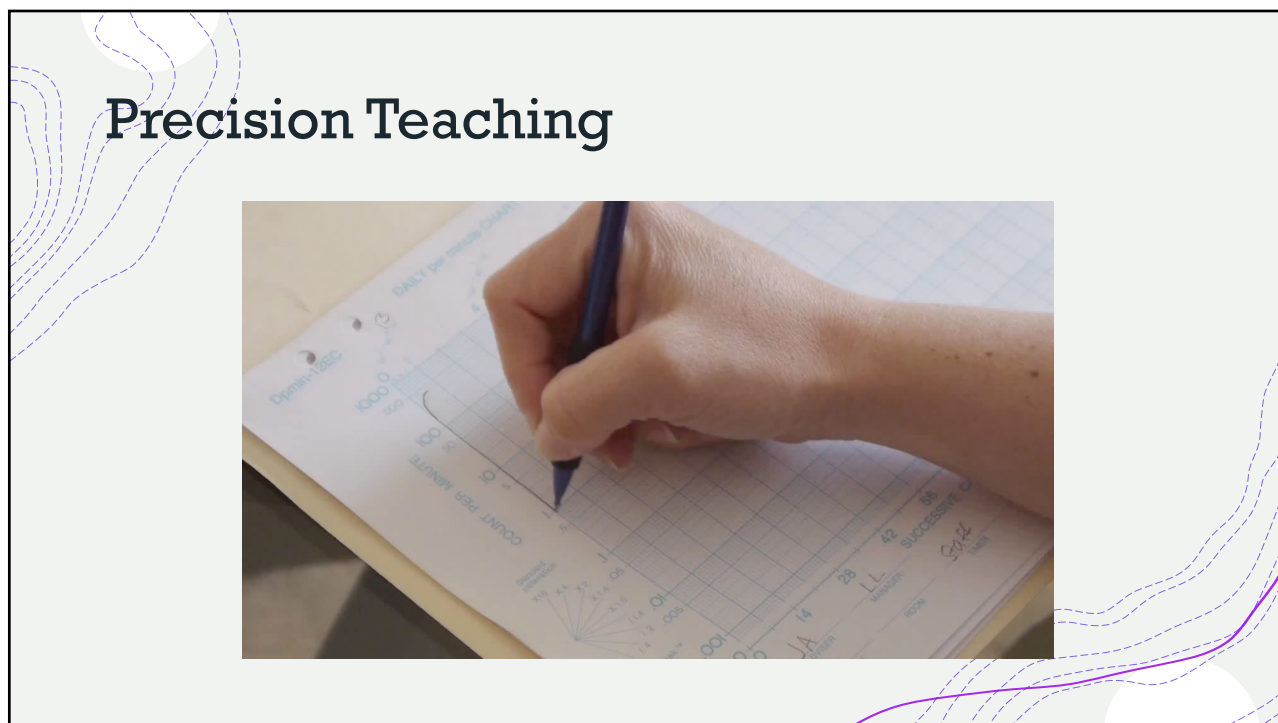
Restricted Operant	Free Operant
	




62



63



64



Pinpoint – Frequency Aims


- + Frequency Aims:
 - + Our frequency aims predict fluency outcomes
 - + Typically a range (e.g., 100-80)
 - + Aims are learner verified to ensure fluency
- + There are a lot of aims that have been validated but they are a range. You need to ensure fluency outcomes for each learner.

65

Arrange for Instruction and Practice



66




Frequency Building

- + Frequency building is often the main intervention used to build skills to fluency
- + Based on **differential reinforcement of high rates of behavior (DRH)**
 - + Providing reinforcement for increasing frequencies
 - + While performances of lower frequencies are placed on extinction
- + Designers use this **after** skills are highly accurate

67

Examples of frequency aims



+ math facts	+ 80–100/minute, 0 errors
+ word problems with whole numbers	+ 6 every 3 minutes, including equations, 0 errors
+ fractions computation	+ 80–100 steps in 5 minutes, 0 errors
+ oral reading	• 180-220 words/min. 0–2 errors
+ find main idea in passage (75 words)	+ 8-10 main ideas in 10 minutes, 0 errors
+ sentence combining	+ 15-20 words in 3 minutes

68

Indicators of Fluency

- **Maintenance:** Performance is available as needed in and out of the classroom
- **Endurance:** Performance continues for as long as necessary, has 'staying power'
- **Stability:** Performance is not subject to distraction
- **Application:** Performance occurs other similar situations & contexts that share the same critical features
- **Adduction:** Performance blends and combines with other fluent performances to solve new problems
 - i.e. figuring out, 'problem solving', 'creativity,' 'discovery learning'

69

Frequency Building – The Timing Period

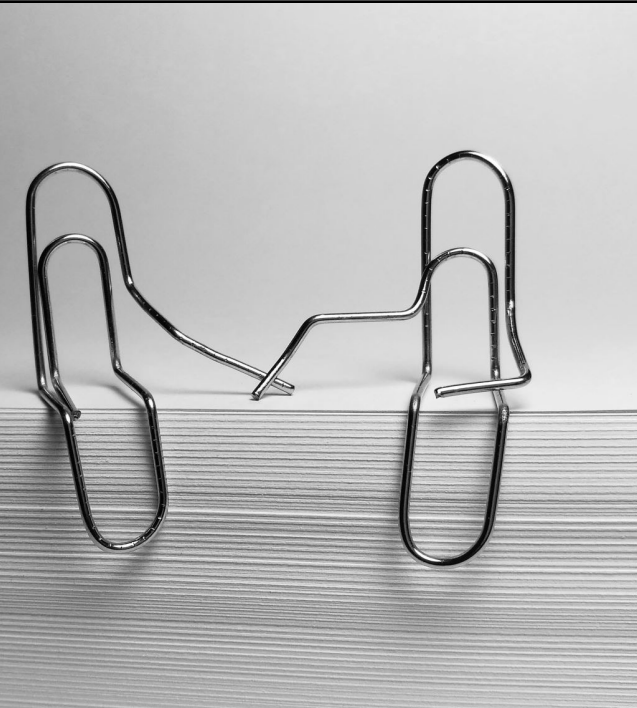
- + Precision teachers discovered that performances measured in 1-min intervals often predicted what performances looked like for longer periods of time
- + For example: 1-min passage fluency timing predicts performance at 5 min, 10 min, etc.



70


Frequency Building – The Timing Period

- + Pragmatically, the timing period is selected based on the skill and what fluency looks like for the skill
- + For example, no one would pinch a clothespin for 1 min; do math facts for 5 min; twist a doorknob for 2 min, etc.
- + Therefore, we look to find the appropriate length of the timing period that produces enough practice for the skill to be easily applied and produce the outcomes of fluency



71


Frequency Building – The Timing Period



In general, we can use 1 min timings for most academic skills (general rule)

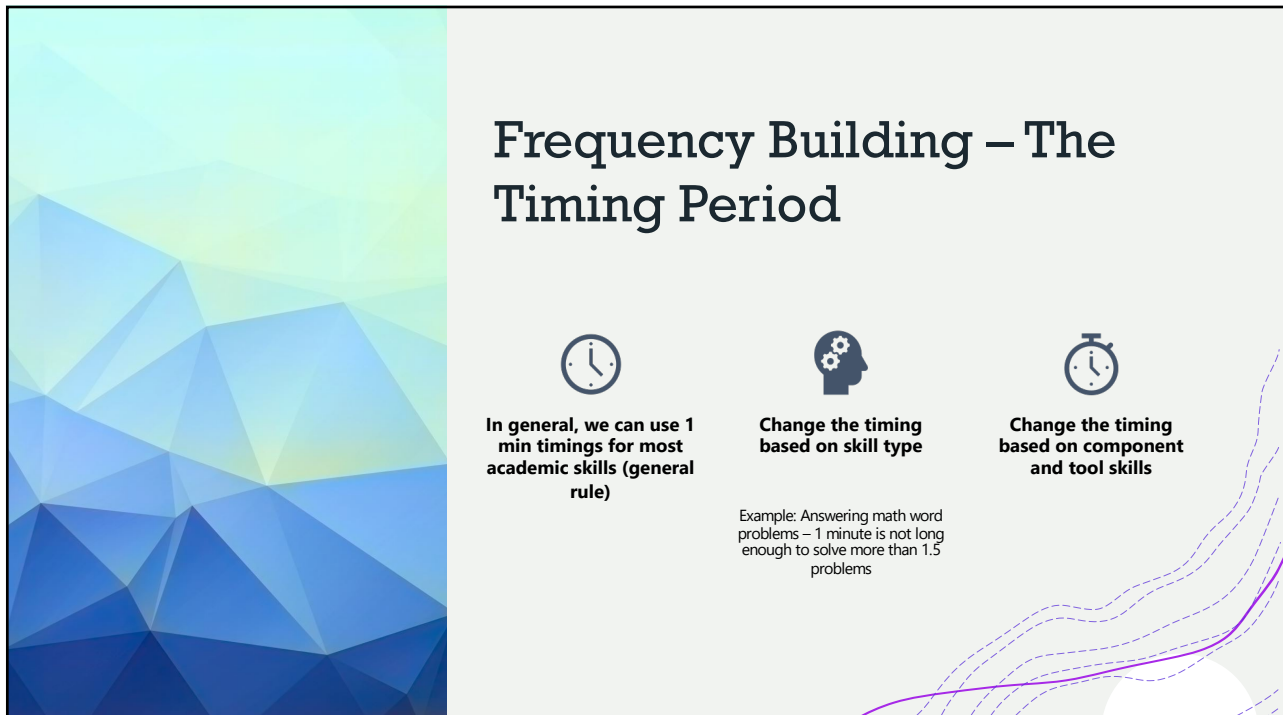


Change the timing based on skill type



Change the timing based on component and tool skills

Example: Answering math word problems – 1 minute is not long enough to solve more than 1.5 problems



72

Frequency Building – Running a Timing

- + Set a timer for the timing period – this is a **fixed timing**
- + **State the goal** (terminal or intermediate) to the learner – the need to know what they are aiming for
- + Provide your **free-operant practice materials** that are designed according to free-operant considerations
 - + You want to have multiple practice versions so the learner does not learn a sequence of responding



73

Frequency Building – Running a Timing

- + Start the timer with “please begin”
 - + Why? Because manners matter
- + While the student is performing the skill, do not interrupt them – **fluency blocker**
 - + Like a coach, you can cheer and motivate, but **do not correct errors** if they occur during the timing
- + When the timing is over, indicate that the timing is over: “Thank you, stop”
 - + Again, manners matter



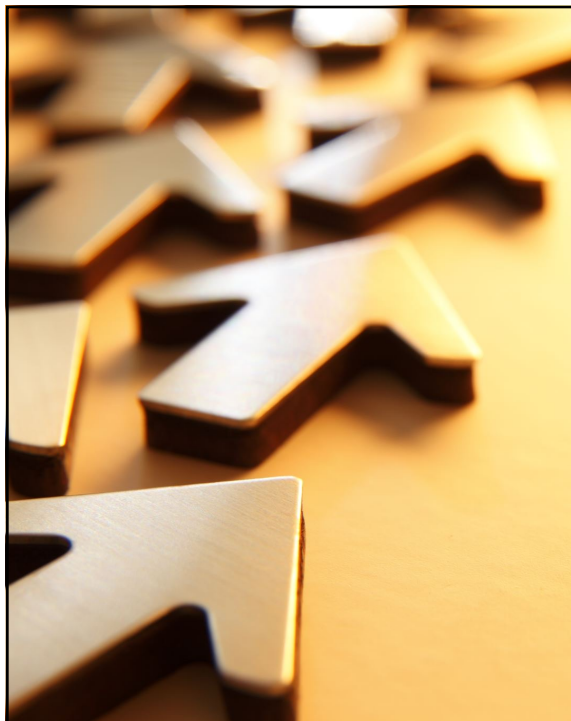
74



Frequency Building – Running a Timing

- + Count up the number of corrects and errors
 - + Permanent product recording
 - + Observational recording
- + Provide reinforcement for increases in frequency
 - + Strive for social first over tangible
 - + Program for natural reinforcement by showing the student they're learning

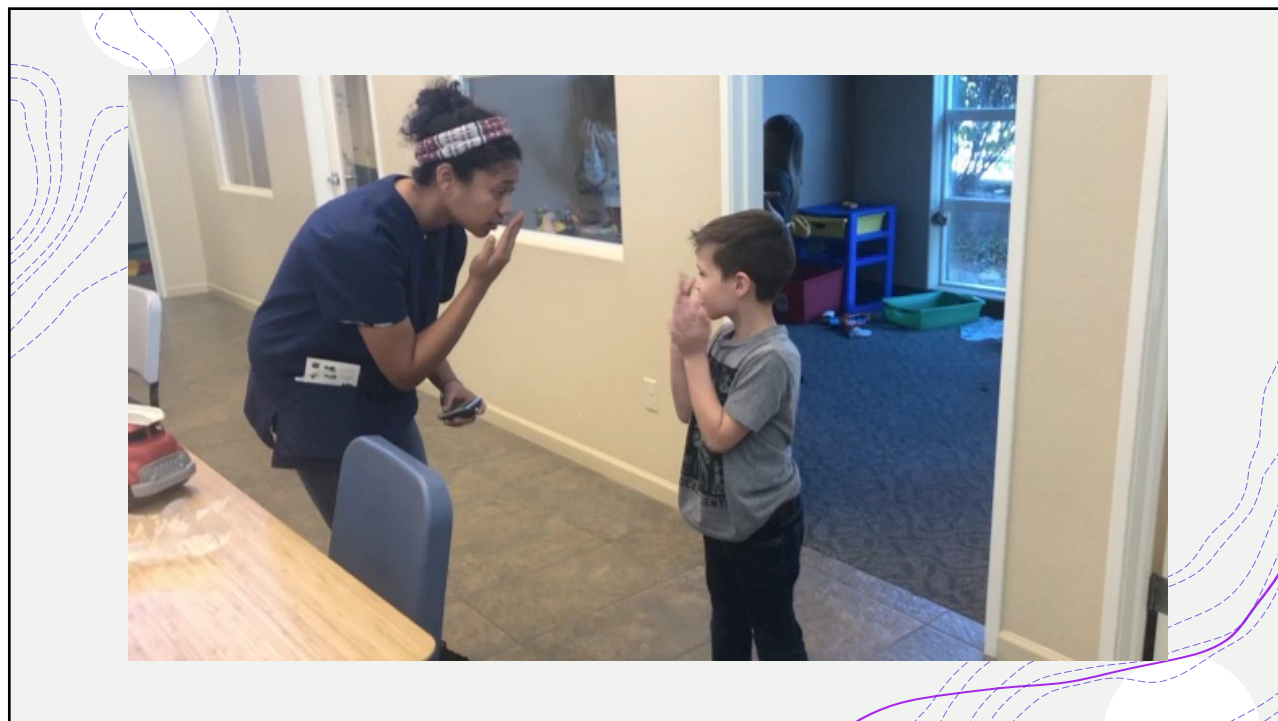
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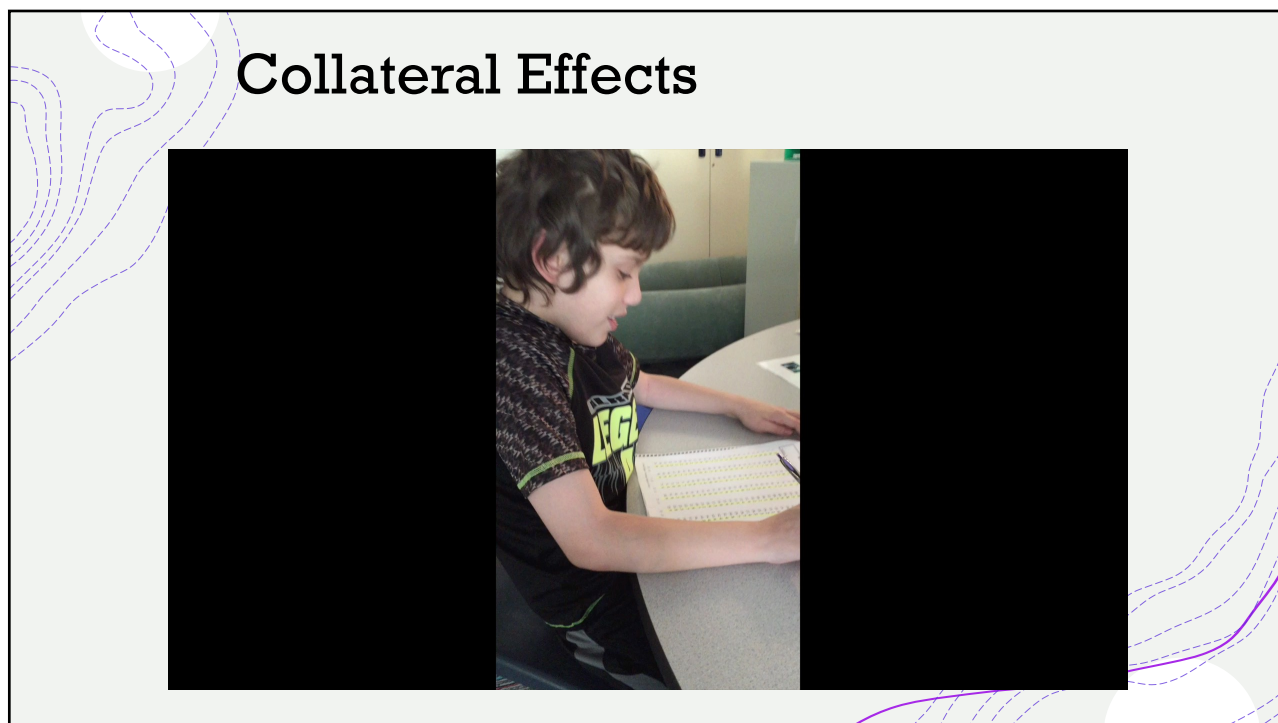
Frequency Building – Running a Timing

- + When errors are present, provide feedback by using mathematics to guide the learner to the correct answer
 - + Do not default to Knowledge of Correct Response (KCR) feedback
- + Continue with the steps of precision teaching
 - + Chart
 - + Make a decision
 - + Keep practicing, put in an intervention, or stop

76



77

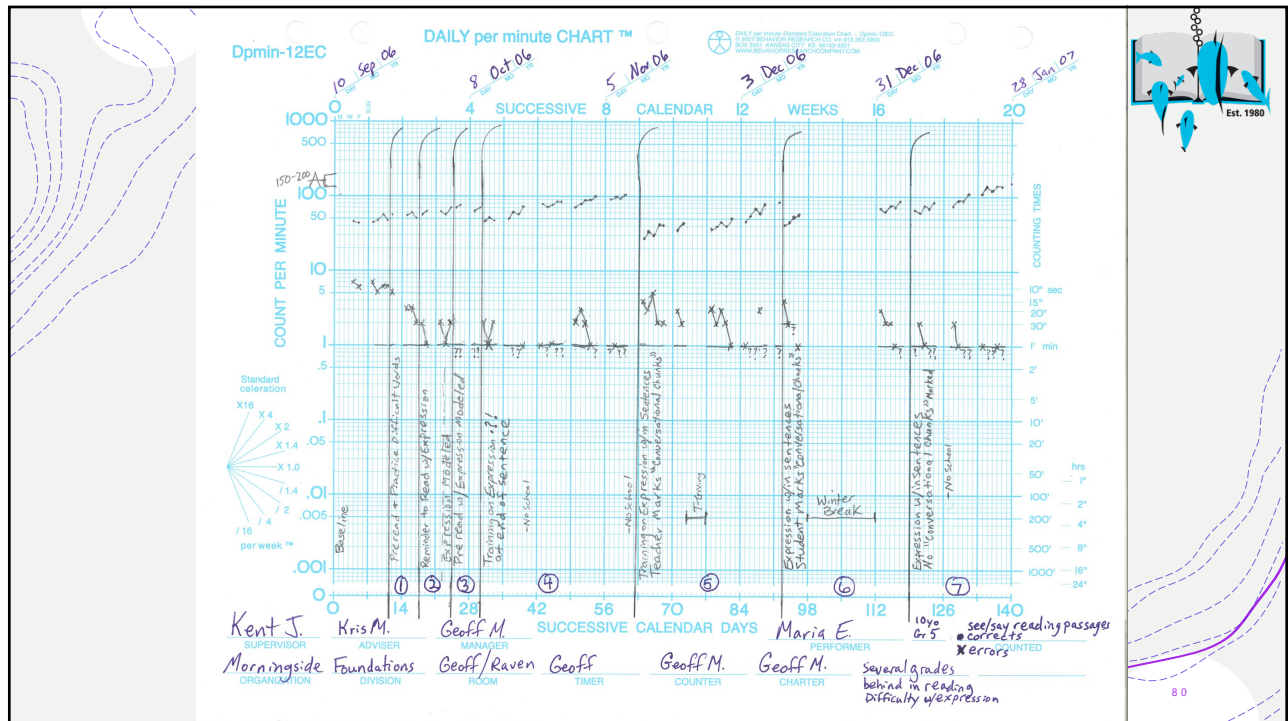


78


Precision Teaching motto

- Pinpoint
- Measure
- **Chart**
- Decide
- Try, try again

79



80



Chart

- + Immediately after timing the performance, the data are dropped on the Standard Celeration Chart
- + Many different charts can be used in precision teaching
 - + Timings chart
 - + Daily per minute Chart
 - + Weekly per week chart
- + When data are charted, learning pictures emerge

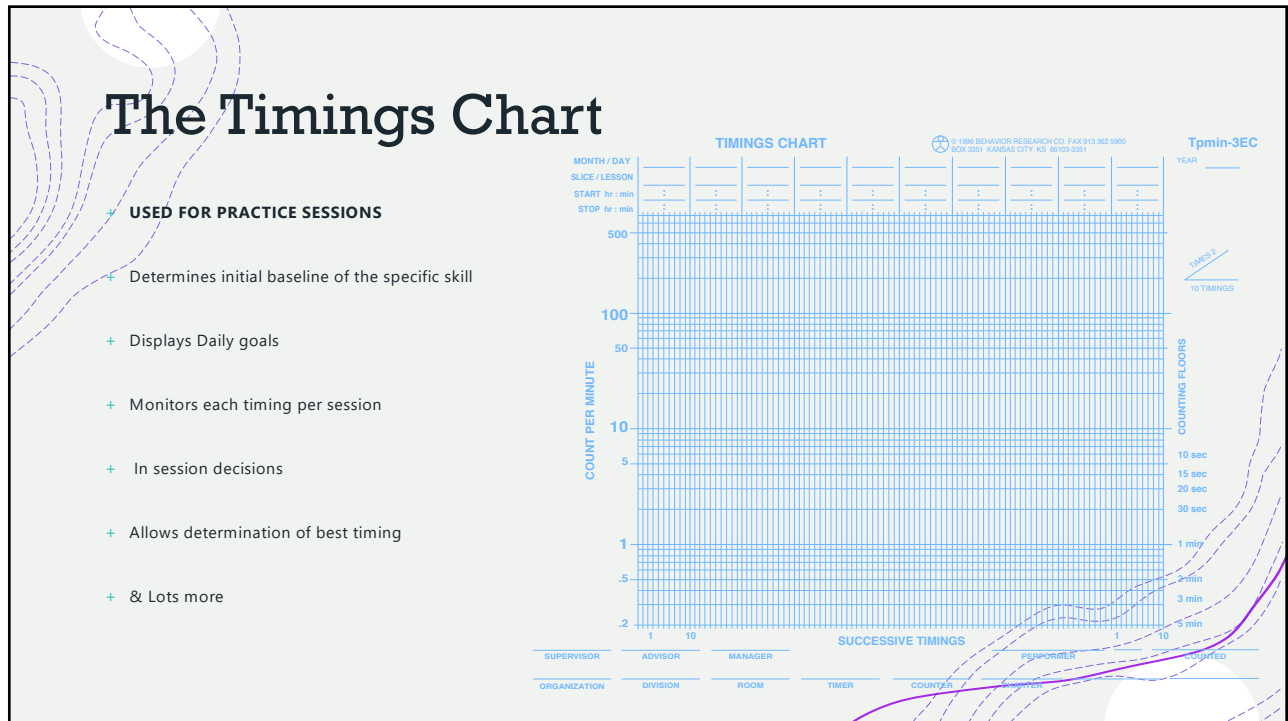
81

Charting Your Learner's Course

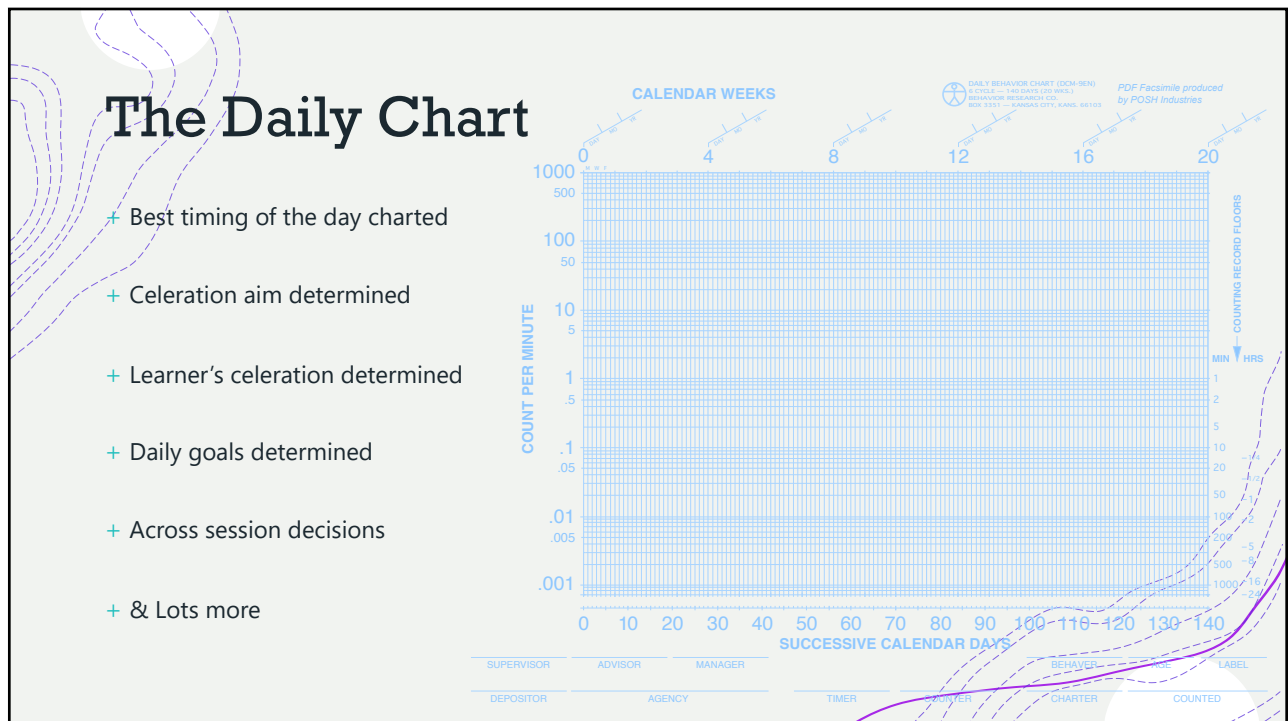
- + A learner's performance progress is determined from 2 separate Standard Celeration Charts:
 - + Daily Per Minute Chart
 - + Data decisions are made across days monitoring the student's celeration
 - + Timings Chart
 - + Data decisions are made within the program session based on the student's learning in comparison to his/her daily goal



82



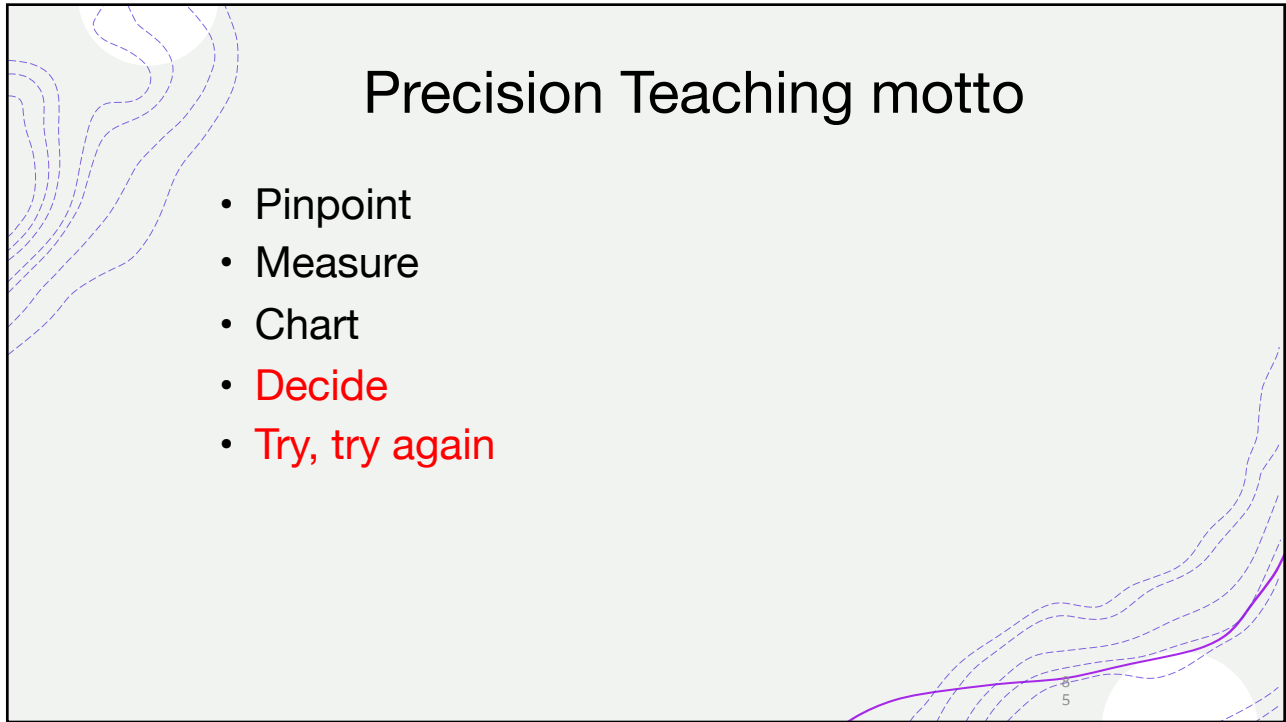
83



84


Precision Teaching motto

- Pinpoint
- Measure
- Chart
- **Decide**
- **Try, try again**



85

Timely and Efficient Data-based Decisions



The image features a clear glass hourglass with a narrow neck, containing bright green sand. The hourglass is positioned on the right side of the slide, set against a light gray background. The sand is more concentrated in the upper bulb, with a thin stream of sand falling into the lower bulb. The overall aesthetic is clean and professional, with decorative blue and purple wavy lines and a white circle in the background.

86

- + Every data point we drop, a decision is made
 - + Keep going?
 - + Change the instruction?
 - + Put an intervention in place?

- + Precision teachers look at the overall celeration and determine if learners are on course

Review Celeration and Make Decision

87

Focus on Teacher as Scientist

SCC provides a picture of the learners celeration
Several patterns emerge

Jasper's Learning Picture

Marissa's Learning Picture

Earl's Learning Picture

Sisely's Learning Picture

Abdul's Learning Picture

Johnson and Street (2013)

88

Focus on Teacher as Scientist

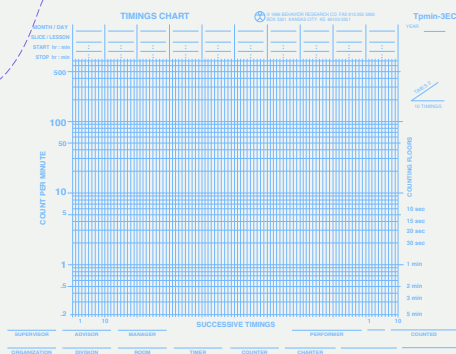
- + These patterns allows us to:
 - + Evaluate Instruction
 - + Evaluate Learning
 - + Make changes as necessary



89

Within Session Decisions

Timing Sheets



90

Focus on Teacher as Scientist

Within Session Decisions (Timings Sheet)

Stop

- When the dot meets the box.
- When the time has diminished, you are finished.

Do you know when to go

- At or above the line, do another time.
- Once below the line is just fine.

Change

- Twice below, the motivator should go.

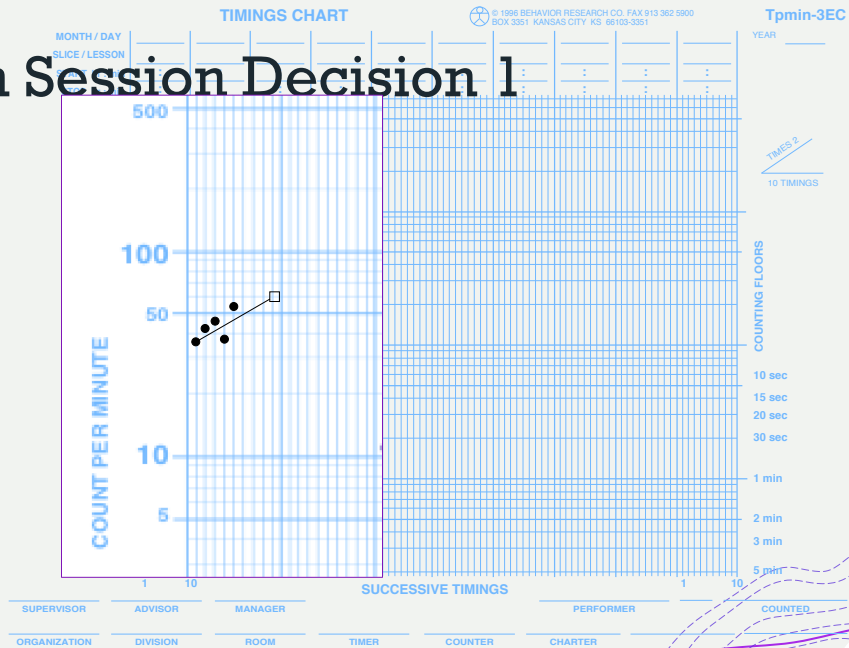
Ask for help

- Three times or more, the Manager must explore.

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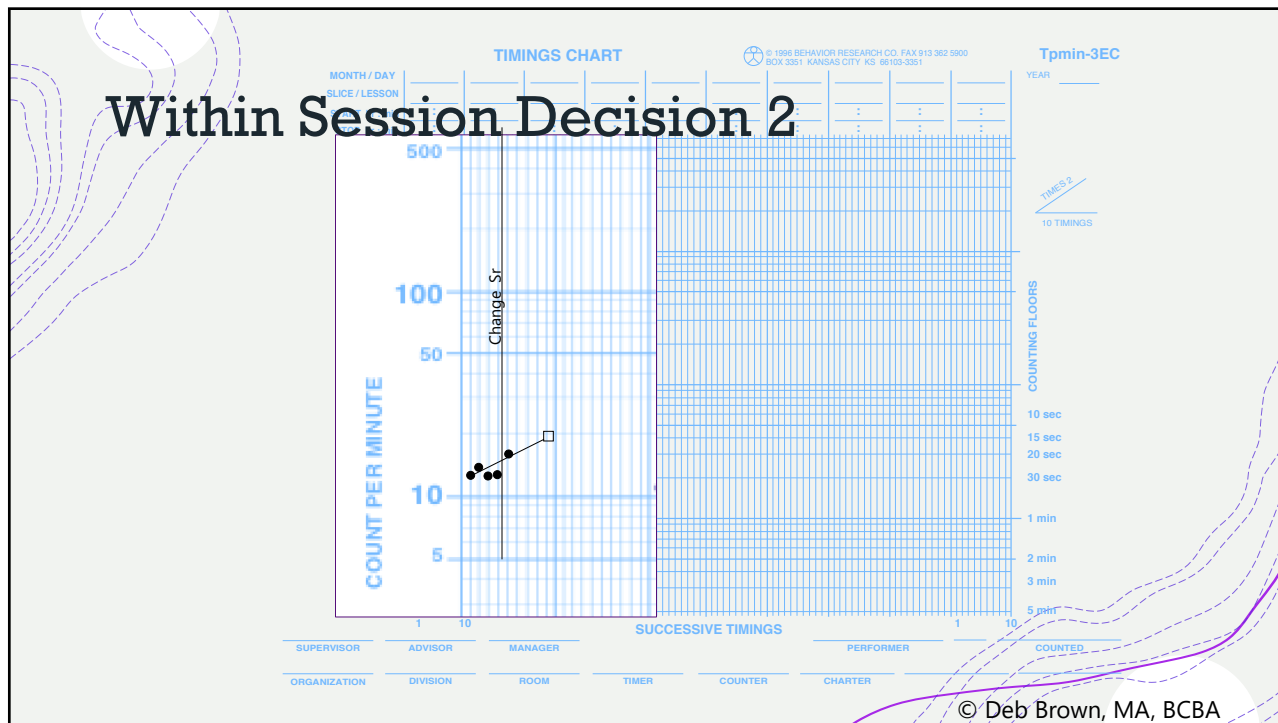
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Within Session Decision 1

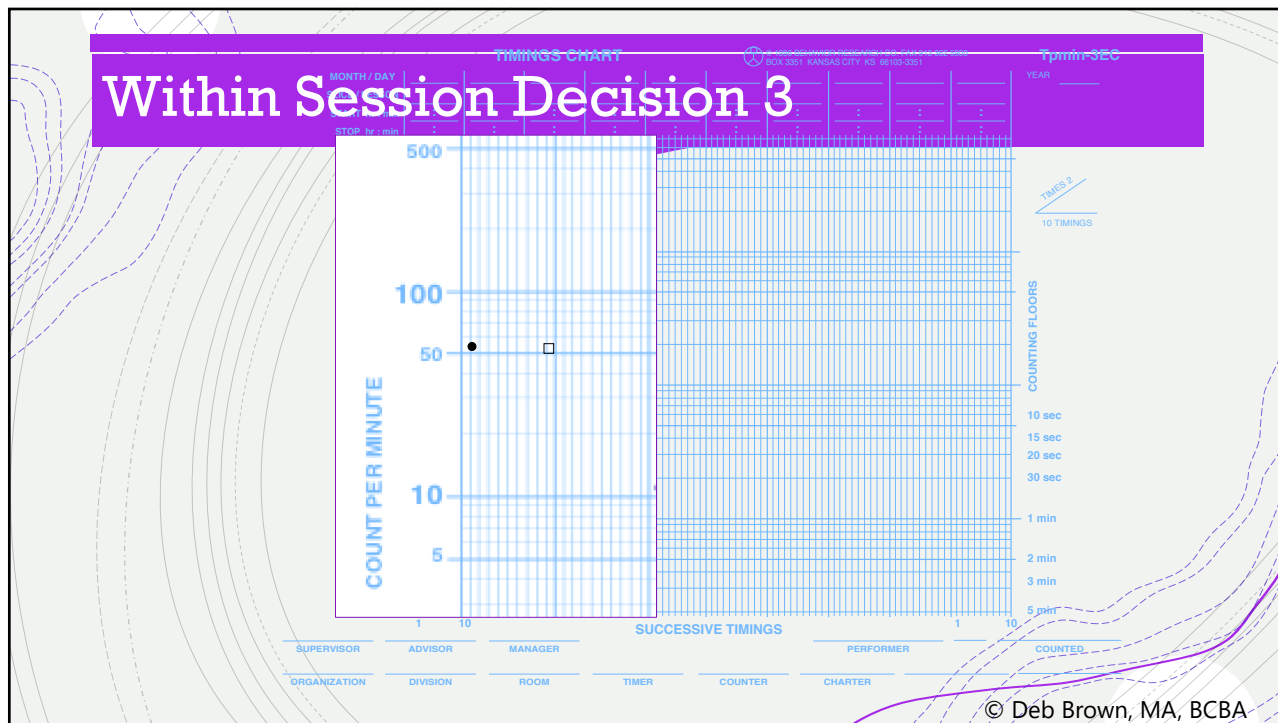


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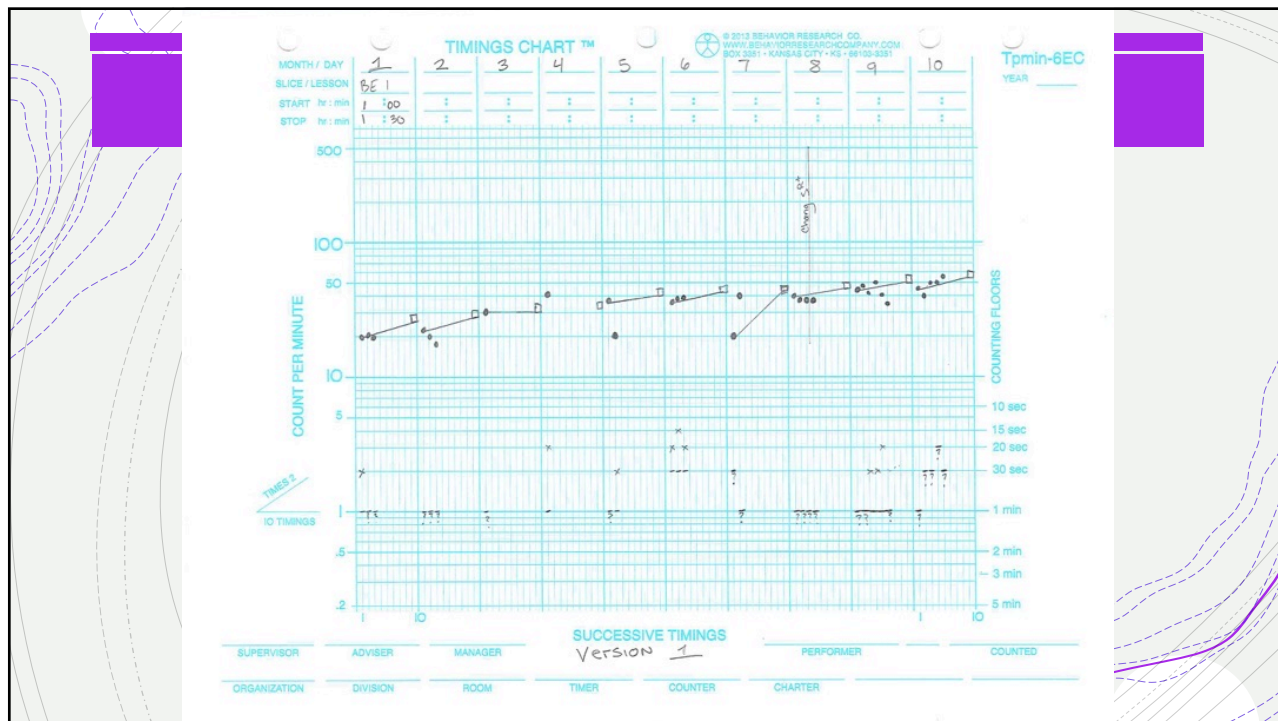
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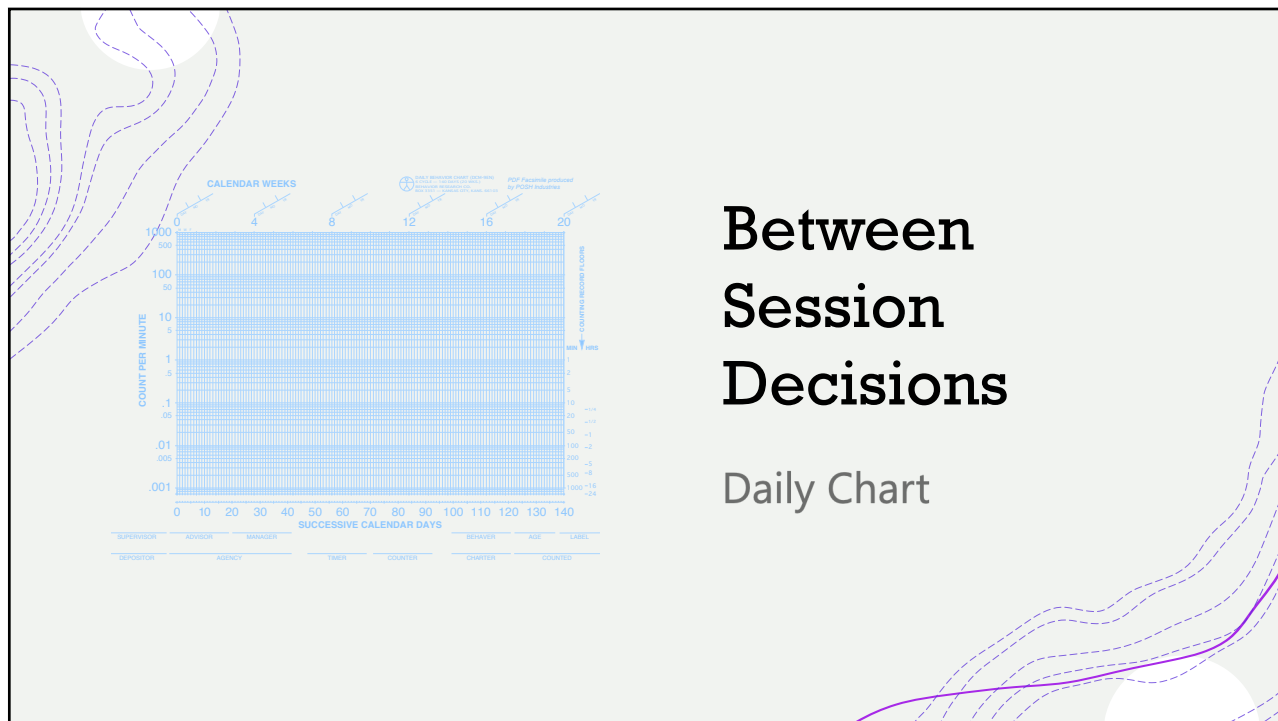
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94



95



**Between
 Session
 Decisions**
 Daily Chart

96

Between Session Decisions

- + As precision teachers, we are looking for steady growth in celeration
- + If learner's frequencies are not improving, we have to identify the reason and make changes
- + Allows us to intervene rather than wait for failure

- + We are always making decisions!
 - + Keep everything the same
 - + Make a change

97

IMPROVING

Crossover

Jaws

Takeoff

Climb

Uphill

Dive

Acel data

Decel data

Acel aim

Decel aim

Time bar

98

Between Session Decisions

- If performance is improving, don't change a thing!
- Continue with the current procedures and teaching strategies

99

MAINTAINING

Acel data	●
Decel data	✕
Acel aim	∧
Decel aim	∨
Time bar	—

Aim

Get Truckin'

Rock Bottom

100

Between Session Decisions

- If your frequencies have stalled, you need to make a change
- Be a problem solver and a behavior analyst
- Why aren't frequencies growing?
 - Do they have the underlying tool/component skills?
 - Is there a motivational/reinforcer issue?
 - Is the operant too restricted?
 - Do you need to add more prompts to the materials?

101

Between Session Decisions

WORSENING

Acel data	●
Decel data	✕
Acel aim	▲
Decel aim	▼
Time bar	—

102

Between Session Decisions

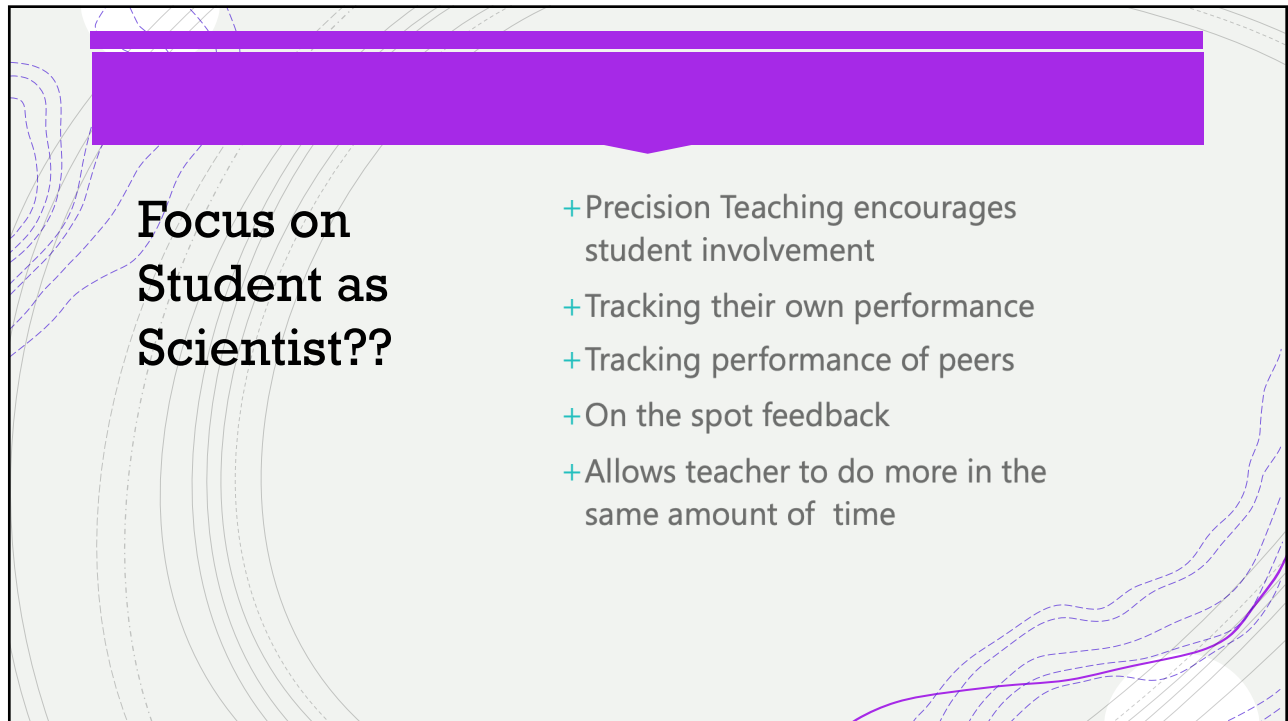
- If corrects are decreasing, you need to analyze the performance
 - What are the errors?
 - What stimuli are they struggling with
 - Is the curriculum too advanced for them?
 - Have you taught the skill well enough?

103

Between Session Decisions

What does variability tell us?

104

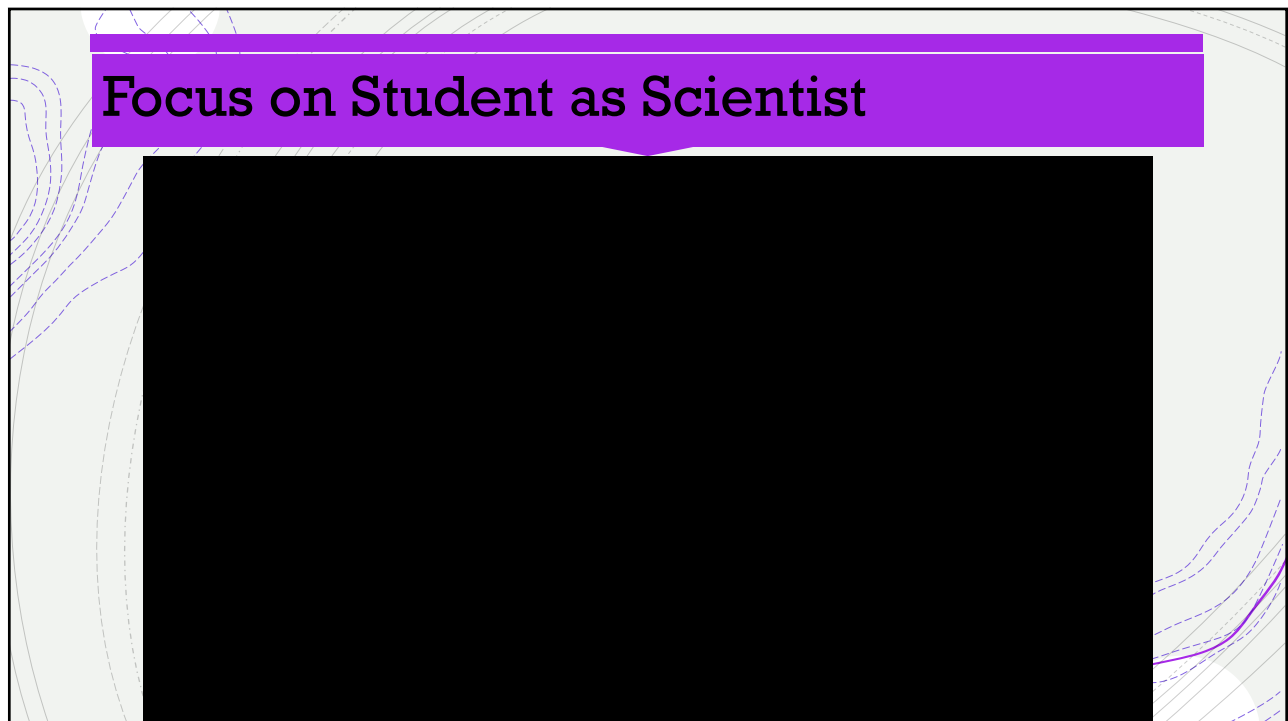


Focus on Student as Scientist??

- + Precision Teaching encourages student involvement
- + Tracking their own performance
- + Tracking performance of peers
- + On the spot feedback
- + Allows teacher to do more in the same amount of time

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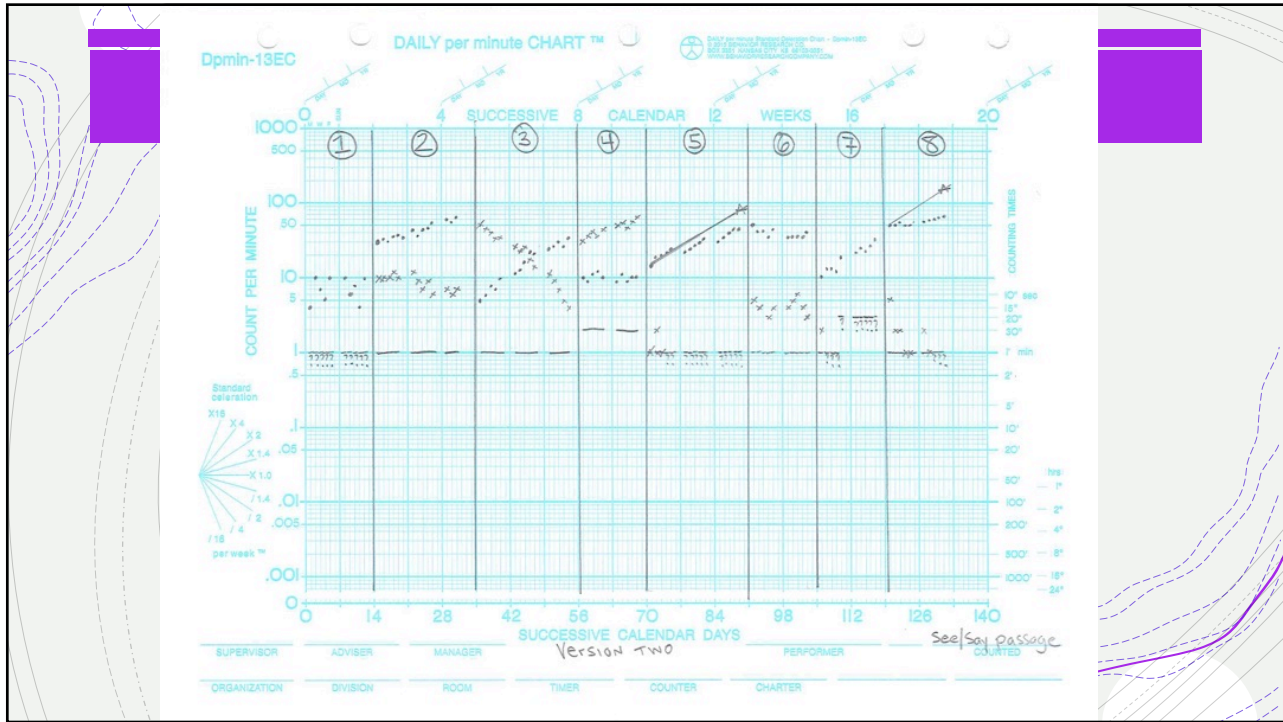
105



Focus on Student as Scientist

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106



107

Stopping the Slide: What does PT look like in MTSS systems

It's all about the dosage: Tier 1 Preventions, Tier 2 and 3 Interventions

108

Tier 1 Preventions

Like a daily vitamin to keep students in Tier 1 core instruction!

- Short, small doses of daily Precision Teaching
- Select 1-2 critical tool and component skills to ensure fluency with what should be fluent and to build fluency after new instruction
- Use practice sheets designed for frequency building with multiple versions
- Student directed via **peer coaching**

- In a 60-minute math class:
 - 10-20 minutes dedicated to frequency building
 - Math facts, computation, etc.
 - Remaining 40 minutes for core instruction
 - As tool and components reach fluency, core instruction becomes more and more efficient as less time is needed for differentiation!

109

Peer Coaching

+ *Defined: Students are organized into groups of two or three, practicing skills and giving each other feedback, while one partner acts as the "performer", while the other student acts as the "coach".*

- + Peer coaching is a form of cooperative learning
 - + Has specific intermediate goals and has a long term outcome goal
 - + based on fluency vs. completing a long term project
 - + Roles are specified (peer coach and performer)
 - + No spectators allowed

- + Without feedback between timings, students make only about 1/3 of the progress
 - + Peer coaching is useful when classrooms are large
 - + Students receive more feedback and in a timely manner
 - + Allows practice to be individualized & meet exactly what students need

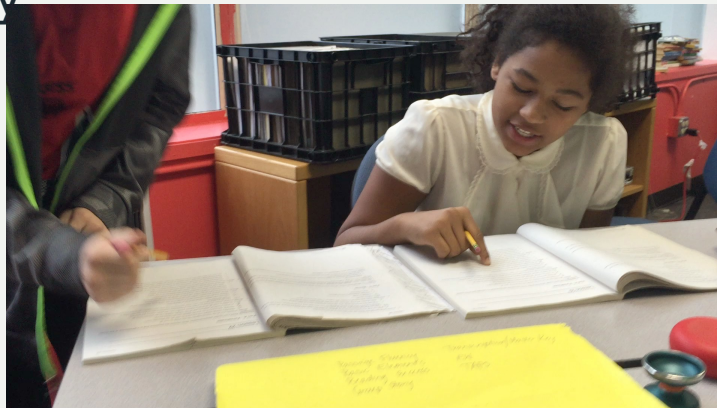
110

Rationale for Peer Coaching

- + Teachers are able to spend more time on problem solving.
- + Students learn more because feedback is powerful.
- + Students often learn better & faster from their peers.
- + Students learn the importance of self-evaluation.
- + Students learn self-management & self-monitoring skills.
- + Students learn from "teaching" (coaching) others.
- + Students learn social and cooperative learning skills.
- + Teacher's job is easier because the classroom is filled with effective "teachers" (peer coaches).

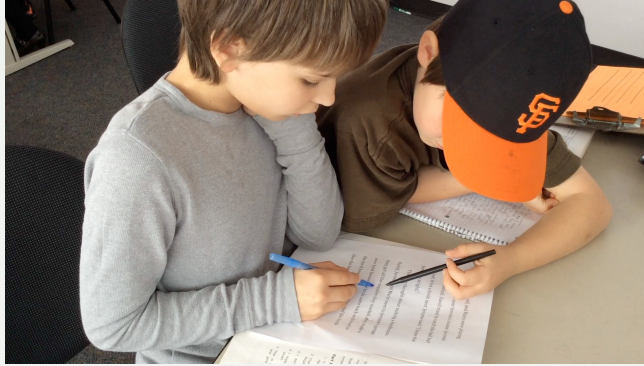
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Peer Coaching: word identification error:
Postpone. Step 1: Identify the error. Step 2: Give partner prompts not answers partner answers correctly



112

Peer coaching: 2nd and 3rd grade learners. After completing a 3-minute timing on editing a paragraph for correct punctuation, one partner gives feedback to the other about his performance.



113

Tier 2 Interventions

Like an antibiotic to address deficit skills and prepare students for success with core instruction

- Increased number of practice opportunities on the same pinpoints that are practiced daily in the Tier 1 classroom.
- Increased number of practice opportunities for newly taught skills to make sure instruction sticks!
- Additional tool and component pinpoints selected based on brief assessment
- Teacher directed but with peer coaching

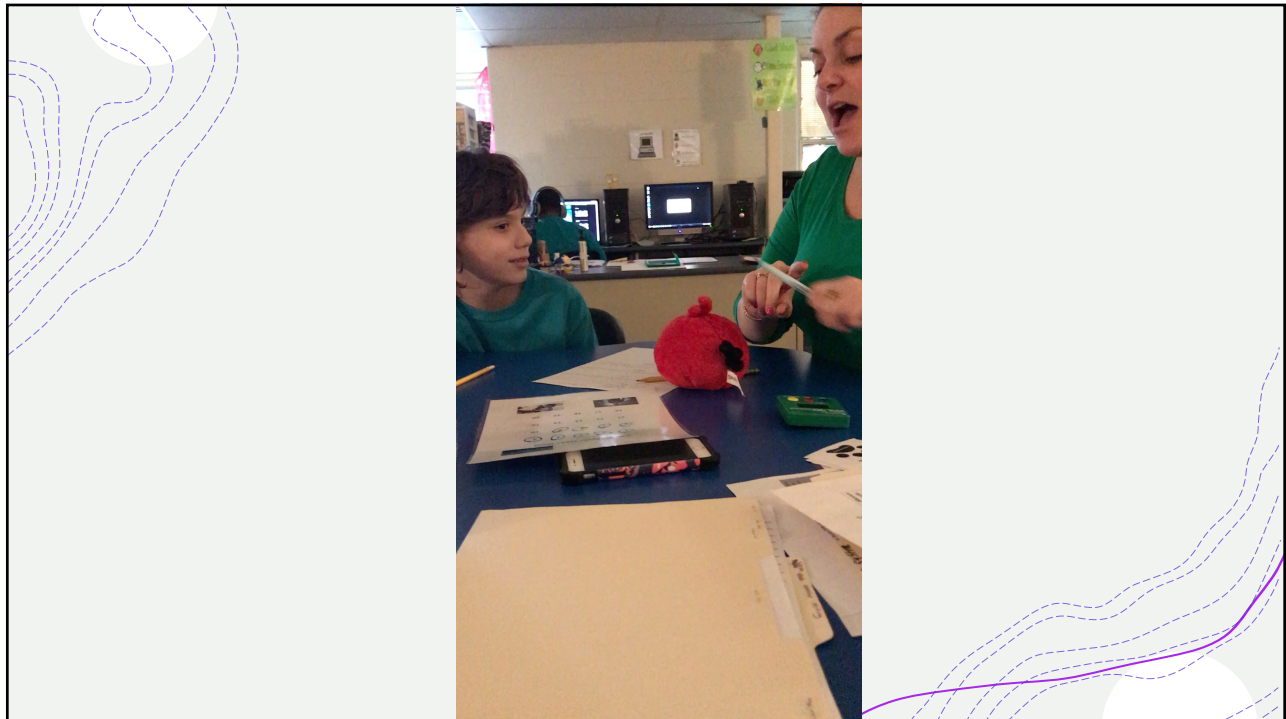
114

Tier 3 Interventions

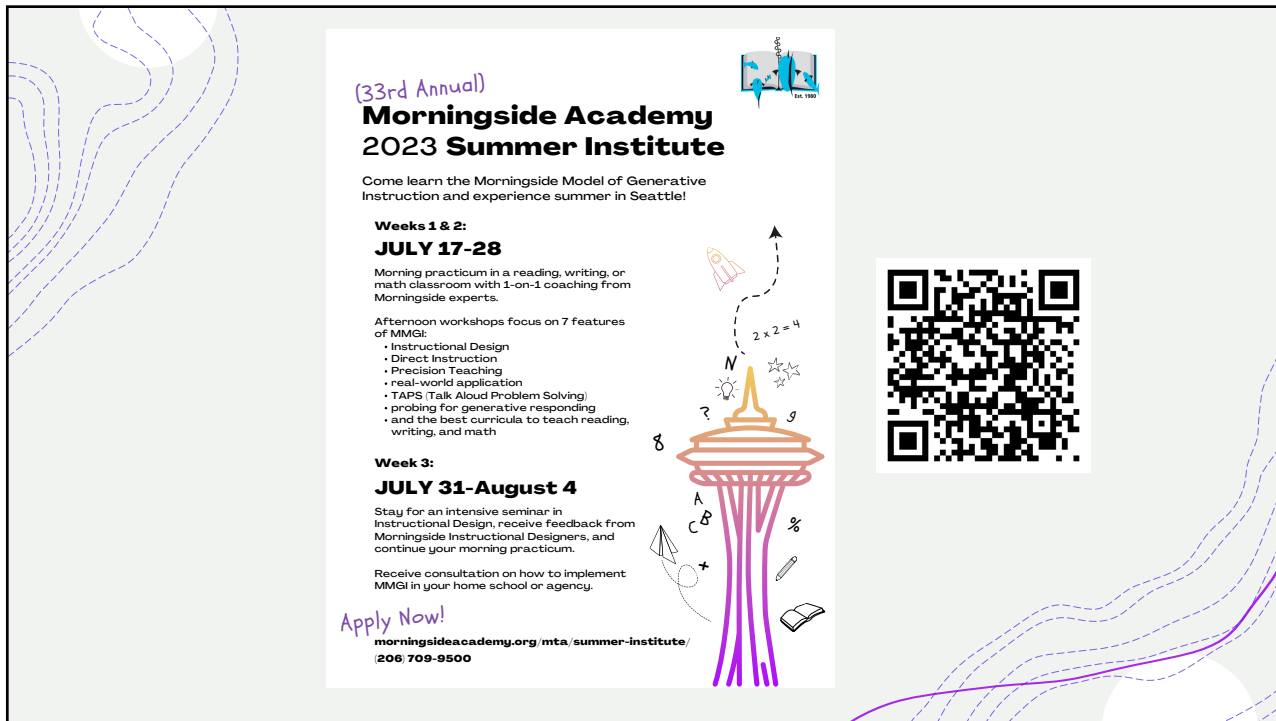
A heavy dose of Precision Teaching to decrease the number of deficit tools and component skills to prepare students for lighter Tier 2 intervention

- Increased number of practice opportunities on the same pinpoints that are practiced daily in the Tier 1 classroom.
- Increased number of practice opportunities for newly taught skills to make sure instruction sticks!
- **Additional tool and component pinpoints, not typically in the scope of general education curricula, selected based on brief assessment**
- **Additional, targeted interventions as needed:**
 - **Common frequency building interventions, such as Endurance shaping, discrimination opportunities between timings, brief instructional bursts between timings, and instruction on how to organize materials, proceed efficiently from item to item, and perform optimally under timed conditions**
- Wide range of individualized interventions, but peer coaching is used when possible


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116



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