

SUCCESS SPOTLIGHT

From Small Seeds to Great Heights: How Fluency Flight Supported Math Fact Fluency in Year 1 at Frost Elementary School

During the 2022–2023 school year, Hillsborough County Public School District in Tampa, Florida participated in a beta pilot of Fluency Flight, from Curriculum Associates, to support its Grades 2–5 students in building math fact fluency. Frost Elementary School is a Title I school in the district serving a diverse student population, with 85 percent students of color and 80 percent students with economic disadvantages, according to [U.S. News and World Report](#).



2022–2023
ENROLLMENT
≈ 375

GRADES
2–5

TITLE I
100%

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—**Kristine Kelly**, Math Coach, Frost Elementary School

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Kristine Kelly, a math coach at Frost Elementary School in Hillsborough, advocated for the school's participation in the district's beta pilot in Fluency Flight.

The Challenge



Math Fact Fluency Impacts Students' Ability to Approach More Challenging Math Topics

With many years of classroom experience as a teacher herself, Kelly knew firsthand how important it was for students to develop math fact fluency to progress with more challenging math learning. "I know it has been a struggle in the past when [students] don't know facts," she said. "It's our teachers' number one complaint."

"Seeing the relationship between facts and understanding so that students can connect them makes a good foundation for future math skills."

—**Kristine Kelly**, Math Coach



Traditional Math Fact Fluency Solutions Led to Memorization—Not Conceptual Understanding

Before the beta pilot, teachers at Frost had prepared their own math fact fluency instruction and practice. With limited planning time and multiple content areas to prepare for, teachers often relied on traditional, easy-to-implement solutions such as flashcards and time-based fact sheets. While the methods helped some students learn basic math facts, Kelly wasn't seeing the improvement that conceptual understanding should bring to students' mathematical understanding. "I think there's a big misconception that fact fluency, like basic facts, is the only thing that fluency is in math," Kelly explained. "Seeing the relationship between facts and understanding so that students can connect them makes a good foundation for future math skills." But these traditional fact fluency resources did not help students develop an understanding of math facts or strategies that they could apply to other problems.



Timed Math Fact Fluency Solutions Can Create Negative Attitudes toward Math

Kelly also found that skill-and-drill style resources were having a negative impact on some of Frost students' attitudes about math. "Kids who know their facts and can spit them out by memorization are . . . getting the practice," Kelly said. When students already know their facts, skill-and-drill provides practice that can help students develop automaticity. However, she went on to explain, "Kids who are struggling and need the practice with their facts may only answer a few problems because of limited time and are mad when they turn in their paper." For the students who were still developing their understanding of math facts and were getting to fewer problems, they felt unsuccessful and frustrated as a result. Kelly knew these students would be better supported with practice that built their understanding and accuracy before working on speed and automaticity.

One of Kelly's main roles as a math coach at Frost is to support teachers in finding strong, research-based instructional resources to drive student learning in math. Knowing that a lack of math fact fluency was a common issue among students, Kelly recognized that Frost needed a solution that was aligned to the Florida Benchmarks, that teachers could implement with flexibility, that students would find engaging, and that would lead to increased conceptual understanding.

What They Did

When Kelly learned about Fluency Flight at a district meeting for math coaches, she believed the program would best meet the needs of Frost’s students and teachers.



Math Fact Fluency, the Right Way

Fluency Flight’s research-based approach is designed to follow the four stages of fluency development as students build understanding and strategies for solving math facts before working on accuracy and automaticity. “What I really like about it is the stage where [students] are exploring with numbers and practicing before [math facts] become automatic because it builds those number sense relationships. It’s amazing to watch,” Kelly said. By building understanding first, students then have strategies they can apply to new, challenging content.

One of Kelly’s main roles as a math coach is to ensure her teachers follow the Florida Benchmarks for Excellent Student Thinking, which are specifically aligned to math fact fluency. Kelly said she felt confident that her teachers would cover each of these benchmarks by using Fluency Flight without additional planning needed from teachers. “We have fluency benchmarks in Florida,” Kelly explained. With Fluency Flight, “you’re tied to our benchmarks . . . it’s done for you.”



Personalized for Each Student’s Strengths and Needs

Each student’s experience is personalized to their unique learning needs, so teachers feel confident that students are getting exactly what they need to build their fact fluency without having to differentiate instruction. Instead of traditional fact fluency solutions during which students get every fact, including those they don’t need or aren’t ready for yet, Kelly explained that, “Fluency Flight’s difference is that it’s adaptive . . . it automatically adjusts to what [students] need.”

Fluency Flight was designed with a logical progression of fact sets for addition and subtraction within 20 and multiplication and division facts with operands to 12 to ensure that each student gets instruction and practice with the facts they’re ready to work on at the pace that’s best for their learning. Kelly said, “Fluency Flight helps students with whatever skill they are working on or lacking.” This tailored, digital experience ensures that students at Frost were building their math fact fluency in a systematic way that would maximize their understanding and long-term memory of each math fact.

“Fluency Flight is adaptive . . . it automatically adjusts to what [students] need.”

—**Kristine Kelly**, Math Coach



Flexible to Fit Any Schedule

Kelly anticipated challenges in getting her teachers on board with this new program, but she was pleasantly surprised at how quickly they saw the benefit of Fluency Flight. “They love it,” she said. Each students’ games and activities automatically begin when they get started each day without teachers needing to manually prepare or assign anything. And, with Fluency Flight activities lasting about eight to 10 minutes each day, teachers can incorporate it into their schedules with flexibility, whenever they feel it’s the best time for students to work on fact fluency. “Teachers love centers and rotations . . . or I’ve seen teachers use it for bell work,” Kelly explained. “It’s an easy way to hold [students] accountable.”



Build Speed and Confidence

Students at Frost love Fluency Flight’s motivating, game-based approach—so much so that some request Fluency Flight as a choice activity. One such student has a learning disability that not only affects his math progress but also results in challenging behavior in math class. “Fluency Flight is one of the only things that helps me engage him in math 100 percent,” Kelly said.

This student and others love the game, Fact Racer. Students work on accuracy and automaticity with facts in which they have already demonstrated a basic understanding. In Fact Racer, the faster a student answers correctly, the faster their four-wheeler goes. This approach encourages students to respond to questions efficiently but doesn’t penalize students if they get the question wrong or need more time to answer. Kelly explained, “What I’ve seen on other platforms is they can skip the fact, or they can put in anything, and it will just disappear . . . that’s the benefit of [Fluency Flight]. It encourages them to go fast, so their bikes move fast and they win the race, but it doesn’t require them [to do so].” This approach motivates students to recall facts quickly, but the program doesn’t give up on students if they get the answer wrong or need more time. They can always try out another strategy to solve the problem if need be.

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Empower Teachers and Students with Data

Frost students can easily keep track of their progress toward their goal of completing Fluency Flight activities for four days each week. “Students like that their dragons light up. It’s like progress monitoring for them that they’ve done it,” Kelly said. For students who often need extra support completing assignments in math class, Fluency Flight is especially empowering because they can complete the assignment independently since it’s personalized to their strengths and areas of need. And teachers can keep track of students’ usage and progress with intuitive reports that are helpful for holding students accountable.

Five Tips for Getting Started with Fluency Flight

After a successful first full year using Fluency Flight, Kelly shared some tips for schools getting started with the program.

1

Keep the pedal to the metal at the beginning of the school year.

As with other classroom routines and activities, Kelly encourages teachers to get started with Fluency Flight during the first month of school and get students used to using it so they can see the full impact of the program. Kelly explained, "With Fluency Flight, stay on [students] for the entire first month to month and a half of school. Once they're doing it correctly, and they're doing their four days every week, then they'll be where they're supposed to be."

2

Let students get questions wrong.

Fluency Flight adapts as students play to provide them with the instruction and practice in the facts that are right for them. Because of this, some of Kelly's students initially got some questions that felt challenging for their ability. "When students first get started with Fluency Flight, they are placed based on grade level, and it may be super challenging, so they'll have to guess for their path to adjust." By allowing students to get some questions wrong, their activities will more quickly adapt to the most personalized learning experience for that student.

3

Avoid paper and pencil.

This one may feel counterintuitive (and even against the core values of many math teachers), but Kelly encourages teachers to have students use Fluency Flight without showing their work on scrap paper. "If they need to use paper and pencil, it's not fluent," she said. "They need to get it wrong, so Fluency Flight adjusts to what they really need to be working on." To have students truly build their automaticity, they should answer questions to the best of their ability, so Fluency Flight adapts to where they are in their fluency development and efficiently builds accuracy and speed with each fact.

4

Start a friendly competition to encourage usage.

To get teachers and students to use Fluency Flight consistently for the recommended four days each week, eight to 10 minutes each day, Hillsborough math coaches organized a districtwide competition based on student program usage. Earning rewards like certificates and bragging rights, Frost Elementary was consistently a top flyer in the district, proving that friendly competition can be a great motivator.

5

Check in with students early in the week.

Fluency Flight's recommended four days each week, eight to 10 minutes each day is based on research of best practices for long-term memory retention. To ensure students are on track, Kelly recommends that teachers check their students' progress early in the week, no later than Tuesday, to ensure they have completed at least one activity to achieve all four days of Fluency Flight by Friday.

What They Accomplished

After their first year using Fluency Flight, Kelly observed that Grades 2–5 students at Frost improved in their understanding, automaticity, and confidence with their math facts. This observation was reflected by students’ improved performance on the Number and Operations domain on the *i-Ready Diagnostic*. By the end of the 2022–2023 school year, almost 50 percent of Grades 2–5 students performed **on or above grade level** in the Number and Operations domain on the *i-Ready Diagnostic*, as compared to only about 18 percent at the beginning of the school year. This improvement is attributed to the work of Kelly and the teachers at Frost who made their first year with Fluency Flight such a success.



Hillsborough math coaches encouraged students’ consistent usage of Fluency Flight, resulting in a successful first year with the program.

“Fluency Flight is a huge bang for your buck that can really benefit kids.”

—**Kristine Kelly**, Math Coach

Now, Kelly is excited to continue using Fluency Flight and see the continued impact it will have on Frost students’ math fact fluency. She is a big believer in the program and its potential to support students in building their automaticity and understanding of key math facts. “It’s a huge bang for your buck that can really benefit kids,” Kelly said. She is looking forward to promoting Fluency Flight in her district and supporting her colleagues in getting started with the program.



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