



The IT Guide to Supporting K-12 Numeracy

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Creating a budget, doubling a recipe, measuring a dose of medicine, counting your change, planning a schedule — numeracy skills show up in lot of places in our lives. Schools work hard to give students the tools they need to become successful adults.

But challenges persist. Students are struggling with numeracy, despite initiatives to improve their understanding. In a [recently published study from OECD](#), they report that “24% of young adults (aged 16-25) have low foundational skills” in math and reading. People without the appropriate skills “report worse health, lower life satisfaction, and weaker trust in others and in institutions.”

And schools are seeing the decline too. In [OECD’s international survey of PISA scores](#) that measure student performance, they found an unprecedented and steep drop in performance between 2018 and 2022 after 15 years of stable performance. On average, students are behind on math by three-quarters of a year.

You probably already know all this, which is why you’ve crafted or implemented numeracy pedagogy in recent years. You’re in good company — many states, countries, teachers and schools are prioritizing numeracy, [including 20 U.S. states](#). But what can you do to make sure students are prepared to be successful, thriving adults?

What does **good numeracy instruction** look like?

Scaffolded instruction

Exploration matters, but it isn't enough on its own. Students learn fastest when open-ended discovery is paired with a clear, sequenced curriculum.

Concrete to abstract transitions

Learning starts with something a student can hold, like counting blocks, moves to a drawing of it, then finally to the symbol on the page.

Math talk

Students say their thinking out loud, not just their answer. Explaining a strategy to a classmate is part of the learning, not a bonus.

Purposeful assessment

A written test misses most of what's happening in a student's head. Watching and asking questions catches it.

None of it holds up if the technology underneath it can't keep pace.

Foundations of a numeracy program

Balances three types of fluency:

Fact fluency

Instant recall of basic math facts

Conceptual fluency

Knowing why the math works

Procedural fluency

Executing steps accurately, with ease

How it's taught:

Scaffolded instruction

Concrete to abstract transitions

Math talk

Purposeful assessment

Goal: confident, flexible problem solvers

Successful numeracy goes beyond the curriculum.



Planning is only half the battle, and even the best-designed math curriculum can fail. Student behavior shifts, teacher training changes and technology implementations vary. In other words, classroom context matters.

In a [2025 publication from Ladoke Akintola University of Technology](#), researchers report three classroom factors that affect learning: teacher training/confidence, infrastructure quality and digital equity. Optimizing these aspects increases the odds of successful instruction.

Part of this is effective device use. Efficient, appropriate use is associated with better learning outcomes, [according to OECD](#), who found that “students who spent up to one hour per day on digital devices for learning activities in school scored 14 points higher in mathematics than students who spent no time.” Too much device time, and scores decrease.

But to optimize device use, teachers need to have the training and tools they need to succeed. Devices need to be available for all students, regardless of their economic status or disabilities. And teachers need to trust that Wi-Fi networks won't drop their connection, that students can log in easily, and that they can control devices to manage their classrooms. Both teachers and parents need to know their students are using devices set up for their success.

IT teams don't control curricula. But they can control how devices are implemented for learning — making the context around learning better for teachers and students alike.

Let's talk about it.



¹Exploring the Impact of Technology Integration on Student Engagement and Academic Performance in K-12 Classrooms

²PISA 2022 Results (Volume II), OECD, Dec 2023

5-10%

higher math scores for students
in tech-rich classrooms¹

14

point higher math scores
with digital learning
for 1 hour per day²

IT's part in numeracy success

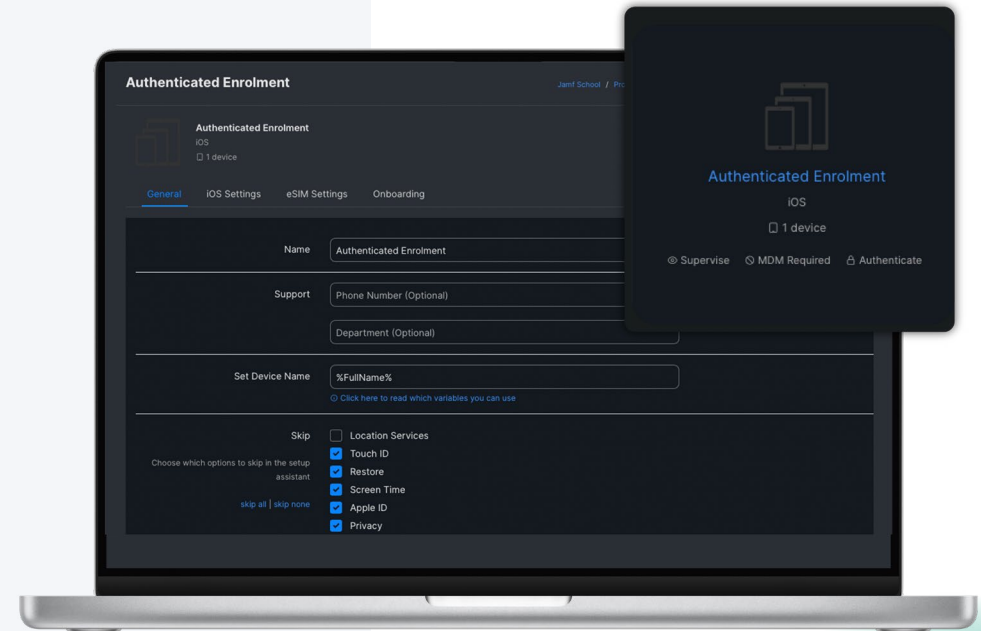


Everyone gets a seat at the (times) table

Equitable device and app access

Every student deserves an opportunity to succeed. But not all schools are equally equipped with the tools, money and staff they need to enable this success. When students get the same devices, baseline configurations and numeracy apps, they can start on a level playing field. Enable custom personalization based on a student's needs; it's even better.

This would need to apply across every school in your network, ready on the first day of school so there's no delays. Schools with slimmer IT staff or lower budgets are no exception. This might sound like a major challenge (it is!), but it's how students get consistent value no matter their circumstances.



IT's part in numeracy success



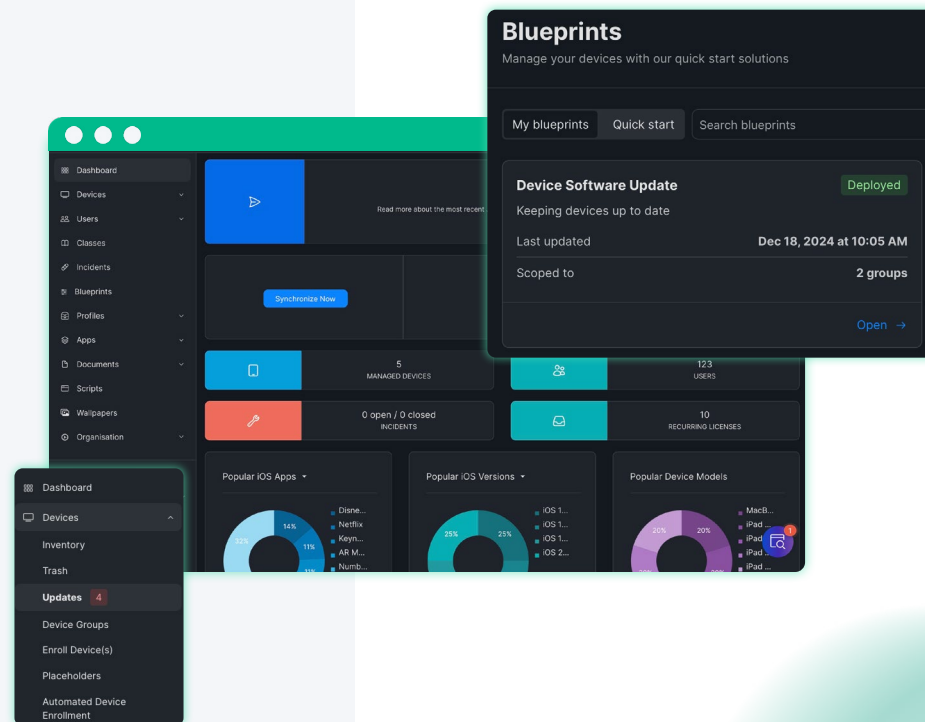
Balance both sides of your configuration

Consistent setup for assessment and instructional tools

Improper device configurations and infrastructure waste classroom time. The time spent troubleshooting apps, access or broken settings is time when students can't improve their numeracy skills.

As we mentioned earlier, *quality* of device use is more important than quantity. Students need devices with the right level of restriction; it should block content that distracts from learning, and not any that enhances it. This can be a difficult balance to strike. And speed and efficiency matter. Fast, low-friction logins mean lessons start earlier. Teachers can build on this momentum to maintain focus on the lesson.

All of this is possible — and sustainable — when IT teams can configure many devices at once. This saves IT time and helps deliver consistent lesson plans across different classrooms and/or schools.



IT's part in numeracy success *(continued)*



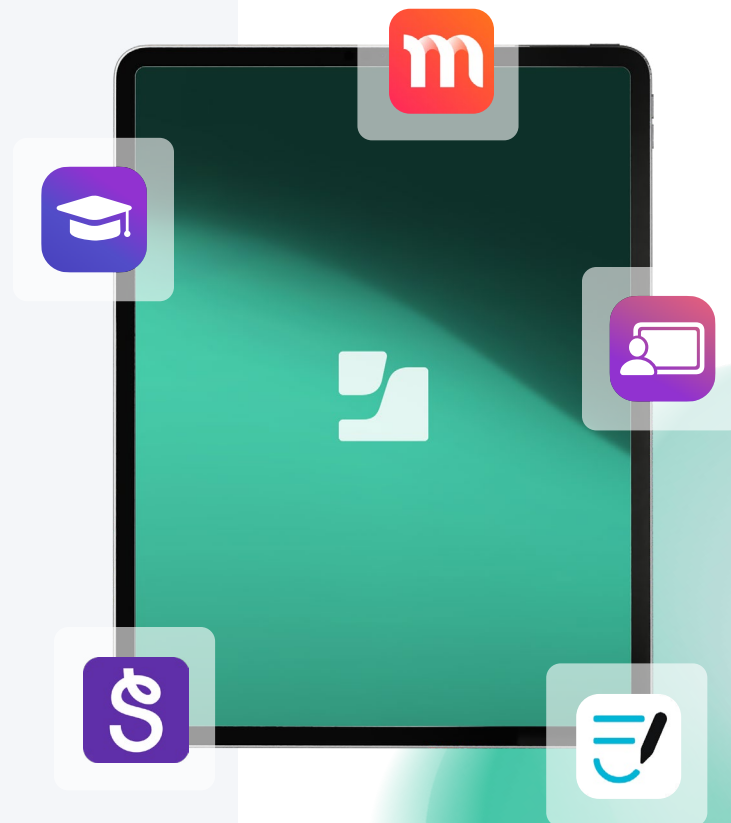
Find your order of operations

Delivering numeracy apps and content at scale

A successful numeracy curriculum doesn't automatically translate into successful device use in the classroom. Depending on the size of your school, IT teams can manage hundreds or thousands of devices. Teams need to be able to deploy numeracy apps and keep them updated without interrupting lessons.

Pushing the right apps, assigned to the right student, to the right device requires coordination and automation. Numeracy is only one part of a curriculum — any math apps need to coexist with literacy, STEM and general coursework. This only adds to the scale of apps that IT has to manage.

But with automation, IT teams can scope apps, updates and configurations to devices based on a student's grade and teacher. This can all happen quickly, before classes even start. And teams can pivot quickly if an app gets added or updated midyear. This means more focused learning time and a numeracy program where device troubles don't get in the way.



IT's part in numeracy success *(continued)*



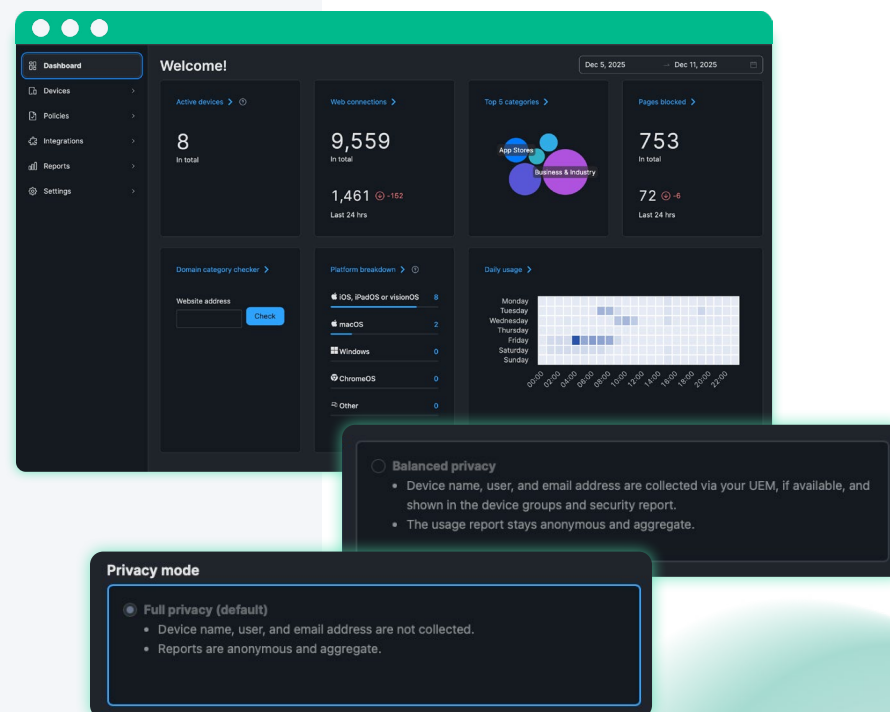
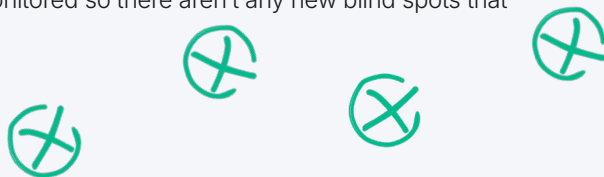
Hidden variables introduce risk

Student data and privacy for adaptive math tools

Unlike pen and paper, devices are interactive. Students can record themselves or the world around them; teachers can see how students work with playback features; and devices can intelligently cater lessons to an individual's performance. Many schools find success with adaptive math tools — like Kentucky's Franklin County Schools, who saw a 14% increase in the number of high school students distinguished and proficient in math.

This success comes from tools that adjust learning to meet a student's learning style or needs. These tools learn a student's patterns and spend more time on what the student needs help with. This could include environmental, demographic, cognitive, behavioral and emotional attributes, like their age, responses to assessments, prior knowledge, personality traits and more.

But what happens to all this behavior data? Adaptive tools create a profile of the student based on their interactions in order to personalize their experience. Schools should treat this data as precious as that in their student information systems. Each app should be vetted; teams should understand what data is collected and how it's handled to protect student privacy (and adhere to any regulations they might be subject to). And once apps are installed, they should be monitored so there aren't any new blind spots that violate student privacy.



IT's part in numeracy success *(continued)*



Make successful numeracy a trend

Sustaining it past year one

OK, say you just completed your first year of a new numeracy curriculum. Apps were deployed, devices configured, kinks worked out. How do you know that your program delivered screen value instead of just screen time?

Classroom instruction time is only part of the time devices are used. A sustainable program also needs to streamline the preparation time. Device turnover, new enrollments and any updates need to be repeatable year after year, without starting from scratch.

Measuring the health of your numeracy program is important — and has to go beyond the pilot year. Keeping track of student scores is one thing (and not really in the scope of IT); keeping track of device use is another. IT can track what apps are used, which teachers are engaging with devices and the time spent on devices.

This gives a good picture of how much a device is used, but understanding the value in the classroom requires getting teacher feedback — this valuable information can help IT ensure their deployments are making a positive difference in the classroom.



Adding it all up: a Jamf numeracy ecosystem





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IT + Educators = Numeracy achievement

Educators build and adopt numeracy curricula, then bring them to life in the classroom. And IT teams provide and support the technology that makes learning better.

Each group has a critical role on their own. But acting in tandem, teachers and IT can provide the best experience for their students. IT should be involved before rollout ever happens, to make sure devices are set up with their purpose in mind — so teachers and students are set up for success across every stage of a device deployment.

See how Jamf supports K-12 schools

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