TEACHTOWN®

WHY
Hands-On Learning
STILL MATTERS

The Enduring Value of Physical Materials in an EdTech World

www.teachtown.com

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Introduction

Were you working in education 30 years ago?

If so, you probably remember the beginning of 1:1s – not the 1:1s that refer to dedicated aides for students with significant disabilities or weekly check-ins with your supervisor, but the kind that describes the ratio of devices to students in a classroom.

1990s

The mid 1990s saw the beginning of experimental 1:1 computing programs. The initiative was born alongside the tech boom with the intention of providing 'anywhere, anytime access' to education. Schools were looking for a way to bring the educational opportunities of the internet, like research and collaboration, to each student's fingertips at any time of the day.

2000s

In the early 2000s, Maine introduced the first statewide program, "From Lunchboxes to Laptops," that ensured all students had access to a device.

2010s

By the mid 2010s, iPads and Chromebooks were prevalent, and the growth of 1:1 programs accelerated.

2020

The 2020 coronavirus pandemic and remote learning ensured nearly every school district in the country had access to devices for all students and high speed internet to deliver instruction.

87%

Today, 87% of high school students have access to a laptop computer at home, and 91% have access to high-speed internet connection.

These advancements have delivered real benefits: more students than ever, including those from historically marginalized populations and students with disabilities, gained access to learning experiences, communication tools, and information that had previously been out of reach.

Many studies have shown the benefit of computer-assisted instruction (CAI) for students with intellectual disabilities, students with autism, and students with a broad range of high and low incidence disabilities. Consistent evidence has demonstrated the effectiveness of CAI to teach literacy and math and a range of cognitive and social skills to students with disabilities.

As schools continue to integrate technology into all aspects of instruction – and see clear benefits for students with disabilities – we must not lose sight of the importance of hands-on learning with physical materials. Print-based and multisensory learning opportunities remain essential, research-supported methods for students to access, process, and retain information.

As schools continue to integrate technology into all aspects of instruction – and see clear benefits for students with disabilities – we must not lose sight of the importance of hands-on learning with physical materials. ***Print-based and multisensory learning opportunities remain essential, research-supported methods for students to access, process, and retain information.***

Hands-on learning is a necessary component of accessible, engaging instruction. When students can manipulate objects, experiment, point to visuals, sort, stack, trace, measure, or build, they're engaging in experiences that connect learning objectives to action. This kind of active, tactile engagement has long been supported by research.

At TeachTown, we prioritize the use of physical materials in our core curricula because they align with research-based practices and because we've seen firsthand how they help students experience academic and personal success.

See TeachTown in Action in San Mateo, CA

Our K-12 standards-first, adapted core curriculum, enCORE, integrates hands-on, print-based materials and manipulatives alongside responsive technology lessons to create a blended, whole child approach. The curriculum is intentionally designed to meet the needs of students with disabilities, including those who benefit from routine-based, structured tasks with multiple exposures to new learning objectives.

This paper explores why physical materials remain a critical part of student learning experiences, alongside effective educational technology. We cover how hands-on classroom resources support student engagement, skill development, and progress toward IEP goals, and why they continue to deserve **a central place in instructional investment and outcomes.**

The Science Behind Hands-On Learning

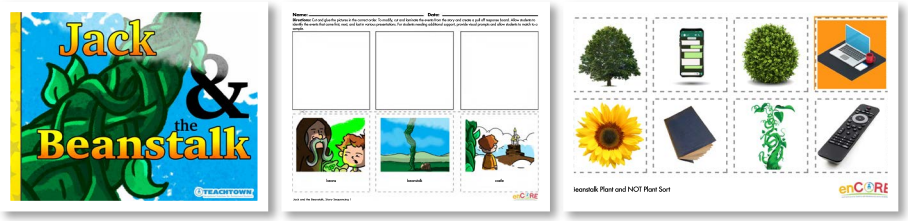
Physical materials activate learning in ways that screens alone can't replicate. For students with disabilities, who often benefit from concrete, multisensory instruction, hands-on learning offers a path to deeper understanding, greater independence, increased participation and peer interaction, and more meaningful progress.

Multisensory Learning and the Brain

Research supports the benefits of engaging multiple senses in the learning process. When students interact with materials physically – touching, moving, manipulating, they're encoding it through multiple neural pathways. Studies in cognitive psychology and learning sciences show that educational experiences involving physical manipulation enhance memory and conceptual understanding, especially for students with learning and developmental disabilities.

Access and Engagement

Physical materials can help lower the barrier to entry for students who struggle with attention, receptive language, or executive functioning. The act of placing a card in a pocket chart or building a number sentence with manipulatives can offer both structure and sensory feedback that digital-only instruction may not provide. For students who use assistive technology, such as eye gaze or switch scanning, hands-on materials can complement technology-based learning with consistent and reliable presentation of academic content. For example, a teacher may reinforce learning with visual cards or physical objects before or after the student interacts with a technology lesson.



Jack and the Beanstalk, plus samples of visual cards for sorting and sequencing events.

When students are physically engaged, they're more likely to stay focused and participate actively in lessons. Research from the National Center on Accessible Educational Materials reinforces the importance of providing multiple means of representation and expression – and print-based materials and physical manipulatives help meet that need.

TeachTown curricula are accessible to students who use switches. Learn more.

Developmentally Appropriate and Aligned with IEP Goals

For students with disabilities, especially those with extensive support needs, instruction in abstract concepts without tactile supports can be difficult to access. Physical materials support the developmental progression from concrete to abstract understanding, a sequence emphasized in both general and special education frameworks. This is especially relevant in early childhood and elementary settings, where physical manipulation is often the most effective entry point for learning new skills.

Many IEPs for students with moderate to severe disabilities include goals in related service areas tied to fine motor development, spatial orientation, sequencing, or the use of adapted tools. Hands-on materials not only support academic growth but also help students make measurable progress on these individualized goals.

Promoting Retention and Generalization

When students engage in repeated, physical interactions with content, such as sorting vocabulary words, using counting cubes, or sequencing picture cards, they're more likely to retain what they've learned and apply it in new contexts. Studies on mathematics interventions for students with learning disabilities found that instruction incorporating concrete representations significantly improved student performance.

These benefits translate into real gains for students. And for educators and administrators tasked with supporting compliance, access, and progress monitoring, physical materials can offer both instructional value and clear evidence of student engagement.

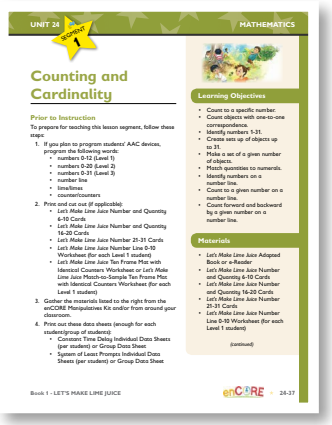
Physical Goods in Practice: What They Bring to the Table

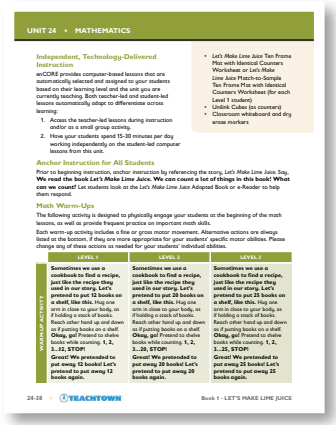
Some may identify hands-on materials as supplemental to print-based or computer-assisted instruction, but the benefits of these materials should be neither underestimated nor under-prioritized. Tactile learning tools serve a clear instructional purpose in special education classrooms. They allow students to physically engage with concepts, support attention and comprehension, and offer concrete entry points for skills that may otherwise feel abstract or out of reach.

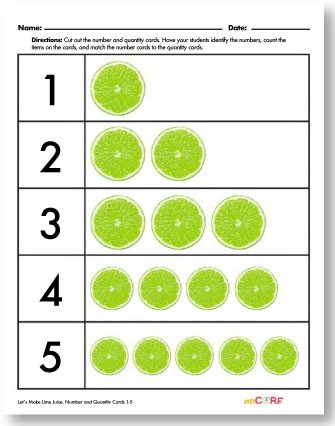
From Concrete to Abstract Thinking

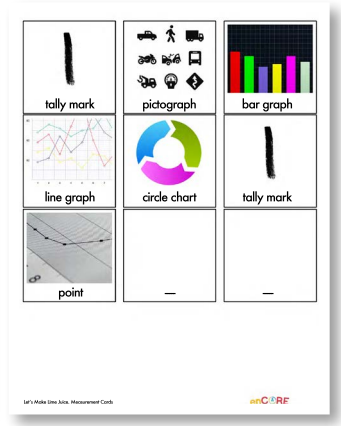
Students with disabilities often benefit from instruction that starts with tangible experiences and gradually transitions to more abstract concepts. This is particularly important in subjects like math and literacy, where symbolic representation can be a significant barrier without a physical bridge. Working with print-based materials and manipulatives also contributes to language development and reduces stress on working memory. For example, a student can visually count the number of sides in a triangle when holding a 2D shape, or conceptualize that volume is a 3D measurement of capacity when measuring liquid in a beaker, for example.

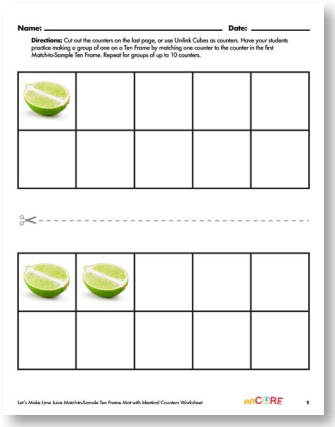
For example, a student might begin learning about quantity using counting bears, then progress to using visuals like dots or shapes, and eventually connect that understanding to written numerals. The use of concrete objects is a developmentally appropriate approach that aligns with both the Concrete-Representational-Abstract (CRA) instructional model and Universal Design for Learning (UDL) principles.











Supporting a Range of Skill Areas

Hands-on materials can be used to target a wide range of skill areas beyond core academics, including:

Language Development: Manipulatives, picture cards, puppets, and real-life objects prompt expressive and receptive language through labeling, describing, sequencing, and retelling activities. *For students with complex communication needs, tangible materials provide concrete anchors for vocabulary development, WH- questions, and AAC-supported communication practice.*

Fine Motor Skills: Tracing letters, stacking blocks, using scissors or tweezers

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Spatial Reasoning: Building patterns, puzzles, and sorting activities

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Sequencing and Categorization: Matching pictures, ordering steps in a routine, sorting by attribute

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Executive Functioning: Organizing tasks, following multi-step directions, using visual schedules

Because these skills are often embedded in IEPs, having access to physical materials helps educators deliver targeted instruction and collect data on student progress.

Multi-Modal Instruction for Diverse Learners

Every student learns differently, and physical classroom resources allow educators to offer varied pathways for understanding and expression. Whether it's building words with magnetic letters or completing a tactile science experiment using a scale, hands-on learning makes instruction more adaptable and inclusive.

In multilingual or AAC-supported classrooms, physical materials, including visual supports and manipulatives, can provide scaffolds that increase comprehension and reduce cognitive load. For example, pairing high-priority vocabulary cards from the text with objects or images builds context to support background knowledge and comprehension. It is especially helpful for those with language delays or limited verbal expression.

By offering these multiple entry points, especially those that provide a more concrete introduction to new concepts, educators can ensure more students are meaningfully participating in instruction. Students move beyond mere exposure of new material and are now engaged and actively learning.

Physical Materials in Action:
What This Looks Like in TeachTown

At TeachTown, physical materials are intentionally designed and embedded into instruction across all grade bands. Whether students are just beginning to build emerging academic skills in early childhood or working toward transition goals in high school, hands-on learning through print-based materials, books, manipulatives, and other physical materials is built into the curricula to meet students where they are.

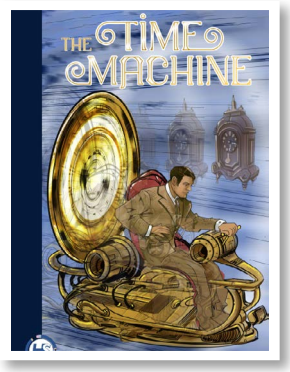
Early Childhood: Exploring Through Play and Structure

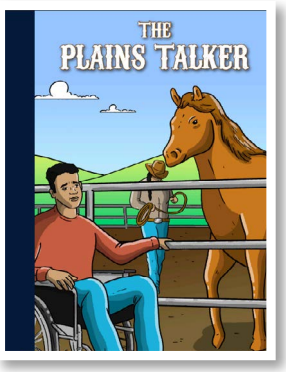
In early learning environments, physical materials support the development of key developmental and kindergarten readiness skills, including language, number sense, fine motor coordination, and social interaction. TeachTown's Launch for PreK is a comprehensive, inclusive early childhood curriculum that includes developmentally appropriate manipulatives like counting bears, stacking cups, and imaginative play sets that promote exploratory play with clear instructional intent. These tools help students practice emergent literacy and numeracy in a structured and engaging way, building routines and confidence along the way.

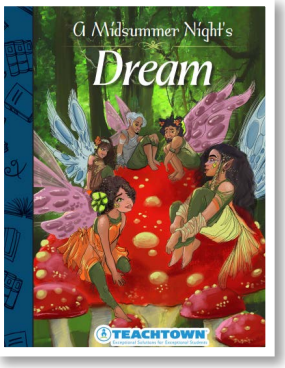
K-12 Core Instruction: Anchoring Academic Concepts

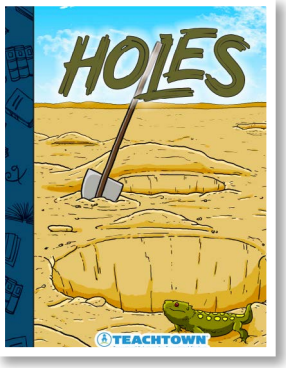
In TeachTown's enCORE, a standards-first, adapted core curriculum, students engage with hands-on materials alongside technology-facilitated instruction across ELA, Math, Science, and Social Studies content. For example:

In ELA, students read hard copy adapted literature books with engaging visuals that mirror the genres and titles of their same-age peers. Lesson plans include activities that incorporate picture cards and graphic organizers, for example, to support vocabulary and comprehension.









In math, manipulatives like number tiles, ten frames, and fraction circles help students build fluency with number concepts, operations, and fractions, and gain a deeper understanding of the concepts than can be achieved by practicing rote repetition of math procedures alone.

Printable vocabulary visuals, science experiments, timelines, and matching activities help bring abstract science and social studies content to life.

These materials are designed to complement systematic, explicit teacher-led instruction and technology-facilitated lessons and can be adapted for independent work, small groups, or one-on-one support.

Life Skills and Transition Planning: Practicing Real-World Application

For older students, TeachTown's *Transition to Adulthood* curriculum includes lesson plans that simulate real-life tasks. Students practice job-related routines, complete vocational checklists, and use visual supports and problem-solving cards for time management and task sequencing. These materials support generalization and prepare students for increased independence beyond the classroom.

Physical + Digital: Finding the Balance

> *For special education teams, the question isn't whether to use technology or physical materials* ***– it's how to combine them in ways that support student learning most effectively.***

Blended instruction allows educators to deliver content in multiple formats, respond flexibly to student needs, and create more engaging and individualized experiences.

Instruction That Works Together, Not in Silos

TeachTown's programs are built on the understanding that technology-based learning and hands-on learning serve complementary purposes. A student might first encounter a concept, like identifying the main idea from a text, from the explicit instruction a teacher provides in a whole group setting during a read aloud. Then, the teacher may reinforce this concept in a small group setting with 2 or 3 students through a teacher-led technology lesson. The student may then practice engaging with the main idea through scaffolded worksheets, visual cues/cards, sequencing activities, sentence building activities, and more. This intentional overlap helps deepen understanding and provides students with varied opportunities to practice skills in different ways.

Supporting Educator Flexibility

In real classrooms, flexibility is essential. Physical materials allow educators to pivot when technology isn't available, when a student needs a break from the screen, or when they want to target a skill in a hands-on, 1:1 format. These tools can be used during small-group instruction, with paraprofessionals, or during centers and independent work time. They're also invaluable during home visits, ESY programs, and therapy sessions where consistent access to devices isn't guaranteed.

Protecting Attention and Student Choice

While technology offers clear advantages in terms of scalability, data collection, and individualized learning pathways, learning exclusively through screens can sometimes diminish attention or limit opportunities for active participation, especially for students with sensory or regulatory challenges. Incorporating physical tasks into the day helps reset focus, promote movement, and offer a wider range of modalities in how students engage with content. This balance supports student choice and can reduce behavior challenges linked to fatigue or overstimulation.

Designing With Intentionality

What matters most is not necessarily the delivery method alone (digital-only or tactile-supported), but the fit between the educational tool and the student's needs. A strong instructional model uses the right resource for the right purpose at the right time.

By using TeachTown's hands-on materials with digital instruction, educators can create learning pathways that are individualized, accessible, and responsive, supporting students across a range of developmental levels and learning profiles.

Strengthening Home-to-School Partnerships

Physical materials play an especially valuable role in supporting families in early childhood and self-contained special education settings. Printable take-home visuals, hard copy adapted literature, permanent work products (such as sorted visual cards pasted onto a worksheet), and weekly theme letters like those included in TeachTown's Launch for PreK help reinforce skills and routines across settings. These resources are designed to be easy to use, visually clear, and supportive of caregivers who may not be special educators but want to help their child continue to learn at home.

When families have access to physical learning tools in their home language, as offered in TeachTown's Launch for PreK resources, engagement increases and progress is more likely to generalize beyond school.

Families can also engage with student learning digitally through the student log-in with TeachTown curricula, enabling access to the literature and student practice opportunities.

Evidence of Impact

Teachers who use TeachTown programs regularly share how the technology component and physical materials together help them differentiate instruction, support IEP implementation, and boost student confidence. Educators report that hands-on tools are particularly effective for:

- Re-engaging students during longer instructional blocks
- Providing additional options to engage with learning for students who are minimally speaking
- Supporting paraprofessionals in delivering engaging instruction in small group or 1:1 settings
- Offering clear data points for progress on skills over time when use of technology may be a distraction (through TeachTown Benchmark Assessments)

> *"I've had the privilege of witnessing firsthand the impact of integrating both physical and digital learning resources into the classroom environment. Among the array of positive outcomes observed, one standout aspect has been the profound effect on student engagement and mastery, particularly within the foundational Level 1 curriculum. Incorporating tangible educational materials alongside an interactive online platform has yielded remarkable results, enabling students to effectively demonstrate their comprehension and skills acquisition. The utilization of physical materials provides a tactile learning experience, allowing students to actively engage with content through activities such as cut-and-paste exercises. These activities not only facilitate comprehension but also foster critical thinking as students sort, match, and identify responses, meeting them at their current level of understanding."*
>
> **- Sawyer Clark, West Plains Junior High, Canyon ISD**

Observable Student Outcomes

Data from TeachTown customers shows that students using a blend of digital and physical curriculum materials make measurable gains. In fact, students using enCORE demonstrated an average of nearly 70% growth from pre- to post-assessment across core subject areas.

Beyond academic gains, educators also observe increased student engagement and decreased interfering behaviors when hands-on materials are part of daily instruction.

Read about Measurable Gains in NY

Data Doesn't Lie: Curriculum Impact – TeachTown x San Mateo County Office of Education

In Spring 2023, San Mateo County Office of Education piloted TeachTown's K-12 standards-first, adapted core curriculum, enCORE, alongside another special education curriculum, to ensure its students received high-quality instruction and opportunities for enhanced student success.

12-50% Increase

Data & Outcomes

Monthly mastery levels for students using enCORE **increased between 12-50%**

~42% Decrease

Challenging Behaviors

Behavior Emergency Reports (BERs) across classrooms using enCORE **decreased by ~42%**

~0.8% Days

Customer Support & Efficiency

Average response time for TeachTown team members to reply to San Mateo County Office of Education admins' email correspondence was **~0.8 days**

enCORE

enCORE is a K-12 standards-first, adapted core curriculum that provides students with moderate to severe disabilities access to the general education curriculum.

> *These outcomes aren't incidental. They are a direct result of instruction that is accessible, engaging, and aligned with how students with disabilities learn best.*

Administrative Considerations:
Why This Investment Matters

For special education administrators, instructional decisions are shaped by a range of priorities:

- **Student outcomes**
- **Compliance with IDEA, ESSA Title I**
- **Teacher morale, turnover, and capacity**
- **Cost-efficiency**
- **And the need to demonstrate measurable progress.**

Investing in physical materials ensures students with disabilities have the tools they need to access the curriculum, achieve their IEP goals, and engage meaningfully in learning.

Driving Measurable Progress

Hands-on materials provide clear, observable opportunities to assess student growth. In Launch for PreK and in enCORE, student progress can be documented on paper-based data sheets to complement digital data collection that demonstrates alignment with standards and IEP goals and objectives. These materials also help support data collection and observational notes for related services, including fine motor development, life skills, communication skills, and more.

For administrators tracking compliance and instructional efficacy, physical tools make it easier to connect day-to-day instruction with student progress data.

Sustainable and Cost-Effective

High-quality physical materials are reusable, durable, and adaptable across instructional settings. Many of the printed resources provided in TeachTown's curricula can be laminated or stored in classroom kits, and/or used across multiple school years and grade levels. This includes the hard copy, spiral bound Teacher Guides, Student Workbooks, and Adapted Library literature books. The manipulative kits encompass a range of tools and items designed to support learning across subject areas and grade bands, and are designed to last multiple school years. This longevity makes them a strategic investment, particularly when paired with professional development that supports consistent implementation.

Administrators can also leverage these materials to ensure instructional continuity during extended school year (ESY) services, homebound instruction, or times when access to technology may be limited.

Supporting Staff Confidence and Capacity

Physical materials make it easier for all team members - teachers, paraprofessionals, related service providers - to deliver and support aligned, goal-driven instruction. With visual, tactile resources on hand, educators are better equipped to adapt lessons on the fly, differentiate instruction, and offer targeted support without needing to develop additional materials from scratch. When staff have access to well-designed, ready-to-use curricula that includes multiple instructional modalities and supports student engagement and measurable progress, they will spend less time creating and more time *actually teaching*.

Conclusion

Hands-on materials support access, engagement, and measurable progress. They offer educators flexible ways to meet IEP goals and give students meaningful opportunities to interact with content in ways that match their learning profiles. From early childhood classrooms to transition programs, physical goods help bridge the gap between intention and impact.

As administrators plan for the upcoming school year(s), whether reviewing curriculum options, allocating resources, or designing professional development, it's worth asking:

Are we prioritizing a mix of technology and hands-on classroom resources to reflect how our students learn best?

At TeachTown, we believe that instruction should always be accessible, evidence-based, and built for the real-world needs of students and educators. That’s why our curricula pair technology with tangible, adaptable materials that help bring learning to life.

To learn more about blending responsive technology and hands-on learning for students with disabilities, scan the QR Code.

TEACHTOWN®