



Prize Winner

Programming, Apps & Robotics

Year 7 - 8

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The Wizard of Chemistry

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The Wizard of Chemistry takes place with you as an apprentice mage. Bob, the wizard must use the natural elements to cast spells since they are inexperienced in spellcasting. Fight enemies and gain experience about chemical compounds relating to the real world.

Scientific Purpose

Our goal for this game was to teach a wider range of people about chemistry and science in a fun and engaging way. We mainly thought this was important because science can sometimes be one of the more boring subjects, while there are actually cool and interesting aspects relating to the world that aren't always covered in classes.

The game itself predominantly focuses on compounds, the things that are actually in our world and what they are made of. The more compounds you can create in the game, the broader the player's knowledge would be afterwards.

Loading the Program

1. To load the program, simply open any web browser and search for 'Scratch'.
2. Click onto Scratch - Imagine, Program, Share (Or click here: scratch.mit.edu).
3. Go to the top right corner of the page and select 'Sign In'.
4. Enter the details:
Username: `Datarame_Comp`
Password: `87960*`
5. Click on the on the folder icon next to the profile picture (My stuff)
6. Open the top option: 'The Wizard of Chemistry'
7. Hit the green flag to begin playing

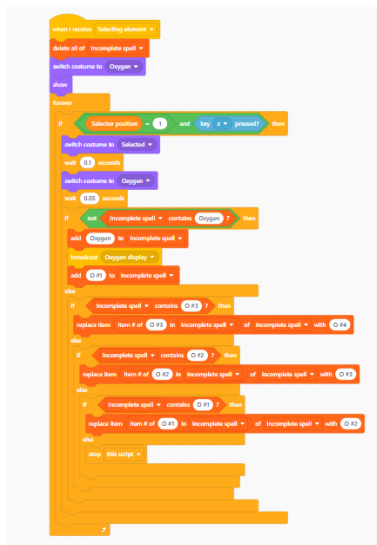
Requirements

To run our program, only access to a web browser is required. This includes Wifi accessibility, and an electronic device such as a computer or laptop (Hand - held touch screen devices such as I pads are not supported).



Main Code Breakdown

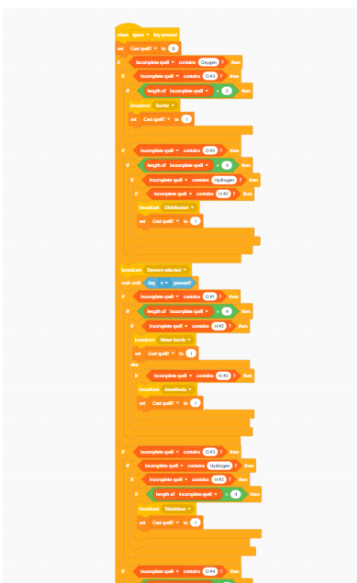
The code being shown in this section delves into the code that actually makes the games scientific purpose work, such as the spell casting, and element selecting (Otherwise it would just be too much!).



This line of code is inside of every element shown.

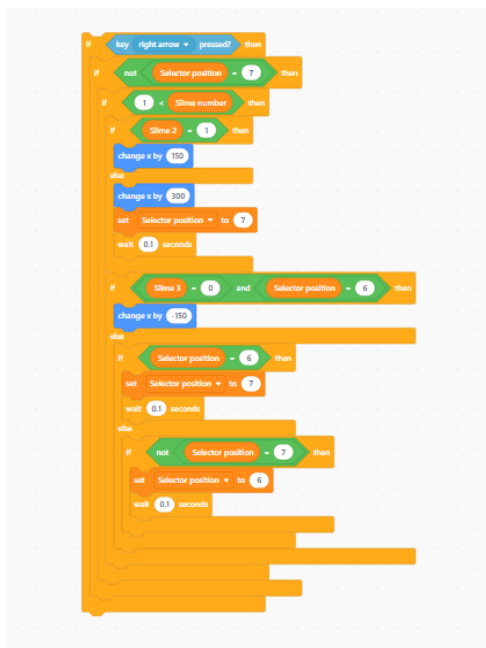
Its purpose is to determine how many times the element has been selected, and add it to a list in the background of the game.

It functions by taking the selector's position (Which is kept as a variable), and works out whether the selector is on top of itself when the selection key is pressed. When it is first clicked, it adds the element to the list and keeps adding it as the form of O #n (number of oxygen) the more times it is selected.



Essentially, this MASSIVE 'if else' script reads the invisible list made in the previous line and decides what spell to cast based off of it.

It starts by checking for oxygen (Since it's in a total of 10 out of 12 spells) and then checks the amount of it. From that, it then looks at the spells that contain that amount and what else is in the compound. If it eventually finds a match, then the spell will be casted. However, there is also a variable to prevent softlock. If a match is found, then 'Spell Casted' is set to 1. If the line ends with 'Spell Casted' still on 0, then it resets your turn.



This script allows the selector to NOT go onto invisible enemies (Not science related, but I spent a good half hour on this line).

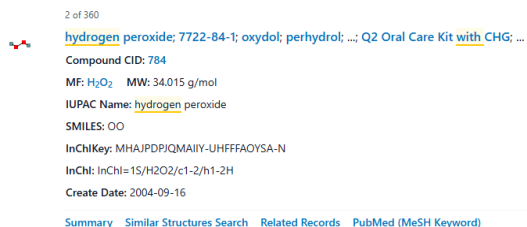
First it checks whether the selector is on the edge, that way it won't go off screen. Then it checks if there is more than one enemy, since if there is only one then the selector shouldn't move, which afterwards it looks at a variable to decide whether the middle enemy is alive. If it isn't, then it will move double the distance to the other enemy. Else it will move regularly and select like normal.

Acknowledgements

Ms Hill - Organised the event

Jaylen Rowe (Brother) - Music, Helped research

Zephyr Wright (Friend) - Spell ideas and main playtester



Key research websites:

- PubChem
- CompoundChem

References:

PubChem (no date) *National Center for Biotechnology Information. PubChem Compound Database*. Available at: <https://pubchem.ncbi.nlm.nih.gov/> (Accessed: 18 June 2026).

Chemistry infographics (2026) *Compound Interest*. Available at: <https://www.compoundchem.com/> (Accessed: 18 June 2026).

NO AI WAS USED OR REFERENCED ON WHILE MAKING THIS PROJECT