Teaching Students How to Proficiently Utilize the Standard Celeration Chart

Edward J. Cancio and Michael Maloney

Precision Teaching has complemented other instructional methods with some of the most powerful applications combining Precision Teaching and Direct Instruction. A 1982 article in this Journal by the second author described a Direct Instruction program to teach students to proficiently chart the Standard Celeration Chart. Further development of the Direct Instruction program, including procedures and actual lesson plans, is presented below.

Procedure

1. **Arranging the Environment.** Seat the students in a semi-circle, close enough to the teacher, so that s/he can easily touch any learner. Position those who are likely to perform well at the ends of the semi-circle or in a second row. Place those who are likely to have difficulty directly in front of the teacher. Ensure that the teacher can observe each student respond. If the group is too large to work as one unit, divide it into two or three groups. The students with the most deficits should be in the smallest group. While the teacher instructs one group, the others groups can work on individual seat assignments.

2. **Pacing.** Students attend significantly better to high-paced instruction (200+ wds/min) than they do to low-paced instruction (Hofmeister & Lubke, 1990). Slow-paced instruction allows students to acquire new skills and still have time to attend to other stimuli in the environment (e.g., coins in pocket) and promotes off-task behaviors.

3. **Signals.** With group instruction, the teacher must ensure that each student is initiating his/her own response and not merely modeling behavior of fellow students. A student may give the erroneous impression that he/she has mastered the task. This can result in uneasiness for the learner and frustration for the teacher. Engelmann's Direct Instruction model uses signals as stimuli to initiate the responses of the group in unison. Typically, the teacher will hold a hand, with palm facing outwards toward the group, while the task directive is delivered. This is followed by a verbal prompt ("Ready") and a half second pause. The teacher then drops the hand quickly as a signal for students to respond. It is crucial that the period of time between the "Ready" signal and the "Do It" signal be kept consistent, so that students can respond in unison. The period of time between the task signal and the "Ready" signal should be varied to heighten attending behavior.

Periodically students will respond before or after the "Do it" signal, instead of in unison. The proper correction procedure is simply to say that someone was too quick or too late and to repeat the sequence, reinforcing those who were responding correctly.

4. **Corrections.** Students will make errors in even the most proficient teaching sequence. Corrections must be immediate, continuous and effective to insure rapid and efficient learning. Engelmann provides a number of correction procedures depending on the type of error (Engelmann, 1975, Unit 3). Errors are minimized by a three-part sequence in which the correct response is demonstrated (model), then practiced with the children (lead), and then checked for learning (test). This sequence is designed so that children can successfully respond.

5. **Presenting Materials.** A large wall version of the Daily Standard Celeration Chart, a mylar transparency of the daily Standard Celeration Chart displayed on an overhead projector, or the probe sheets provided in this article can be used to teach students how to proficiently chart data.
6. **Presenting the Tasks.** Teachers may look at the following lessons and believe they are too long or too technical for their students; however, this procedure has been used by the authors of this article with students classified as moderately mentally retarded, learning disabled, and emotionally/behaviorally disordered. The teacher should first decide on how to best present the tasks. This procedure can usually be taught in a week with students responding proficiently on all the tasks, spending up to 45 minutes a day including timings. Students with serious academic discrepancies may take up to two weeks. Daily review will reinforce the children's learning of concepts and operations.

The following summary suggestions may assist in teaching the procedures:

a. Arrange the students in a semi-circle close enough in order for the teacher to be able to touch the ones in front of him/her.

b. Place the students who will require the greatest amount of attention directly in front of the teacher in the front row; place the best learners at ends and in the second row; break up companions in the group by establishing a seating plan.

c. The teacher or coach should be familiar with the lessons before attempting to teach them.

d. Arrange daily sessions to cover the materials quickly and easily.

e. Give practice sessions until students reach the aims on charting; one-minute counting periods work well.

f. Keep data on how well students are learning to chart; count corrects and incorrects placed on the Chart per minute as the dependent variable.

g. Each student who can chart learns better, has more control over learning, can become a monitor for the self, and other students, and can become a decision-maker. Each student who can chart saves precious classroom time and teacher energy.

7. **The Presentation.** Lesson Plans are presented on the following pages. Bold type indicate what the teacher or coach says. Directions for behavior of the teacher or coach are in parentheses.

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**Glossary Terms**

**Signal**—cue to group to respond in unison (e.g., dropping hand or pointing to learning picture).

**Repeat until firm**—when all students have mastered the task.

**R+**—specific reinforcement (e.g., "I really like how the class is responding together.")

**References**


Lindsley, O. R. (1980). *Frequency, celeration, correction, and reinforcement in micro-processed education.* Invited address at the Seventh Annual Meeting of the Association for Behavior Analysis, Milwaukee, WI.


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Lesson Plan One

USE CHART 1

1. Charting behaviors above the 1 line:

(Touch the 1 line on Chart 1.) This is the 1 line. There's a rule about this line. Any behavior that occurs more than one time in a minute is charted above this line. Listen again. (Pause) Any behavior that happens more than one time in a minute is charted above this line. Say it with me. Ready? (Signal) Any behavior that happens more than one time in a minute is charted above the 1 line. (Repeat until firm.) Your turn. Say the rule all by yourselves. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

2. Charting behaviors below the 1 line:

New Rule. Listen. My turn. (Touch the 1 line.) This is the 1 line. Any behavior that happens less than one time in a minute is charted below this line. Listen again. Any behavior that happens less than one time in a minute is charted below this line. Say the rule with me. Ready? (Pause and signal) Any behavior that happens less than one time in a minute is charted below this line. (Repeat until firm.) Your turn. Say the rule all by yourselves. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

3. Charting behaviors on the 1 line:

New Rule. Listen. My turn. A behavior that happens one time in one minute is charted on the 1 line. Listen again. A behavior that happens one time in one minute is charted on the 1 line. Say it with me. Ready? (Pause) (Signal) A behavior that happens one time in one minute is charted on the 1 line. (Repeat until firm.) Your turn. Say the rule all by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

4. Students discriminate dots above, below and on the 1 line:

(Touch the 1st dot on Chart 1.) Look at this dot. Tell me if it is above the 1 line, below the 1 line or on the 1 line. Ready? (Pause) (Signal) Above the 1 line. (R+) (Touch the 2nd dot.) Now look at this dot. Is this dot above the 1 line? That's correct. (Repeat for dots 1 - 20; give individual turns with dots 21 - 40.)

USE CHART 2

5. Students learn day lines rule:

New Rule. Listen. My turn. Lines that go up and down are day lines. Listen again. Lines that go up and down are day lines. Say it with me. Ready? (Pause) (Signal) Lines that go up and down are day lines. (Repeat until firm.) Your turn. Say the rule about day lines. Ready? (Pause) (Signal) Lines that go up and down are day lines. (R+) (Repeat until firm; give individual turns.)
Chart 1. A Practice Sheet for Tasks 1-4 (Lesson 1)
Chart 2. A Practice Sheet for Tasks 5-7 (Lesson 1)
6. Students discriminate day lines and non-day lines:

I'm going to touch some lines on the Chart. Tell me if they are day lines or not day lines. If I touch a day line, say "day line". If I touch a line that is not a day line, say "no". What do you say if I touch a day line? Ready? (Pause) (Signal) "Day line" (R+) and what do you say if I touch a line that is not a day line? Ready? (Pause) (Signal) "No" (R+) (Touch line #1 on Chart #2.) Is this a day line? Ready? (Pause) (Signal) "Day line" (R+) (Touch line #2 on Chart #2.) Look at this line? Ready? (Pause) (Signal) "No" (R+) (Repeat with lines 3 - 30 on Chart and until students are firm.)

7. Students learn rule about Sunday lines:

New rule. My turn. Listen. Fat lines that go up and down are Sunday lines. Say it with me. Ready? (Pause) (Signal) Fat lines that go up and down are Sunday lines. Say it with me again. Ready? (Pause) (Signal) Fat lines that go up and down are Sunday lines. (Repeat until firm.) Your turn. Say the rule about Sunday lines. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

USE CHART 3

8. Students discriminate Sunday and non-Sunday lines:

I'm going to touch some lines on the Chart. Tell me if they are Sunday lines or not Sunday lines. If I touch a Sunday line say,"Sunday line". Very good. And what will you say if I touch a line that is not a Sunday line? Ready? (Pause) (Signal) "No" (R+) (Touch line #1 on Chart #3.) Is this a Sunday line? Ready? (Pause) (Signal) "No" Good. That is not a Sunday line. (Touch line #2.) Is this a Sunday line? Ready? (Pause) (Signal) "Sunday line" (R+) (Touch lines 3 to 20; repeat until firm; give individual turns.)

USE ENLARGED 6 CYCLE MYLAR

9. Students discriminate day lines by name:

What day comes after Sunday? Ready? (Pause) (Signal) "Monday" (R+) So what day comes after a Sunday line? Ready. (Pause) (Signal) "A Monday line". (R+) Say the days of the week. Ready? (Pause) (Signal) (Clap for each day; repeat until firm; give individual turns.) I'm going to touch day lines, and say their names. My turn. Watch. (Touch a Sunday line on Chart), Sunday. (Touch a Monday line), Monday. (Repeat in order for each day of the week.) Say the names of the day lines with me. (Touch a Sunday line); Ready? (Pause) (Signal) Sunday. (Touch the Monday line); Ready? (Pause) (Signal) Monday. (Repeat for all days of the week.) Your turn to say the day lines when I touch them. Ready? (Pause) (Signal) (Touch a Sunday line); Ready? (Pause) (Signal) (Repeat for all days in order until students are firm; give individual turns.)
Chart 3. A Practice Sheet for Task8 (Lesson 1)
Source: Precision Teaching Materials
10. Students discriminate days lines in random order:

I'm going to touch some dots on day lines, and say the name of the day line. Watch. (Touch dot #1.) My turn. What day? Monday. My turn again. (Touch dot #2.) What day? Tuesday (Repeat for several more dots.) Tell me what day line each of these dots are on. When I touch the dot, say the name of the day line with me. (Touch dot #1.) What day line is the dot on? Ready? (Pause) (Signal) "Monday" (R+) Now it's your turn. When I touch the dot, you tell me what day line it is on. Look at this dot. What day? Ready. (Pause) (Signal) (Touch dot #1.) "Monday" (R+) (Repeat until firm; give individual turns.)

11. Student will identify if dot is below, under or on the one line for a one minute sample. If done early, have student start from the beginning. Aim is 30 to 40 instances per minute.

12. Student will discriminate if lines are day lines or non-day lines for a one minute sample. If done early, have student start from the beginning. Aim is 30 to 40 instances per minute.

13. Student will discriminate Sunday lines from non-Sunday lines for a one minute sample. If done early, have student start from the beginning. Aim is 30 to 40 instances per minute.

14. Student will identify day lines in random order for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

15. Student will identify day lines that have dots on them for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

• Correction Procedure: (After error) No, that is not correct. (Correct them, and start from the beginning)
Lesson Plan Two

1. Vocabulary - Celeration

New Word. My turn. Listen. Acceleration. If behavior is increasing, it is called acceleration. Listen again. If behavior is increasing, it is called acceleration. Say it with me. Ready? (Pause) (Signal) If behavior is increasing, it is called acceleration. Great. (Repeat until firm.) Your turn. Say the definition by yourself. (Pause) (Signal) (Repeat until firm; give individual turns.)

2. Review of lesson plan one:

Let's say the rule about any behavior above the 1 line together. Ready? ((Pause) (Signal)) Any behavior that occurs more than one time in a minute is charted above this line. (Repeat until firm.) Now it's your turn. Say the rule by yourself. (Repeat until firm; give individual turns.) Let's say the rule about any behavior below the one line together. This is the 1 line. Ready? (Pause) (Signal) Any behavior that happens less than one time in a minute is charted below this line. (Repeat until firm.) Now it's your turn. Say the rule by yourself. (Repeat until firm; give individual turns.) Let's say the rule about a behavior that happens one time in a minute together. Say it with me. Ready? (Pause) (Signal) A behavior that happens one time in one minute is charted on the 1 line. Ready? (Repeat until firm.) Now it's your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Look at these dots, and tell me if they're above or below the 1 line. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Let's say the rule about day lines together. Say it with me. Ready. (Pause) (Signal) Lines that go up and down are day lines. (Repeat until firm.) Now it's your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Students, tell me if these are day lines or non-day lines. If I touch a day line, say "day line". If I touch a line that is not a day line, say "no". (Pause) (Signal) Let's say the rule about Sunday lines together. Say it with me. Ready? (Pause) (Signal) Fat lines that go up and down are Sunday lines. (Repeat until firm.) Your turn. Say the rule about Sunday lines. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) I'm going to touch some lines on the Chart. Tell me if they are Sunday lines or not Sunday lines. If I touch a Sunday line, say "Sunday line". If I touch a line that is not a Sunday line, say "no". (Pause) (Signal) (Repeat until firm; give individual turns.) I'm going to touch some day lines, you tell me the days. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

3. Students see and say counting lines:

New rule. My turn. Listen. Lines that go across are counting lines. Listen again. Lines that go across are counting lines. Say it with me. Ready? (Pause) (Signal) "Lines that go across are counting lines". (R+) (Repeat until firm.) Your turn. Say the rule all by yourselves. Ready? (Pause) (Signal) (Repeat until firm.)
USE CHART 4

4. Students learn to discriminate counting lines:

I'm going to touch some lines. Tell me if I touch a counting line or a line that is not a counting line. (Touch a Sunday line.) Is this a counting line? Ready? (Pause) (Signal) (R+) (Touch a counting line.) Is this a counting line? Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)

5. Students learn about counting cycles:

Listen. New Rule. My turn. Big numbers in the margin that start with 1 tell you what to count by and what to count from. Listen again. Big numbers in the margin that start with 1 tell you what to count by and what to count from. I'll say the 1st part; then you'll say the last part with me. Big numbers in the margin that start with 1 . . . Ready? (Pause) (Signal) . . . tell you what to count by and what to count from. (Repeat until firm.) Now I will say the last part of the rule, and you say the 1st part of the rule . . . tell you what to count by and what to count from. Ready? (Pause) (Signal) Big numbers in the margin that start with 1 . . . (Repeat until firm.) Now say the whole rule with me. Ready? (Pause) (Signal) (Repeat until firm.) Your turn. Say the whole rule all by yourselves. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

USE 6 CYCLE MYLAR

6. Students counting on the counting lines:

(Point to the number 1.) What is this big number? Ready? (Pause) (Signal) (R+) What does it tell you to count by? Ready? (Pause) (Signal) (R+) What does it tell you to count from? Ready? (Pause) (Signal) (R+) My turn to count the lines. Ready? (Touch the 1 line and each successive line up to 10 while counting.) Count the lines with me. (Touch the 1 line.) Ready? (Pause) (Signal) (Say value of each counting line from 1 to 10 as you touch it.) All by yourselves. Count the lines. (Touch the 1 line.) Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns; use this sequence for 10-100 and 100-1000.)

USE PRACTICE CHART MYLAR

7. Students see and say counting line scores:

I'm going to touch some dots on counting lines. When I touch the dot, you tell me the score. Watch closely. (Touch the 1st dot on the practice Chart.) What is this score? Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)
Source: Precision Teaching Materials
8. Students see and say day line and score:

New rule. Now you must figure out the day, and the score for each dot. My turn. Watch. (Touch the 1st dot on the practice Chart.) What day? Monday. What score? One. Do it with me. (Touch 1st dot.) What day? Ready? (Pause) (Signal) Monday. What score? One. Ready? (Pause) (Signal) Tuesday. What score? Two. (Repeat for all in the 1st three weeks of the practice Chart.) All by yourselves. (Touch the 1st dot on the practice Chart.) Tell me what day this dot is on. Ready? (Pause) (Signal) What score? Ready? (Pause) (Signal) (R+) Next dot. First tell me the day, then tell me the score. What day? Ready? (Pause) (Signal) What score? Ready? (Pause) (Signal) (R+) (Signal) (Repeat until firm; give individual turns.)

9. Students estimate value of scores:

(Touch a dot on the 10 line.) Tell me this score. Ready? (Pause) (Signal) (Touch a dot on the 20 line.) Tell me this score. Ready? (Pause) (Signal) (Touch a value of 15) Look at this dot. Is this score greater than 10? Ready? (Pause) (Signal) (R+) Look again. Is this dot greater than 20? Ready? (Pause) (Signal) (R+) Look again. Is this dot halfway between 10 and 20. What is this score? Ready? (Pause) (Signal) (R+) (Touch a dot with value of 17.) Look at this dot. Is this score greater than 15? Ready? (Pause) (Signal) Is this score greater than 20? Ready? (Pause) (Signal) (R+) So this dot is halfway between 15 and 20. What is this score? Ready? (Pause) (Signal) (R+) (Touch a dot with a value of 19.) Look at this dot. Is this score greater than 20? Ready? (Pause) (Signal) (R+) What is this score? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)

10. Student will discriminate counting lines from non-counting lines for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

11. Student will count numbers on the margin of the Chart on each cycle (1-10, 10-100, 100-1000) for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

12. Student will identify what scores dots represent on the Chart for a one minute sample. If done early, have student start from the beginning. Aim is 60 instances per minute.

13. Student will identify what scores and days are represented by the dots for a one minute sample. If done early, have student start from the beginning. Aim is 60 instances per minute.

• Correction Procedure: (After error) No, that is not correct. (Correct them and start from the beginning)
Lesson Plan Three

1. Vocabulary - Record Floors, Celeration:

   New word. My turn. Listen. Record floor. A record floor tells me how long the measurement lasted. Listen again. The record floor is how long the measurement lasted. Say it with me. Ready? (Pause) (Signal) A record floor tells me how long the measurement lasted. (Repeat until firm) Your turn. Say definition by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

2. Follow same procedure with definition of celeration (if behavior is increasing or decreasing, it is called celeration).

3. Review of previous lessons:

   Let's say the rule about counting lines together. Ready? (Pause) (Signal) Lines that go across are counting lines. (Repeat until firm.) Now it's your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)
   Student tells me if this is a counting line by stating counting line or no. (Pause) (Signal) Let's say the rule about counting cycles together. Ready? (Pause) (Signal) Big numbers in the margin that start with 1 tell you what to count by and what to count from. (Repeat until firm.) Now it's your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)
   Students, tell me what this number tells you to count by. (Pause) (Signal) Students, tell me the scores represented by dots on the counting lines. (Pause) (Signal) Students, tell me the day and score for each dot. (Pause) (Signal) Estimate value of dots on the counting line. Students tell me the day and score for each dot. (Pause) (Signal)

USE CHART 5

4. Students see and say directions of celerations:

   (Touch a score of 150 on the 6th week of Chart 5.) Look at this score. Can you tell me if this score is exactly 150 or exactly 152? Ready? (Pause) (Signal)
   (Touch a score of 175.) Can you tell me this exact score? Ready? (Pause) (Signal) (Repeat for several scores on successive day lines.) Listen. It is not important to be able to tell the exact score. It is more important to be able to say if the scores are going up, going down, or staying the same. (Touch this group of dots.) Are these dots going up, going down, or staying the same? Ready? (Pause) (Signal) (Touch the 2nd group of scores.) Are these dots going up, going down, or staying the same? Ready? (Pause) (Signal) (Repeat for all groups of dots on Chart 5.) (Repeat until firm; give individual turns.)
USE CHART 6

5. Student see and say record floors:

My turn. New rule. Listen. A record floor tells me how long the measurement lasted. Listen again. A record floor tells me how long the measurement lasted. Say the rule about a record floor with me. Ready? (Pause) (Signal) A record floor tells me how long the measurement lasted. (Repeat until firm.) All by yourselves. Say the rule about what a record floor tells. Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.) How many times does one minute happen in one minute? Ready? (Pause) (Signal) One minute happens one time in one minute, so we put the record floor on the 1 line. (Draw in record floor.) How many times does 30 seconds happen in one minute? Ready? (Pause and signal) That's right, 2 times. So if the measurement lasted for 30 seconds, we put the record floor on the 2 line. How many times does 20 seconds happen in one minute? Ready? (Pause) (Signal) That's correct, 3 times. So we put the record floor on the 3 line. How many times does 15 seconds happen in one minute? Ready? (Pause and signal) So where do we put the record floor? Ready? (Pause) (Signal) (R+) I'm going to touch some record floors on the Chart. You tell me how long the measurement lasted. (Touch 1 minute record floor.) How long was this measurement? Ready? (Pause) (Signal) (Touch each record floor on Chart 6 and repeat the instruction; repeat until firm; give individual turns.)

USE CHART 7

6. Student learns to identify Chart symbols:

Listen. We mark corrects with a dot (*) and incorrects with an x (x). Listen again. (Repeat rule.). Say the rule with me. Ready? (Pause) (Signal) (Repeat until firm.) Your turn to say the rule about dots and x's. Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.) Repeat the above sequence for each of these concepts: A question mark under the record floor tells me there were zero learning opportunities. A straight line across day lines tells me the record floor. A caret with a line through it is an aim star. (Repeat until mastery is reached.)
Chart 6. A Practice Sheet for Task 5 (Lesson 3)
Chart 7. A Practice Sheet for Task 6 (Lesson 3)
USE 3 CYCLE MYLAR

7. Students learn labels for charts:

Look at the bottom of the Chart. (Chart 6) There are labels for you to fill in to help keep your Charts more organized. I'm going to teach you what goes in each blank above each label. Look at the blank that says behaver. (Touch behaver.) This blank is where you put your name because you are the behaver. Listen again. This blank is where you put your name because you are the behaver. Your turn. What do I write in this blank? Ready? (Pause) (Signal) Look at this blank. This label says age. So in this blank write how old you are. What do I write in this blank marked age. Ready? (Pause) (Signal) (R+)

Repeat the above sequence for each of these concepts:
• School tells what school you go to.
• Manager tells who looks after your Charts and who helps you make decisions.
• Grade tells you what grade you are in.
• Pinpoint tells you what's being measured. (See/Say, See/Write, Think/Say, etc.)

I'm going to touch some labels. You tell me what the label says and what goes in the blank above the label. First tell me what the label says; then tell me what goes in the blank. (Touch behaver.) What does this label say? Ready? (Pause) (Signal) Yes, behaver. And what do you write in this blank above the word behaver. Ready? (Pause) (Signal) (R+) And what do you write in this blank above the word age? Ready? (Pause) (Signal) (R+) (Repeat for all other labels until students are firm; give individual turns.)

8. Students will identify if celeration is going up, down or across for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

9. Have student identify the length of the record floor for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

10. Have student identify Chart symbols for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

11. Have student identify labels and state what goes on those blanks for a one minute sample. If done early, have student start from the beginning. Aim is 40 to 60 instances per minute.

• Correction Procedure: (After error) (Say) No, that is not correct. (Correct them and start from the beginning)
Lesson Plan Four

1. Vocabulary
   Acceleration - If behavior is increasing, it is called acceleration.
   Deceleration - If behavior is decreasing, it is called deceleration.
   Record Floor - A record floor tells me how long the measurement lasted.
   Aim Star - An ending goal indicating an aim date and rate.
   Aim - An ending goal set for an individual child.
   Rate - How fast you can do something (frequency count per unit of time).
   Performance - How well you are doing.
   Proficiency - A performance level where you are certain you can do a task.
   Learning Channels - The way in which you receive information (math sheet or book).
   Pinpoint - A way to define the behavior being measured.
   Intervention - Instructional decision to help a student master a skill.
   Slice Back - Make the task easier.

   New word. My turn. Listen. Say it with me. Ready? (Pause) (Signal) (Repeat until firm.) Your turn. Say definitions by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

2. Review of previous lessons:
   Tell me if dots are going up, down or staying the same. (Pause) (Signal) Let's say the rule about the record floor together. Ready? (Pause) (Signal) A record floor tells me how long the measurement lasted. (Repeat until firm.) Now it's your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns) Now tell me how long these measurements lasted. (Pause) (Signal)

   Tell me what these symbols stand for:
   A- (Pause) (Signal)
   ? (Pause) (Signal)
   ___ (Pause) (Signal)
   x (Pause) (Signal)
   Tell me what the different labels stand for. (Pause) (Signal)

   USE CHART 8

3. Students discriminate instances, zero, and non-instances of corrects:
   (Touch the 1st series of dots on Chart 8.) Look at these dots. Are these dots going up, going down or going across? Ready? (Pause) (Signal) (R+) (Repeat sequence for each set of dots on Chart 8 until firm; give individual turns.)

4. Students discriminate instances, zero, and non-instances of errors:
   (Touch the 1st series of x's on Chart 8) Look at these x's. Are these x's going up, going down, or going across? Ready? (Pause) (Signal) (R+) (Repeat sequence for each set of x's on Chart 8 until firm; give individual turns.)
Chart 8. A Practice Sheet for Task 3 (Lesson 4)
5. Students learn the rule for learning:

Listen. Here's a new rule. You are learning when corrects go up and when errors go down or stay the same. Listen again. You are learning when corrects go up and when errors go down or stay the same. Say the rule with me. Ready? (Pause) (Signal) You are learning when corrects go up and when errors go down or stay the same. (Repeat until firm.) Your turn. Say the rule about when you are learning. Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)

6. Students learn the rule for non-learning:

Here's a new rule. You are not learning if corrects are going down, across or if errors are going up. My turn to say the rule. Listen. You are not learning if corrects are going down, across, or if errors are going up. Say the rule with me. Ready? (Pause and signal) You are not learning if corrects are going down, across, or if errors are going up. (Repeat until firm.) Your turn. Say the rule about when you are not learning. Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)

USE CHART-BASED DECISION RULES OVERHEAD

7. Students learn Chart-based decision rules:

Let's say the rule about reaching aim for two out of three consecutive days. Ready? (Pause) (Signal) When you are at aim for two out three consecutive days, you need to intervene. (Repeat until firm.) Now it is your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Let's say the rule about three days of flat data. Ready? (Pause) (Signal) When you have three consecutive days of flat data, you need to intervene. (Repeat until firm.) Now it is your turn. Say the rule by yourself. Ready. (Pause) (Signal) (Repeat until firm; give individual turns.) Let's say the rule about three days of flat data. Ready? (Pause) (Signal) When you have three consecutive days of flat data, you need to intervene. (Repeat until firm.) Now it is your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Let's say the rule about three days of flat data. Ready? (Pause) (Signal) When you have three consecutive days of flat data, you need to intervene. (Repeat until firm.) Now it is your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.) Let's say the rule about three days of flat data. Ready? (Pause) (Signal) When you have three consecutive days of flat data, you need to intervene. (Repeat until firm.) Now it is your turn. Say the rule by yourself. Ready? (Pause) (Signal) (Repeat until firm; give individual turns.)

USE CHART-BASED DECISION RULES MYLAR

8. Students discriminate instances when Chart-based decision rules are being broken:

(Touch the 1st series of dots on Chart-based decision rules mylar) Look at these learning pictures. Which Chart-based decision rule is being broken? Ready? (Pause) (Signal) (R+) (Repeat sequence for each set of Chart-based decision until firm; give individual turns.)
CHART-BASED DECISION RULES

1. AT AIM FOR TWO OUT OF THREE CONSECUTIVE DAYS
   
2. THREE DAYS OF FLAT DATA
   
3. MINIMUM Celeration of < 1.25 FOR CORRECTS
   
4. CORRECTS DECELERATING
   
5. LESS THAN PREVIOUSLY PROJECTED CELERATION
   
6. OTHER: ERROR Celeration
   
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CHART BASED

DECISION RULES

9. Students learn to interpret learning pictures:

Listen. I'm going to touch some learning pictures on the Chart. Look to see if the person is learning. (Touch the 1st learning picture on Chart 9.) Are the corrects going up, down or across? Are the errors going up, down or across? Is this person learning or not learning? Ready? (Pause) (Signal) (R+) (Repeat until firm; give individual turns.)

10. Students learn to calculate change in performance:

I'm going to show you how to calculate change in performance. What am I going to show you? (Pause) (Signal) That's right, how to calculate change in performance. Step one is to rank order your two weekly scores from largest to smallest. What is step one? (Pause) (Signal) That's right. Rank order your scores from largest to smallest. Step two is to select a median for week one and two. A median is the middle score. (If you have five data points, it is your third score; if you have four data points, you average scores 2 and 3.) What is step two? (Pause) (Signal) That's right. Select a median for week one and two. Step three is to divide your smaller score into your larger score. Corrects are referred to as times (x1.8) and errors are referred to as divide by (+4.0). (Pause) (Signal) What is step three? (Pause) (Signal) That's right. Divide your smaller score into your larger score. Now let's calculate change in performance together. Let's look at corrects first. What do I do first? (Pause) (Signal) That's right, we need to rank order the corrects for week one and week two, (Pause) (Signal), from largest to smallest. What do we do next? (Pause) (Signal) That's right. We need to select the median score for week one and two. What are they? (Pause and signal) That's right, 75 and 110. What do we do next? (Pause) (Signal) That's right. We divide the smaller score into the larger score. What is the celeration from week one to week two? (Pause) (Signal) That's right. x1.5. Now let's look at errors. What do I do first? (Pause) (Signal) That's right. We need to rank order the errors for week one and week two, (Pause) (Signal), from largest to smallest. What do we do next? (Pause) (Signal) That's right. We need to select the median score for week one and two. What are they? (Pause) (Signal) That's right, 3 and 1. What do we do next? (Pause) (Signal) That's right. We divide the smaller score into the larger score. What is the deceleration from week one to week two? (Pause) (Signal) That's right, +3.0.
Chart 9. A Practice Sheet for Task 9 (Lesson 4)
11. Students drop dots and x's on the Chart:

Give each student a Standard Celeration Chart and instruct each to fill in the labels. Check to see if charting was done correctly. Have them drop the dots and x's on their Chart.

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2/0</td>
<td>3/1</td>
<td>4/1</td>
<td>5/2</td>
<td>6/3</td>
</tr>
<tr>
<td>2</td>
<td>20/0</td>
<td>30/3</td>
<td>40/4</td>
<td>50/5</td>
<td>6/3</td>
</tr>
<tr>
<td>3</td>
<td>200/0</td>
<td>300/4</td>
<td>400/7</td>
<td>500/8</td>
<td>600/10</td>
</tr>
<tr>
<td>4</td>
<td>4/1</td>
<td>8/1</td>
<td>10/2</td>
<td>6/3</td>
<td>4/1</td>
</tr>
<tr>
<td>5</td>
<td>50/4</td>
<td>70/2</td>
<td>70/0</td>
<td>50/0</td>
<td>30/1</td>
</tr>
<tr>
<td>6</td>
<td>100/3</td>
<td>600/5</td>
<td>400/10</td>
<td>300/5</td>
<td>200/8</td>
</tr>
<tr>
<td>7</td>
<td>15/2</td>
<td>17/3</td>
<td>20/10</td>
<td>25/3</td>
<td>30/5</td>
</tr>
<tr>
<td>8</td>
<td>200/5</td>
<td>150/30</td>
<td>175/20</td>
<td>190/7</td>
<td>195/5</td>
</tr>
</tbody>
</table>

12. Have students tell if dots are going up, down or across for a one minute sample. If done early, have student start from the beginning. Aim is 60+ instances per minute.

13. Have student tell if X's are going up, down or across for a one minute sample. If done early, have student start from the beginning. Aim is 60+ instances per minute.

14. Have students tell which learning pictures is breaking which Chart-based decision rule for a one minute sample. If done early, have student start from the beginning. Aim is 60+ instances per minute.

15. Have student state if learning pictures are going up, down or across, and if the person is learning for a one minute sample. If done early, have student start from the beginning. Aim is 60+ instances per minute.

16. Have student drop dots on Standard Celeration Chart for a one minute sample. If done early, have student start from the beginning, 30 - 40 instances per minute.

17. Students chart data:

Now take out a new Chart and the probe sheet I gave you earlier. First, fill out the bottom of the Chart. (Check student responses) Now, set your Chart aside. Now, take out the probe sheet and get ready to time me for a one minute measurement. After the timing, chart how well I did.

- Correction Procedure: (After error) No, that is not correct. (Correct them and start from the beginning.)
1. On the chart, show a record floor of one minute and extend it for two weeks.

2. Draw a phase change line on Monday of the first week.

3. Chart the following data:

<table>
<thead>
<tr>
<th></th>
<th>Week 1</th>
<th>Week 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>60 correct 4 errors</td>
<td>Monday</td>
</tr>
<tr>
<td>Tuesday</td>
<td>75 &quot; 3 &quot;</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Wednesday</td>
<td>65 &quot; 2 &quot;</td>
<td>Wednesday</td>
</tr>
<tr>
<td>Thursday</td>
<td>80 &quot; 3 &quot;</td>
<td>Thursday</td>
</tr>
<tr>
<td>Friday</td>
<td>90 &quot; 1 &quot;</td>
<td>Friday</td>
</tr>
</tbody>
</table>

4. Determine the median frequencies per week for both correct and errors.

   Median correct: Week 1 _________ Week 2 _________

   Median errors: Week 1 _________ Week 2 _________

5. Using the two weeks of data, determine celeration statements for both corrects and errors.

   Corrects __________ movements/minute/week

   Errors __________ movements/minute/week

Charting Practice