Sneaking in STEM Series

Where STEM Is Already Hiding

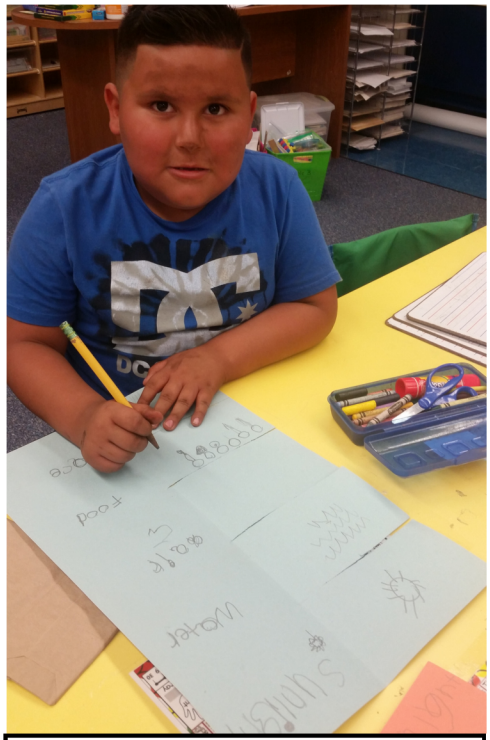
by dottysplace

I didn't set out to blend STEM into my core curriculum. It began as a necessity, rather than a convenience. I had been working with English Language Learners and I was finding it to be challenging. My students were well mannered. But I was required to cover so many topics. There were grade level content requirements and English Language Lessons. There were specials, like Art, Library, Computers, Counseling, and P.E.. Each area seemed to have its own set of standards. And I was supposed to schedule mandatory block times for each. On top of all this there were holidays to celebrate and school-wide events that my students loved to attend. I felt like I was juggling too many things.

There was never enough time. And back then, I was still treating each subject as its own distinct learning space.

The Plant Lesson That Changed My Thinking

Then came the Plant Unit. Each month, my grade level group decided on a monthly writing prompt. We would practice a particular form of writing. Then, every student would complete the monthly prompt. And we teachers would get together to grade them.



This was a foldable writing assignment. Students wrote what plants needs to survive.

Don't get me wrong. I loved that we did that. I knew that it assured that we graded fairly and exposed our students to all forms of writing. The problem was the topic. That particular month, we decided to base it on our district-wide Science kit.

I feigned confidence. But inside, I knew that it would be a tall order. For one thing, my students lacked the language and writing skills necessary. But my greatest issue revolved around time. I was still struggling to find enough time to cover everything. As a result, STEM was often treated as something that was optional. The thought of finding even more time to complete a Science unit, felt overwhelming.

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When Keeping STEM "Optional" Wasn't an Option

That's when it became clear that I couldn't keep STEM time an option. My students needed to be active and engaged in hands-on experiences. Not just to prepare for their writing prompt, but for their long term success. I needed to ensure that my students didn't fall behind their peers.

Preparing for this writing prompt changed how I approached everything. What started off as worry, turned out to be the push I needed to improve. It forced me to come up with practical solutions. Ones that would take advantage of time and maximize output.

I began by looking for ways to insert quality STEM experiences into my day. I found a few options that were useful. But one option stood out more than any of the others. That's because I was already engaging in it daily. It was already rich in material, but usually lacking in hands-on experiences. And when I imagined adding STEM components, I realized that they would act to extend the learning. That's all I needed to know. I had dabbled with it in the past, but I realized that it was time to take a more methodical approach to adjusting my Language Arts Block.

Connecting STEM to Language Arts

The Plant Unit was the first time that I connected STEM with a Language Arts Unit. I approached the principal with my plan. It was simple really. I found a language arts unit that complemented the Plant science kit. It was close enough to where we already were, for the activities to fit in with my student's abilities.

I did some adjusting. I rearranged the learning sequence. I updated the vocabulary and added more non-fiction. I carefully placed my Science lessons throughout my Reading Unit. It made everything feel weightier. But in a good way.

Soon, I was looking at a more powerful unit. One that used overlap to save time. Read-alouds became my background knowledge. Writing activities included grade level practice, Language, as well as STEM related forms of communication. I was teaching the English language in real time, as opposed to isolated drills. And STEM fit right in. It became my way to bring information to life.

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The Unexpected Result

Sure I skipped some things, while I combined others. But nothing was truly lost. And knowledge spiked. I knew it wasn't very smooth, but that didn't matter. As the unit progressed, something unexpected happened.

My students started talking. They weren't talking because I called on them. They were too excited to raise their hands. One person would say something. And their classmates would repeat it. They began piggy backing off of each other.

They talked because they were engaged and had something real to say.

I remember being so proud to hear one shy girl say, "Me plant have leaf." Instead of correcting her immediately, I responded naturally: "Wow. Your plant has leaves. What color are they?"

Our conversations became animated. I loved them. It was noisy. It wasn't polished. But it was powerful. I remember having a conversation with my principal about this. She wanted to see raised hands. And, I understood her perspective. But I was just so proud of the words coming from students who had once been silent. I like how hands-on STEM learning opened them up. They weren't just answering me. They were starting to talk to each other.

When Students Drive the Learning

What struck me most in moments like that was how different the learning felt. My students weren't waiting for me to conduct the conversation. They were participating in it. The language, the content, and the thinking were happening together.

Could they have learned the same information another way? Possibly. But I believe it would have taken longer. And the learning would have stayed closer to the surface.

I believe that by anchoring learning to real experiences, my students naturally leaned in. They could tell that there was depth, and always something to look forward to. This meant that they were not quick to disconnect or disengage.

During the Plant Science Unit, I observed how my students interacted. The concrete nature of the lessons encouraged my students to take more risks. And I encouraged them further by removing the pressure to be perfect. Together we worked to explore, experiment, observe and learn. Our focus was to learn to communicate as we made deeper meaning.

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Using What Was Already There

Now, here's the practical part. I didn't reinvent my curriculum. I looked at what I already had and asked different questions. I made a subtle shift in my thinking. One which made me view units, more as a whole, rather than individual lessons. I usually found myself asking broader questions to begin with. I wanted to know things, such as:

- What skills or knowledge are being taught or used?
- What should my students know by the end of the unit?
- How does this unit tie into grade level requirements?
- How does this unit connect to the standards?

I thought it was important to know what the end result should be. That way, I had a measure to evaluate the worth of each lesson. It gave me a clear picture of what my students were expected to experience. It also helped units make more sense. It made the intended outcomes clear. It was during this time that I learned the benefits of having standards.

My standards transformed from being a burden, to being a useful guide. They helped me ensure I wasn't skipping anything important. They also helped me structure my units. I used them to track the flow of information.

Once I knew what my students needed to learn or practice, I moved towards analyzing the various lessons. I would look closely at every facet of the lesson, and question the content. First, I would ask questions, like:

- Could any of the lessons be combined?
- Could any of the lessons be skipped?

And then, I would dig even deeper to question the logistics. I thought it was important to determine things, like:

- Could I teach any of the knowledge or skills in a different manner?
- What skills needed extended practice?
- What did mastery of each skill look like?

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I used this information to figure out if the unit contained extra information or unnecessary skills. Those were the components that I would often alter, remove or condense. This is how I would find more space to allow room for STEM activities.

If I was combining units, I did this for both. If I was creating my own enhanced learning experience, I'd use this information to tweak STEM activities to fit.

By looking at units, as a whole, I was able to create a more meaningful experience for my students. I began to be more purposeful. I wasted less energy. I questioned how I was using the time that I had. And I learned to quickly adapt or discard what was unnecessary or unessential. I was no longer wasting class periods. I wanted my students to have the most learning potential from the time we spent.

From the outside, it might have looked like an overwhelming task. But that hid the jewel inside. The learning was intentional, even when the structure looked flexible.

Why Tracking the Flow Mattered to Me

I mentioned earlier how I used various standards to track the flow of knowledge. This really mattered. Because I was tampering with the structure of my learning materials, I needed to provide accountability. I was concerned with how prepared my students were. I wanted them ready for the next grade. They needed to be ready to handle new expectations. And ready to walk into future classrooms with confidence.

On a practical level, I tracked the flow of knowledge so I could explain my decisions to administrators. I could show how lessons connected, how skills were reinforced, and how outcomes aligned with expectations.

On a personal level, it gave me peace of mind. I was recording why my students were growing.

A Shift I'm Glad I Made

When STEM stopped being a separate subject, something unexpected happened. Teaching became more joyful. My students were engaged. I wasn't fighting them to learn. And I was able to use the time I had in ways that truly mattered.
I found out that STEM wasn't something extra. It was already there. Hiding in my curriculum and waiting to be used.

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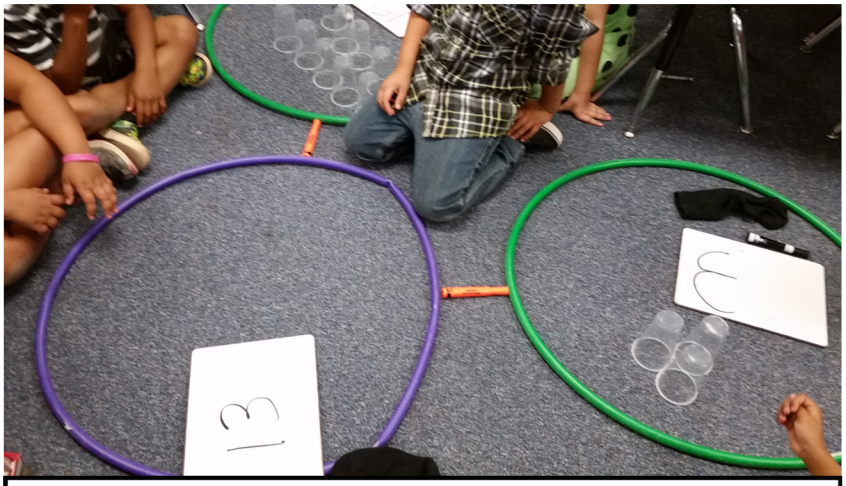
Why This Matters

This article isn't about finding the "right" way to teach. It's about noticing where learning already overlaps and using that overlap intentionally. When I stopped treating STEM as an option, I created space for deeper thinking, stronger language, and more confident learners.

Sometimes, the best opportunities are hiding in plain sight.



Students used hula hoops and plastic cups to demonstrate number bonds.