

SUPERPOSITION

THE “SUPER POWER” OF PARTICLES

Instruction Sheet

Quantum physics looks into what happens at the smallest, most fundamental levels of matter and energy. Rules of behavior are different there. Strange things happen at such a small level. In this activity, you'll explore a quantum physics topic called superposition. Then, you will create examples of that topic to share with your peers and us.

MATERIALS

Materials needed will depend on how you want to represent your understanding of “superposition”.

INTRODUCTION

Argonne researchers use quantum theories in many fields such as physics, chemistry, and even computing. One important quantum idea used in many fields is superposition. Superposition is the idea that at very small levels, one particle can be in more than one position, as long as it is unobserved. Observing that particle makes it fall into just one position. For example, imagine a coin. It has two faces: heads and tails. While it is flipped or spinning, it is both of these faces simultaneously. Once it lands and is “observed,” it can only be one face. For today's activity, you'll create and share your own example of superposition to demonstrate your understanding of this topic. You can draw, sculpt, build, write, or even create a video! Be creative!

PROCEDURE

1. Watch the video “Quantum Computing Expert Explains One Concept in 5 Levels of Difficulty” (Timestamp: 2:18-6:15)
2. Reflect on what you learned from the intro and the video. Note: Feel free to look up more superposition examples using a search engine such as Google.
3. Create your own example or way to convey the idea of superposition. This can be through art, poem, joke, meme, etc. See examples on the next page.
4. [CLICK HERE TO SUBMIT](#) what you have created. You will be prompted to upload a file. This can be an image, document, or video file. Your submission may be featured on Argonne's Education Instagram account: Argonne_education

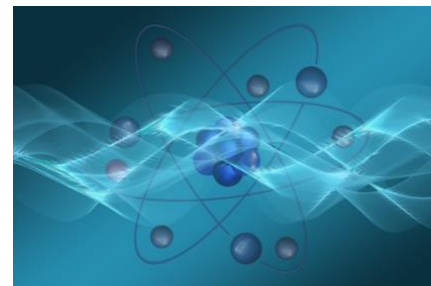


Image Source: pixabay

ACTIVITY HIGHLIGHTS

- Learn about a core quantum science idea.
- Create your own example of superposition!
- Share your creation with Argonne Education!

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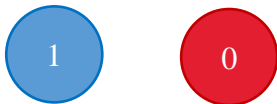
Data Sheet

Examples

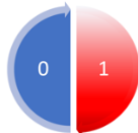
Not sure on what to create? See list and examples below for ideas:

- A painting or sculpture that represents superposition
- A poem or story that defines or explains superposition
- A gif or video to demonstrate superposition
- A rap or song to define and explain superposition
- A joke related to superposition
- A comic strip about a super hero with superposition powers

Bit



Qbit



Superposition haiku:

Superposition
Multiple places at once
Observed I am here

