



## Muggle Magic

Learning Through Play in Harry Potter's World

Leigh Anne Wilson & Brittany R. Jacobs

In 1997, the world was introduced to one of its great stories: Harry Potter. The masterful writing of J. K. Rowling, about “the boy who lived,” has struck chords with millions of adults and children. Like many before her, Rowling tapped into the power of storytelling as a means of teaching, inspiring, and passing information from one generation to the next. Anthropologists have found evidence of storytelling throughout history, from orators in hunter-gatherer tribes to modern writers and actors (Hsu, 2008).

To actualize a story—that is, to live it out in any way—plays on two of humanity's greatest desires: to learn and to have fun. People are biologically wired for survival, which implies that we are biologically wired to learn: We need to gather and

process information in ways that increase the odds of our survival and success. When we have fun, the neurotransmitters serotonin and dopamine kick into high gear (Ormrod, 2017). If they are present while we are learning, then the learning experience is surrounded by positive emotions that increase the odds of intrinsic motivation and retention. Teaching that uses play and fun therefore is a surefire way to pass along information and skills in ways that invite learners to participate. Actualizing a story through play is a strategy that serves out-of-school time (OST) programs particularly well, as informal educators

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are not held to the same standards and structures as schools.

In keeping with these precepts, coauthor Leigh Anne Wilson, a youth services librarian at Carol Stream Public Library in Carol Stream, Illinois, decided to create a new addition to the library's afterschool learning opportunities that would bring children into their own Harry Potter story. Wanting to create a program that combined play and STEM learning, Leigh Anne decided to recreate a Potions class from Hogwarts School of Witchcraft and Wizardry, the magical academy Harry Potter and his friends attend. A Potions class could capitalize on the excitement children bring to the Harry Potter series while teaching them simple chemistry, introducing them to basic lab equipment, and showing them how to measure and follow written directions.

## Context

Carol Stream is a suburban village with approximately 40,000 residents, located 35 miles west of Chicago. Leigh Anne met Brittany Jacobs, the other coauthor of this essay, while working what was a second job for both at a different public library. During their regular shift at that library's reference desk, Leigh Anne told Brittany about her plan to create a realistic Hogwarts class at Carol Stream. Intrigued, Brittany offered to assist with and document the program. Leigh Anne would play the Hogwarts Potions master, while Brittany would be a reporter from *The Daily Prophet*, the newspaper in the wizarding world.

One strength Leigh Anne brought to this program was a background in immersive and improvisational theater. Immersive theater removes the stage to put the audience right in the center of the production. Improvisational theater allows drama or comedy to unfold naturally and spontaneously without scripts. Most children are already skilled improv actors; they have honed their talent through imaginative play. Though learning through play is often relegated to early childhood, play is a necessary learning mechanism for children of all ages.

The plan was to tap into Harry Potter's established fan base to enable ordinary third-

to fifth-grade Muggles (non-magic folk) to fully immerse themselves in Hogwarts, perhaps the most longed-for school in modern literature. To promote learning through play, we needed to model behaviors and to play along with the students, simultaneously giving them an invitation *and* permission to lose themselves in a world of make-believe.

## Preparation

Planning began in late February 2018 for a program execution date of July 30, the day before Harry Potter's birthday. In keeping with the divisions of Hogwarts students into four houses, we decided participants would collaborate in four groups. Putting four students into each house gave us a total class size of 16. Knowing how popular the Harry Potter books are, we offered two classes, one at 2 p.m. and another at 4 p.m.

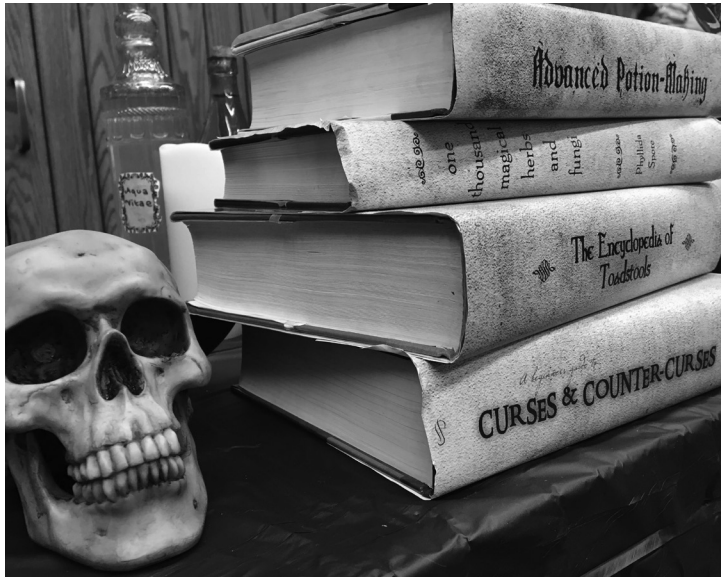
Part of what makes the Hogwarts world so rich and vibrant is how fully fleshed out it is. The classrooms and other spaces are completely visualized, the professors have specific personalities, and the classes themselves are vivid and absolutely believable. In preparation for bringing participants fully into this world, Leigh Anne created three outlines:

1. The physical space
2. The dress and behavior of librarians and teen volunteers
3. The lesson plan detailing the potions students would make, with a list of ingredients and props

The program budget was \$160, or five dollars per child. Most of that money was spent on potion ingredients; Leigh Anne either made or borrowed everything else.

The first consideration was the physical environment. In informal learning, environments create boundaries that structure the experience and set the mood (Thomas & Brown, 2011). To decorate the physical space, Leigh Anne asked herself, "What do children need to see in order to believe?" Decorating started in the library lobby. A sign reading "Portkey Arrival Station" was posted next to a can of beans. In the Harry Potter books, portkeys are a means of magical transportation that enable the traveler to disappear from one place and reappear in another. Portkeys usu-

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**Figure 1. Authentic touches on the Potions master's table**



**Figure 2. Potion ingredients—actually common household substances**

ally are ordinary items that will not catch the attention of Muggles—such as a can of beans.

Continuing the theme, the doors and corridor leading to the program room were covered with gray butcher paper on which bricks and torches had been drawn. A fog machine filled the darkened hall with smoke. Hanging from the ceiling were Hogwarts' famous floating candles, simulated by battery-operated tea lights in painted paper towel cores.

At the door of the program room-turned-dungeon, the Sorting Hat waited to sort children into their houses. Since we couldn't come up with a talking hat, we simply put scraps of paper, each with the name of one of the four houses, into a witch's hat for children to draw at random. Pitchers of iced pumpkin juice, a favorite in the Hogwarts dining hall, sat on nearby tables. In the dimly lit classroom, four long tables, one for each house, were covered with black tablecloths. Battery-operated candles provided atmosphere, and copies of *The Daily Prophet* newspaper were laid down to soak up spills. The Potions master's table (Figures 1 and 2) held a plastic rat skeleton, a plastic human skull, and four sets of potion ingredients. All ingredients had been put into glass bottles collected from friends and family. The containers in this spooky apothecary had handmade labels with such names as "Flesh-Eating Slug Repellent," "Unicorn Horn Powder," and "Jellied Eel Eyeballs."

To help students get into their roles, the adult and teen leaders got into theirs. In addition to Leigh Anne

as the Potions master and Brittany as the *Daily Prophet* reporter, the two teen volunteers took roles as the Head Boy and Head Girl of Hogwarts. All wore black robes and carried wands; the reporter took notes on parchment with a black quill.

The backbone of the program was the lesson plan. The children would conjure up four magical potions using ingredients from the wizarding world. In reality, they would be conducting simple kitchen chemistry experiments.

The first potion was Skele-Gro. This potion appears in the second book, *Harry Potter and the Chamber of Secrets* (Rowling, 2000), where it is used to magically regrow bones that were magicked away by an incompetent professor. This Skele-Gro was basic slime, a simple recipe of glue, water, and liquid starch that is popular with elementary school students. We wanted to begin with a potion that would be familiar to many of the children, so they could focus on skills that might be new to them, such as reading a recipe, measuring amounts, and using basic lab equipment including pipettes and measuring cups.

The second recipe was Veritaserum, a dangerous truth serum used throughout the Harry Potter series. For this potion, we had the children make a modified exploding volcano. This mainstay of school science fairs is created by combining baking soda, dish soap, and vinegar in an inverted cone-shaped container. The combined ingredients create pressure so that the contents erupt through the narrow opening at the top.





**Figure 3. Polyjuice potion**

Experiments with leftover plastic Halloween cauldrons showed that, in the absence of a confined structure with a narrow opening, the potion would merely bubble. But a bubbling cauldron is a nice thing for a witch or wizard! In making this potion, the children would practice reading the sequential steps of a recipe and measuring liquids and solids. Furthermore, they could experiment by varying the amounts of the ingredients to see if the results would also vary. This feature was designed to engage participants in critical scientific thinking and spark their curiosity.

The third potion was Polyjuice, which enables the drinker to assume the appearance of someone else. Polyjuice potion for this class was a recipe for “elephant toothpaste”: a volatile combination of yeast, dish soap, and hydrogen peroxide. When these ingredients are combined in an empty plastic water bottle, the pressure builds up as in the volcano—but the potion takes on the texture and personality of overly enthusiastic toothpaste as it rises and spills out of the bottle (Figure 3).

The final potion was Liquid Luck, which gives the person who drinks it good luck for the day. By far the

simplest, this was the only edible potion—a mixture of white grape juice and lemonade, with a small amount of insoluble edible glitter swirled in to make it sparkle. We wanted to finish on an easy and positive note. Still, making Liquid Luck would reinforce the lessons of the other three potions as children practiced reading, interpreting, questioning, measuring, mixing, learning terminology, and using lab equipment.

### Implementation

In order to sweep the children immediately into the Hogwarts world, Leigh Anne was in costume and character as the Potions master as soon as the program room doors were unlocked and she walked into the lobby. She immediately scolded a man for standing too close to the Portkey Arrival Station, as he could injure himself and others if someone arrived by portkey right where he was standing. (The man jumped aside.)

Addressing the assembled Hogwarts students and their caregivers, Leigh Anne made several announcements. Broomsticks were not allowed in the classroom, so anyone who had flown here on a broom would need to check it at the circulation desk. She thanked caregivers for returning waivers (which were never actually sent), assuring them that she had addressed issues from the last class (which was never held). In particular, she noted, Parvati Patil’s missing fingers had been found and reattached, so there was no reason for concern. Additionally, the whiskers the children would grow by the end of class would eventually fall off, so caregivers had no need to worry about that, either.

Before the program had even begun, every child in the lobby was hooked—listening intently, actively engaged, and ready to go anywhere Leigh Anne led them. The narrative had grabbed their attention while inviting them into the story. We didn’t use dialogue from the books. After all, this story didn’t belong to Harry Potter any more—it belonged to the children. They had become Hogwarts students, and they were ready to learn. Potions Master Leigh Anne introduced the Head Boy and Head Girl and the reporter from *The Daily Prophet*, who would be observing and taking photos in order to write a story on this year’s curriculum at Hogwarts. She asked students to represent their school and their houses by putting on their best behavior. From that moment on, the students earnestly addressed us as “Professor” when they had a question, entering fully into the imagined world Leigh Anne had set up.

As students filed into the program room, each picked a house name from the Sorting Hat and was directed to the appropriate house table. Each table had a librarian or a teen volunteer to assist the children. Throughout the next hour the children, working individually on some potions and collectively on others, began to learn skills they could take into the Muggle world—although they may not have realized they were learning as well as having fun.

Gathered around their house tables, students studied the recipe for Skele-Gro (see box), which was written in a Hogwarts-style font and printed on parchment paper. The challenges hit most of the students immediately: How do we know how much is two ounces? What is a drop? What is a dash? The Head Boy and Head Girl began showing the children the measuring cups and explaining the markings, pointing out the line for two ounces. The Potions master glided around the room, showing students how to use the droppers

for the tiny vials of blue Armadillo Bile. Leaders discussed what the term “a dash” means in a recipe: “It means don’t use a lot, but really it is at your discretion. If you feel more Unicorn Horn Powder is needed, then, by all means, add it!”

As soon as some of the older children figured out that they were making slime (with blue coloring as Armadillo Bile and glitter as Unicorn Horn Powder), they assumed the roles of house prefects, walking around their house tables to help housemates who were slime novices. This collective learning and self-moderation was fueled by the fact that students were competing, not as individuals, but as house teams. Gryffindor could have three excellent Skele-Gro potions, but if one member didn’t complete the task, then Gryffindor would receive no points. In

21<sup>st</sup> century learning and work environments, many problems require collective answers. The ability to work together and see the end goal for the group, as opposed to an individualistic mindset, will serve these students well in many areas of their lives.

Once the first potion was completed and house points awarded, the children read the second recipe. They were already becoming seasoned witches and wizards, thanks to the lessons they learned making Skele-Gro. They knew how to read a recipe, how to measure, how to use the equipment. Best of all, they were asking questions. “Is the Veritaserum bubbling in the cauldron? If not, why not? Let’s read the recipe again and retrace our steps.” The students were thinking like scientists, using processes required for sequential learning, the scientific method, and the engineering design process. An idea often attributed to Isaac Asimov (Quote Investigator, 2015) is that the most exciting

words in science are, “That’s funny...” To our delight, the children began using those words. “That’s funny... Look at how the potion bubbles after we add the Wartcap Powder. What if we added more Wartcap Powder? Will it bubble more? How much Wartcap Powder will it take before the Veritaserum bubbles out of the cauldron? Let’s find out!”

Forty-five minutes into the program, the participants were as engaged and focused as at the beginning, but now they also were confident. Each new recipe, though different from the previous one, gave them the chance to build on the lessons they had learned. The sequential learning allowed them to make creative leaps. They sniffed the ingredients and discussed what they really were. “Armadillo Bile is food coloring! Flesh-Eating Slug Repellent is vinegar!

# Skele-Gro

## Ingredients

- 2 oz. Essence of Comfrey
- 2 oz. Aqua Vitae
- 3 drops of Armadillo Bile
- Dash of Unicorn Horn Powder
- 2 oz. Moondew

## Directions

1. Measure 2 oz. Essence of Comfrey and pour into a bowl.
2. Add 2 oz. Aqua Vitae and mix well to combine.
3. Add 3 drops of Armadillo Bile.
4. Add a dash of Unicorn Horn Powder.
5. Mix well.
6. Measure 2 oz. of Moondew into the bowl and mix your Skele-Gro until it comes together.
7. Remove Skele-Gro from bowl and knead with

Draught of Living Death is hydrogen peroxide! Essence of Dittany is yeast! Wait—when you combine hydrogen peroxide and yeast, it explodes like that?” The skills they learned will serve them when they tackle a Muggle recipe for cookies. An instruction to add a dash of salt or to measure one-half cup will not alarm them. Similarly, their familiarity with lab equipment and scientific inquiry will serve them when they walk into a school science lab. The lab should feel familiar to them—though it will have fewer skulls.

The librarians awarded house points not only for successful potions but also for good behavior. Although we were prepared to take points away for unruliness, we saw none. We set high standards, and every single child rose to meet them. In imaginative play, children try on new roles. From the moment in the lobby when Leigh Anne addressed participants with respect as Hogwarts students who were responsible for their behavior and their school’s reputation, they recognized their agency and met the standards the role-play set.

At the end of the class, Leigh Anne tallied the house points and awarded the House Cup—to Slytherin in the first class and Hufflepuff in the second. The children received parting gifts of a bag of Bertie Bott’s Every Flavor Beans and a small chocolate frog. After toasting with Liquid Luck, the class was dismissed.

## Narrative Play and Science Learning

At the core of our low-tech science learning program was a strong narrative component. The dynamics and aesthetics of the Potions class profoundly influenced the learning that took place, playing on the human desire to learn through storytelling. As Slabon, Richards, and Dennen (2014) put it, “Learners have a predisposition to ‘story’ their experiences, organizing and making sense of their world in terms of narrative memory structures” (p. 505). In re-storying Rowling’s world, the Potions class encouraged learning in a way that framed the learners as their own storytellers.

The students thus were developing “soft” narrative, presentation, and social skills at the same time that they developed “hard” STEM skills. They quickly realized that success in brewing their potions required them not only to measure and observe but also to collaborate as a house team, ask questions, and communicate clearly.

OST programs and other informal learning environments are perfectly situated to take advantage of the potential of play as a pedagogical tool. Our Potions class immersed students in a world they had

only read and dreamed about. They had so much fun that they didn’t even realize that they were learning. Actualized storytelling enabled self-guided learning that, aside from battery-operated tea lights and a fog machine, required no technology—just magic.

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