



Budding Scientist

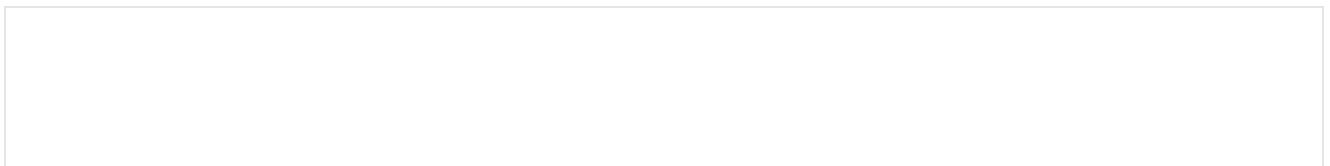
Recognizing Ms. Frizzle's Own Magic

Still looking for ways to take chances, make mistakes and get messy 20 years later

By Amanda Baker on November 15, 2017



Dressing up as Ms. Frizzle made for some great conversations on Halloween. Credit: Amanda Baker



I was lucky enough to have some great science teachers – really great – so understand that I am not complaining about the quality of my education when I make the following statement: I can't remember almost anything about my K-12 science classes. I know that I owe much of my understanding of fundamental science concepts to them, but I can't remember almost anything about the daily experiences of the classes themselves. The one notable exception is the day that the boy sitting behind me was called on to present something to our biology class and casually swiped my notes from my desk on his way to the front of the room. And the lack of other specific memories may seem insignificant until I mention that I can remember every episode of *The Magic School Bus*. Every single one.

The show came up recently with a fellow science-communication colleague. In a broader conversation about ways to get kids to connect with science, we ultimately ended up asking if some goals could be achieved with a great set of stories as much as a great program. My colleague immediately started recounting her own formative experiences with *Captain Planet*. Meanwhile I was lost in my own memories of *The Magic School Bus*.

For those of you not lucky enough to have had it as part of your childhood, *The Magic School Bus* was a PBS show that followed Ms. Frizzle and her third-grade class on science-themed shenanigans into space, to the bottom of the ocean, into the past, or even into one student's digestive tract. The show's (and books') impact on me are without question. And based on the reactions I received from other 30-somethings when I dressed up as Ms. Frizzle for Halloween a few years ago, I think I am far from the only one.

In the weeks since that conversation I have been trying to push past the nostalgia and look at the show from the perspective of an adult and a science communicator. And as many books or articles as I have read about the power of storytelling, I have found no more compelling argument than my own experience scrolling through the episode list for a show I had not watched in 20 years. I don't just remember the "Gets Lost in Space" episode, I can almost see the moment when Janet refuses to get back in the bus without all of the proof she collected from other planets throughout their trip. I can hear Phoebe's voice saying "at my old school." I can mentally watch Ms. Frizzle's face turn red while rowing and holding her breath during her competition against the gym teacher. Frictionless baseball can unfailingly make me smile. I remember the stories.

And I remember that, even though Ms. Frizzle may have been my hero, she was almost never the hero of the day. Looking back, I am amazed at how much she is part of an ensemble. Her role is often to be, in the best possible sense, an enabler. If the kids in her class come up with an idea, she throws herself in with them. She trusts them to make decisions. She doesn't just observe or instruct. Her tagline doesn't even include the word science, instead telling her students to, "take chances, make mistakes, get messy!" She happily embraces that her fate is tied to theirs. And when their decisions end up with her getting lost in space or trapped inside

a physics book, she trusts them to come to the rescue. That provides the kids with agency, responsibility, and the ability to take actions that really matter.

Creating this kind of adventure story also lets the class break free from the scientific-method/finding-solutions-to-well-defined-problems narrative that is so tempting to tell. Their plans are imperfect. The bus sometimes malfunctions. They try things that end up not working rather than someone telling them why their approach might be wrong. When the bus shrinks and ends up dumping them on the frictionless baseball field on page 97 of a physics textbook, their first instinct is the very kid-like inclination to play instead of panic. Like so many episodes, Ms. Frizzle plays right along. And like so many episodes, the recognition of a problem and the proposal of solutions comes from the kids rather than the figure of authority in the room.

Perhaps it is tempting to say that kind of kid/adult exploratory ensemble is only possible in a cartoon, but I disagree. It may not be the safest example (PLEASE DON'T TRY THIS AT HOME!), but I know from experience that adults can really take on the role of co-investigator with kids if they are willing to take their eyes off of the plan for a minute. When my brother and I found an old container of shriveled sterno fuel in the basement and asked my dad whether it would light, he told us that he didn't think it would, but that we could all try. After placing the container in the bottom of a 5-gallon bucket (you know, for safety), leaning over the top to watch (I know), and lighting it - we had an answer. For less than one amazing second, a flame the width of the bucket and taller than any of us burned with a furious glory. And then it was gone. So was much of the hair on one side of my brother's head and one of his eyebrows, but those grew back. And we definitely learn something. Ms. Frizzle would have been proud – we took chances, made some mistakes, and certainly got messy. And the story will live forever. (PLEASE, PLEASE, PLEASE DON'T TRY THIS AT HOME!)

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Amanda Baker is a science communicator and outreach advocate. She has a geoscience PhD from Cornell University and has managed open-access, academic journals as well as the outreach journal *Frontiers for Young Minds*. She is currently writing and editing science content for kids, from curriculum materials to magazines like *Smore*. She has served as a Science Olympiad national event supervisor and taught a first-year writing seminar on sustainable earth systems while at Cornell. [Follow Amanda Baker on Twitter](#)

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