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The Ten-minute Teacher podcast with Vicki Davis. Every week day you'll learn powerful practical ways to be a more remarkable teacher today.

VICKI: Today we're going to take a deep dive into Candace Hisey's [@MissHisey](#) language arts classroom. Now, Candace, tell us about some of the projects you're doing in your classroom.

CANDACE: Sure. So I work really closely with the chemistry teacher because I teach sophomore language arts, at our school <http://biomedscienceacademy.org/> sophomore year they take chemistry. And we've been working closely throughout the year, we're on a bound schedule so we actually have the same group of kids during the same time of the day which makes it easier. And we don't have text books, so one of the books that we use as kind of a guide throughout the year is the *Disappearing Spoon* by Sam Kean. <http://amzn.to/2nzE7KP> And it goes through the periodic table of the elements, you know, a very kind of humanities-focused way where in some chapters he'll talk about elements in a time of war and so it will go into history and then sometimes he'll talk about the mythology surrounding these certain elements.

So the biggest project of the year that we do, we read that book throughout the year as the learning different chemistry concepts within their chemistry class. And the biggest project we do is an interdisciplinary museum. The name of the assignment is discovering the literary element and within that museum, the students have to choose either an element or a group of elements from the periodic table on which they'd like to base their exhibit. And that exhibit has to include every academic subject that they study in school. So there has to be a literary component, a math component, and engineering component and even an art component. And they theme that.

So some students would choose beryllium as their element and the research they find that beryllium is an important element in emeralds as a gem stone. And so we've had students to emerald city themed exhibits where it's *Wizard of Oz* <http://amzn.to/2oa58pV> themed and how much heat would it take to melt a beryllium witch. And there's a board game involved and we've students do entire exhibits based on the history of blacksmithing.

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So they take different metals that have been involved in the history of blacksmithing and they'll really blow that up. We've had students talk about elements using cosmetics. And so their particular exhibit will talk about beauty standards and also the dangers of having certain types of metals in cosmetics and how that industry has been revolutionized. We've had students make exhibits that are up-themed because their element is helium. And so for math,

they create an Excel document where you can plug in the weight of any object and they'll tell you how many helium balloons it takes to lift that object.

And so at the end of the year, we rented out a space and we have an actual museum setup for members of the public and parents and other grades within the school to come and walk through. That's always a really rewarding day, kind of a combination of the year once they've gotten through chemistry to actually have them apply those concepts.

VICKI: Wow. So these are high school students and they're creating a museum. Now, how do you work with the other teachers? I mean, this sounds like such a massive project.

CANDACE: So what's really great at our school is we have this thing called B-weeks and I'm sure other districts call them something else but have a similar type of thing where we have what we call flextime. So they only have certain classes on certain days, so they might have first, second and third period and then a three hour block of Flextime and then the next day they will have four, five, six and then another block of flextime. And during that Flextime we have that entire class of sophomores and we can do whatever we want with them and all of the teachers are free to flow around and contribute.

So we do these big projects that can involve multiple subjects because we have this block of time dedicated to full grade projects and full grade design challenge. So we do it about once a month, having that flexible time allows us to really dive into that.

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And sometimes a certain subject will want to take lead so they'll have a math focus project but they'll want to have some kind of humanities component, so they'll bring in the English teacher or the history teacher. So having that flexible schedule is really helpful

VICKI: Okay. So this is such a different way of thinking for many schools that have the standards and you do a worksheet or a test or whatever. So you're integrating standards as you integrate these between subjects?

CANDACE: Yeah. What's great is as an English teacher in a stem school – I think English teachers are fortunate and that our subject is really all pervasive. So our standards tend to be more skills based and not so content base. So if there's a particular teacher who really needs to hit a content based standard, they can maybe take lead on a project regarding that subject matter and then the rest of us can almost always find some flexible standards that we can very authentically fit into that particular content especially for an English teacher. So I think it's a little bit easier for me to apply my standards to some other core subjects than it might be for another subject.

VICKI: So Candace can you give us an example of a big huge massive project that's integrated between a variety of subjects. Could you give us an example of maybe a small project?

CANDACE: When integrated learning started to inspire me was in college. I remember I was in poetry class and we were reading John Milton and my professor mentioned off hand that it's believe that he met with Galileo <http://www.newyorker.com/magazine/2008/06/02/return-to-paradise> and that meeting inspired how he wanted to depict the heavens in some of his poetry. And I just thought, oh my gosh, science influences the humanities so dramatically I never realized this.

And so just on a day-to-day basis maybe we'll read a horror story and then we'll talk about the bio chemistry of fear or how our bodies anatomically react to fear. <https://www.psychologytoday.com/blog/crisis-center/200807/the-anatomy-fear> And so we'll be able to integrate in little ways. So that's really cool.

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But we also do Science Fridays <https://www.sciencefriday.com/> if you listen to NPR. We took the name from them and every Friday we do a follow-the-research activity where we will choose three – and this is with the chemistry teacher – sort of pop science articles that have gotten a lot of airplay or that have been circulated on the internet during that week. And we'll have the students trace the research back the original academic publication of that research. So sometimes we'll throw in some fake ones just to shake things up. And they have to justify that new story and see if there's any sensationalism in there all the way down to the pictures. Are the pictures they're choosing authentically represent the content or the headline? Is the headline a little too dramatic?

And then four times a way they'll go through all of the science Friday articles we've done up to that point and they'll choose a particular subject to make a podcast like the one we're listening to now. To make a podcast with their podcast groups regarding that particular subject. So then, that brings in the tech and they get to be a little bit creative with it. But that's something that we do regularly. It's nice because they can see it coming and it's really cool to see how the quality of their podcast improves throughout their series that they've created.

And so it's a small project that continues throughout the year but that still uses their literacy skills, they have to learn how to read an academic paper, look for the abstract, look for how they were able to control for inaccuracies, look to see who it was funding that research to see if they might have any kind of alternate motivations and in little ways it really builds their science literacy throughout the year. So that's really cool to watch too.

VICKI: So Candace, as we finish up, speak to language arts teachers and give them a quick 20 or 30 second encouragement for how they can bring other subjects in.

CANDACE: Absolutely. I think a big part of it is don't be afraid of STEM just because it's not necessarily your content area. I think it's important to work with your STEM teachers in your building. Try not to stay to stay secluded in your corner because a lot of them are dying to figure out how to incorporate language skills and humanity skills into their content as well and it just seems like people are too afraid to ask each other and communicate. It just adds so much depth to both sides of the spectrum if we're able to communicate to one another and work together.

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VICKI: Hey, I have a question.

CANDACE: Sure.

VICKI: What do you think is the most mind-blowing exciting transformational thing you do all year?

CANDACE: I really think that will be our museum. I think that's the day when the kids really see all of their subject matter that they've done all throughout sophomore year coming together and they really see the relationships between those subjects. It's something that I think they have to see to truly understand and to have to be the primary communicator for those museums. Guests walk up to them and they say, "Okay, so tell me how helium fits in to all these subjects. I don't understand it." And to have the take the reins and to see them say, "Oh yeah, of course there are connections between all these subjects, let me tell you how."

I think it's really rewarding for them, it's really rewarding for us. Most importantly it shows the application of the school work, it shows how it actually applies to the real world instead of just filling it out on the test and that application just really is a light bulb moment for them.

VICKI: Yes, I'm curious. How are your test scores?

CANDACE: Excellent.

VICKI: Really?

CANDACE: They're excellent, yeah. I think we were all a little nervous to see what this type of education would look like quantitatively. It's pretty incredible the growth that we see from their freshman year to their sophomore year and from their sophomore year and beyond. I don't have the data right in front of me but it's evidence that you don't have to teach to a test. And that's really what she tells us, what our principal tells us. "Don't teach to the test, if you're teaching the right way then they'll do well on the test."

If you had told me that that was possible before I worked here I probably would have looked to you funny, but now I can't go back to a traditional school as an educator. I know that I can't because this really reflects what academic content looks like in the real world and how you can apply it and use it as a tool

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