

Introduction Discussion Questions & Answers

Question 1: Can you create science magic with chemistry?

List on the board a few of the items that students suggest. Encourage students to participate and think of pop culture examples, such as Harry Potter.

Answers: Many forms of fictional magic can be explained or partly demonstrated using chemistry. For this activity, Harry Potter is the prime example. Below are a few magical tools that Harry and other wizards use at Hogwarts that muggles can replicate using chemistry.

1. Harry's Wand

- *Magic:* A wand is a unique spell/charm caster that every wizard must have to be powerful. Once a wizard holds the right one, sparks may potentially fly from the tip. When casting spells and charms, light, noise and smoke emerge from the wand.
- *Science:* Perhaps these wands are similar to sparklers. Sparklers are unique to the fabricator, produce sparks, light, noise and smoke. The only difference is that you cannot levitate or expel anyone or anything with a sparkler.

2. Handful of Flames

- *Magic:* "Professor Lupin appeared to be holding flames," from the third Harry Potter book.
- *Science:* Maybe we cannot hold flames directly, but we could use flash paper (cellulose nitrate) or another flammable substrate (alcohol-soaked paper/bill/substrate). Caution to you muggle chemists: make sure all flames are directed away from your audience.

3. Wizard Coins

- *Magic:* Three wizard coins exist: copper, silver and gold.
- *Science:* Make a penny turn from copper to silver to gold within minutes by electrolytic plating of a copper penny with zinc and subsequent heat treatment to create brass.

NOTE: Additional answers can be found in Copes, Jane Snell, "The Chemical Wizardry of J.K. Rowling," *Journal of Chemical Education*, Vol. 83, No. 10, October 2006, pp. 1479-1483.

http://www.scienceoutsidethebox.com/More%20Fun%20With%20Science_files/JCE1006p1479-1483.pdf

Question 2: How would you make a magic wand in this science laboratory?

Answers: (Encourage students to use their imaginations.) It is easy—make our own, homemade, sparklers. Alternatively, create glowing glass rods.