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Sprints

The Sprint, which was invented by Dr. Yoram Sagher, is a tool to help students internalize number facts, while building enthusiasm for Math. It is a routine to start Math classes. It is meant to be a fun activity and students have the option not to participate if they don't want to. Answering problems while experiencing adrenaline builds automaticity for concepts that students have already mastered. The Sprint consists of 8 stages:

I. The Initial Sprint begins with the words "On your mark, get set, GO!" or some variation of it. It lasts one minute and simulates a race, in which all students are trying to answer as many questions as they can. *The race creates adrenaline. During this time, students ideally have an internal voice saying "FASTER, FASTER, FASTER."*

II. At the end of the minute, teachers call out answers, with students verbally responding when they get an answer right, e.g. saying "Yes". The teacher continues calling out answers until they stop hearing "Yes." The teacher then asks students to raise their hand if they got one or more right, 2, 3, 4, 5, 6, etc. Students drop their hands as they reach the number they got right. After all hands have dropped, the class recognizes the winner or winners with a round of applause or some other acknowledgement. *This stage is confidence-building, especially for lower performing students, who often don't feel successful in class.*

III. Students take a few minutes to finish up the remainder of the Sprint. *This time is meant to be a cool down for the students, i.e. they should lose the adrenaline that they worked to create during stage one. Teachers should let this continue as long as the majority of the students are engaged in the Sprint. When concentration wanes, it's time to move on to stage four. This is also an excellent opportunity for students who finish early to distribute the second Sprint and books and materials that will be used during the lesson.*

IV. The teacher reviews every answer with students verbally acknowledging when they get answers right and saying nothing when they get answers wrong. *This stage serves as a confidence-builder and also helps students recognize mistakes, so that they can correct them on the next Sprint.*

V. A speed-up physical exercise while counting by a multiple forward and backward. *Adrenaline is again created. Being able to count forward and backward by a number while doing an exercise such as jumping jacks internalizes number facts. The exercises should be short, counting between 10 and 12 multiples of a given number, e.g. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0. The teacher paces the class*

by modeling the exercise in the front of the room with all students looking at them. The teacher does not count with the students though.

VI. A slow-down exercise, such as arm circles, while counting by a multiple forward and backward. *This is meant to be a cool down for the students, so that they again lose the adrenaline. The teacher again paces the class by modeling the exercise in the front of the room with all students looking at them. Just like the speed-up exercise, the slow-down exercise is short, counting between 10 and 12 multiples of a given number, e.g. 3-6-9-12-15-18-21-24-27-30-30-27-24-21-18-15-12-9-6-3-0.*

VII. The Second Sprint. It lasts one minute and again simulates a race. It is on the same topic as the first Sprint and each problem correlates in degree of difficulty, e.g.

Sprint 1

1	2 + 1 =
2	4 + 1 =
3	6 + 1 =
4	7 + 2 =
5	17 + 4 =

Sprint 2

1	3 + 1 =
2	5 + 1 =
3	7 + 1 =
4	6 + 2 =
5	16 + 5 =

The race creates adrenaline. During this time, students ideally have an internal voice saying "FASTER, FASTER, FASTER." Since they know how many they got right on the first Sprint, they also have a target number to pass. This is why difficulty correlation (problem by problem) is essential.

VIII. At the end of the minute, teachers call out answers, with students verbally responding when they get an answer right, e.g. saying "Yes". The teacher continues calling out answers until they stop hearing "Yes." The teacher then asks students to raise their hand if they got one or more right, 2, 3, 4, 5, 6, etc. Students drop their hands as they reach the number they got right. After all hands have dropped, the class recognizes the winner or winners with a round of applause or some other acknowledgement. Then, the teacher repeats the same procedure for improvement. *This stage is confidence-building, especially for lower performing students, who often don't feel successful in class. It's likely that the same few students will always answer the most correctly. By*

recognizing improvement, all students get the chance to be recognized by their classmates.

Sprint Checklist

- Sprints consist of 30-50 problems. Grades 3 and up have a minimum of 40.

- The teacher uses a stop watch to create the theater of a race.

- The Sprint is always a topic that the students have already mastered. The goal of the Sprint is to internalize a concept that the students already know.

- The Sprint is always be initially easy enough for every student to experience the adrenaline of a race and thus build confidence by getting a lot right. Every student is able to get no less than 10-15 right.

- The Sprint is hard enough so that no student finishes the Sprint in under a minute. That way, every student will be motivated to improve on the second Sprint.

- When writing Sprints, patterns are created, so that students learn to recognize patterns and tricks to solving problems on their own, e.g.

11	9 + 2 =
12	19 + 2 =
13	29 + 2 =
14	39 + 2 =
15	79 + 2 =
16	39 + 3 =
17	49 + 3 =
18	59 + 3 =
19	69 + 3 =
20	89 + 3 =

- Problem by problem, the degree of difficulty correlates between the two Sprints.

- The topic of Sprint 2 is the same as the topic of Sprint 1. Mixing topics such as subtraction on the first sprint and addition on the second sprint works against automaticity and students don't feel as strong of a sense of improvement. They also don't get the reinforcement of building on the initial topic.

- There's no limit to how many Sprints a teacher can use during the course of a year, but they should have a minimum of ten, so that the students aren't overly

familiar with the Sprint before they take it. A minimum of two weeks should elapse before the students see the same Sprint again.

Sprint Troubleshooting

- Students improve their speed over the course of a year, so a good Sprint in September might not be a good one in May. Designate a multiple to count by with the outside chance that a student finishes a Sprint in under a minute, so that they continue working for the entire minute and have a chance to improve. The multiple is challenging for them, e.g. 17's for an eighth grader, 4's for a first grader, 12's for a third grader. If a teacher hears an affirmative response on the last answer of the Sprint, they immediately begin counting by the designated number, resuming the same student-teacher answer-response that takes place during the Sprint.

- After a Sprint is delivered that proves to be hard for a portion of the students, give five extra seconds of time on the second Sprint. This gives the students a great opportunity to feel a sense of improvement without them ever knowing that they were given extra time.

- Every time a student in the class experiences frustration and never builds the hoped for adrenaline, rewrite the Sprint so that the initial 10-15 problems are easy enough for them to feel the accomplishment of answering a lot of questions right. The Sprint can go far to reducing the gap between high performing and low performing students. However, if the Sprints are too hard, the gap will widen.

- Every time a student finishes a Sprint, that Sprint has become too easy for the class. Rewrite the last ten problems of the Sprint, so that they won't be able to finish the next time they take it.

- Allow struggling students to take home the next day's Sprints, but tell them that they can't bring it back to school with them. This will help them perform better the following day and the worst thing that can happen is that they memorize 80-90 problems.