

Taking the Quantum

LEAP

#5 Legacy Gazette

ANNABELLE LEI

TAKING THE QUANTUM LEAP

Quantum: The Buzzword Transforming Our World

You may have noticed the frequent use of the term "quantum" recently. Quantum technology is significantly influencing various fields, from smartphones to hospitals. But what does "quantum" actually mean, and how is it applied today? Let's explore this further.

1. Uses of "Quantum" Today

Cybersecurity: protecting our data

Quantum physics is transforming the methods we use to safeguard information. Quantum cryptography leverages the principles of quantum mechanics to establish highly secure communication channels that are exceedingly difficult to infiltrate (IBM, 2023).

Healthcare and Drug Discovery: Advancing Medicine

In the field of medicine, quantum computing aids researchers in simulating intricate molecules, thereby accelerating the development of new pharmaceuticals. Quantum sensors enhance medical imaging, resulting in improved diagnoses (Nature Medicine, 2023).

Space Exploration: Advancing Technology

Quantum technologies are crucial for space missions. Quantum sensors facilitate accurate navigation for spacecraft, while quantum communication guarantees secure data transmission between space and Earth (NASA, 2023).

Predictions and Models: Enhanced Forecasts

Quantum computers manage extensive datasets and intricate simulations, thereby enhancing weather forecasting and climate modeling. This assists scientists in making more precise predictions regarding natural disasters and climate change (Climate Science Journal, 2023).

2. Basics of Quantum Physics

Quantum Mechanics

Quantum physics examines the smallest particles in the universe, such as electrons and photons, and their behaviors, which differ from our everyday experiences.

Superposition

A fundamental concept is superposition, where particles can exist in several states simultaneously until they are measured. Imagine being in two places simultaneously!

Entanglement

Quantum entanglement occurs when particles become connected, causing the state of one particle to instantaneously influence the state of another, regardless of the distance between them. This is essential for technologies such as quantum computing and secure communications.

The Heisenberg Uncertainty Principle asserts that it is impossible to simultaneously know both the precise position and momentum of a particle. This highlights the fundamental limitations of measurement in the quantum realm.

Quantum Tunneling

Quantum tunneling enables particles to traverse barriers that they would typically be unable to pass, playing a crucial role in technologies such as semiconductors used in electronics (Energy Research Journal, 2023).

Conclusion

Though quantum physics may seem complex, its applications are pervasive, enhancing our safety, health, and connectivity. Quantum technology is shaping a smarter and more efficient future, from safeguarding your data to advancing space exploration.

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Quantum Physics: Transforming **Everyday** Industries

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Quantum physics may seem like a concept from a sci-fi movie, but it is effecting tangible changes across various fields. Here is a brief overview of several industries significantly influenced by quantum physics:

1. Cybersecurity: Protecting Our Data

Quantum physics is transforming cybersecurity through quantum cryptography, which establishes exceptionally secure communication channels. This technology renders it virtually impossible for hackers to intercept and decipher sensitive information, thereby enhancing the safety of our digital lives (IBM, 2023).

2. Healthcare and Drug Discovery: Advancing Medicine

In the field of healthcare, quantum computing assists scientists in simulating complex molecules, thereby accelerating the drug discovery process. This facilitates the faster and more efficient development of new medications. Furthermore, quantum sensors enhance medical imaging, resulting in earlier and more precise diagnoses (Nature Medicine, 2023).

3. Space Exploration: Enhancing Technology

Space missions gain advantages from quantum technologies via sophisticated quantum sensors and communication systems. These innovations enable accurate navigation for spacecraft and secure data transmission between space vehicles and Earth, thereby enhancing the reliability and efficiency of space exploration (NASA, 2023).

4. Predictive Modeling: Enhanced Predictions

Quantum computers are proficient in managing extensive datasets and intricate simulations, leading to improved weather forecasting and climate modeling. This facilitates more accurate predictions of extreme weather events by scientists, enabling communities to better prepare for and respond to natural disasters (Climate Science Journal, 2023).

5. Internet of Things (IoT): Smarter Connections

The Internet of Things (IoT) links everyday devices, such as smartphones, refrigerators, and fitness trackers. Quantum physics enhances IoT by improving data processing speeds and security, thereby increasing the efficiency and reliability of our connected devices (IEEE IoT Journal, 2023).



Conclusion

Quantum physics is more than a theoretical discipline; it is a catalyst for real innovations that affect our everyday lives. Quantum technologies are shaping a smarter, more connected future by securing our data, advancing medicine, exploring space, and improving weather predictions.

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EVERYDAY USES

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OF ⚡ QUANTUM PHYSICS ⚡

Smartphones and Electronics:

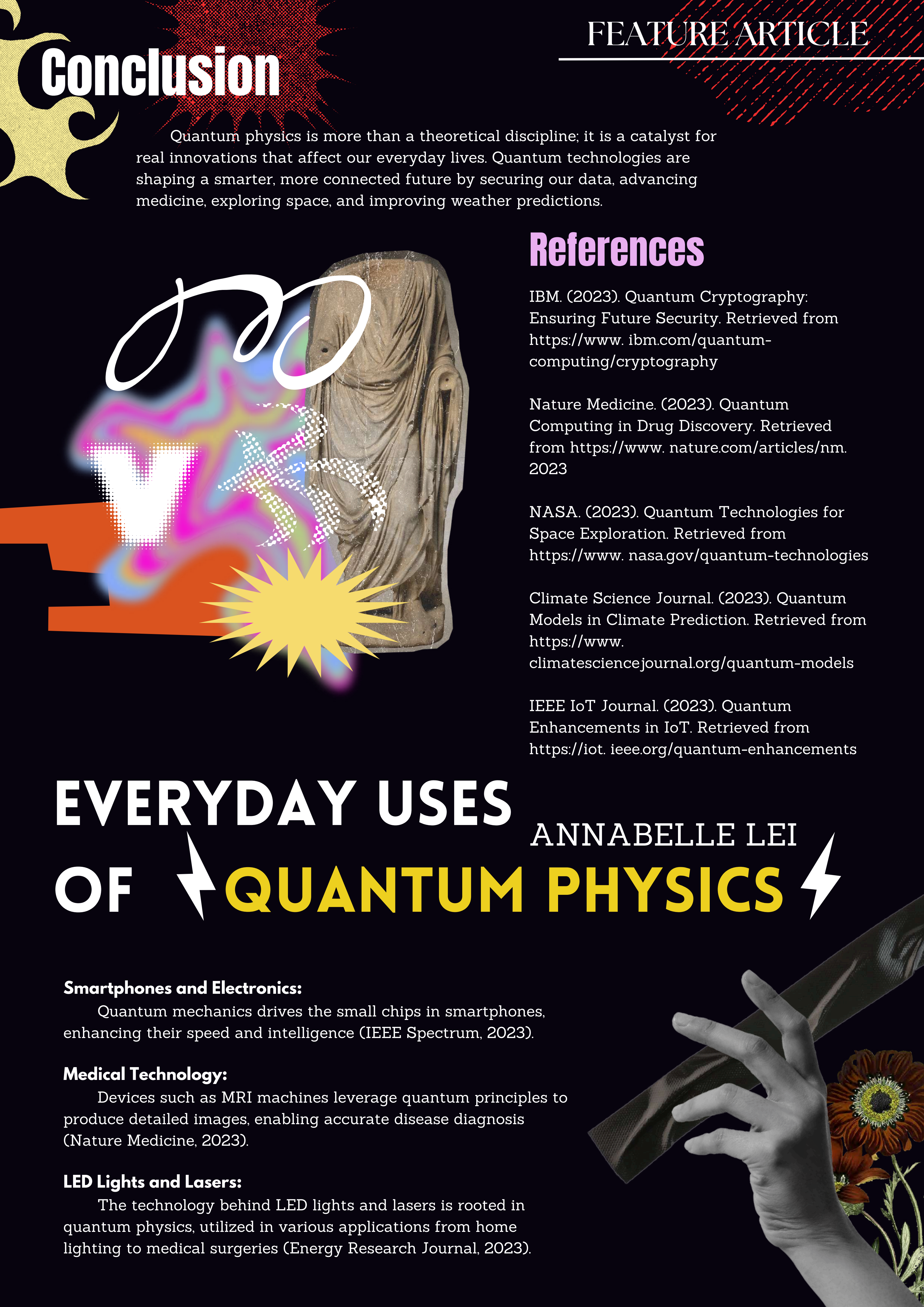
Quantum mechanics drives the small chips in smartphones, enhancing their speed and intelligence (IEEE Spectrum, 2023).

Medical Technology:

Devices such as MRI machines leverage quantum principles to produce detailed images, enabling accurate disease diagnosis (Nature Medicine, 2023).

LED Lights and Lasers:

The technology behind LED lights and lasers is rooted in quantum physics, utilized in various applications from home lighting to medical surgeries (Energy Research Journal, 2023).





Quantum Computing:

Quantum computers can tackle complex problems significantly faster than traditional computers, transforming areas such as medicine, cybersecurity, and climate science (IBM, 2023).

Secure Communications:

Quantum cryptography provides highly secure data transmission, safeguarding our information against cyber threats (IBM, 2023).

Space Exploration:

Quantum sensors enhance navigation and communication for space missions, improving the efficiency of exploration (NASA, 2023).

Schrödinger's Cat
UNRAVELING THE MYSTERIES OF
QUANTUM SUPERPOSITION
ANNABELLE LEI

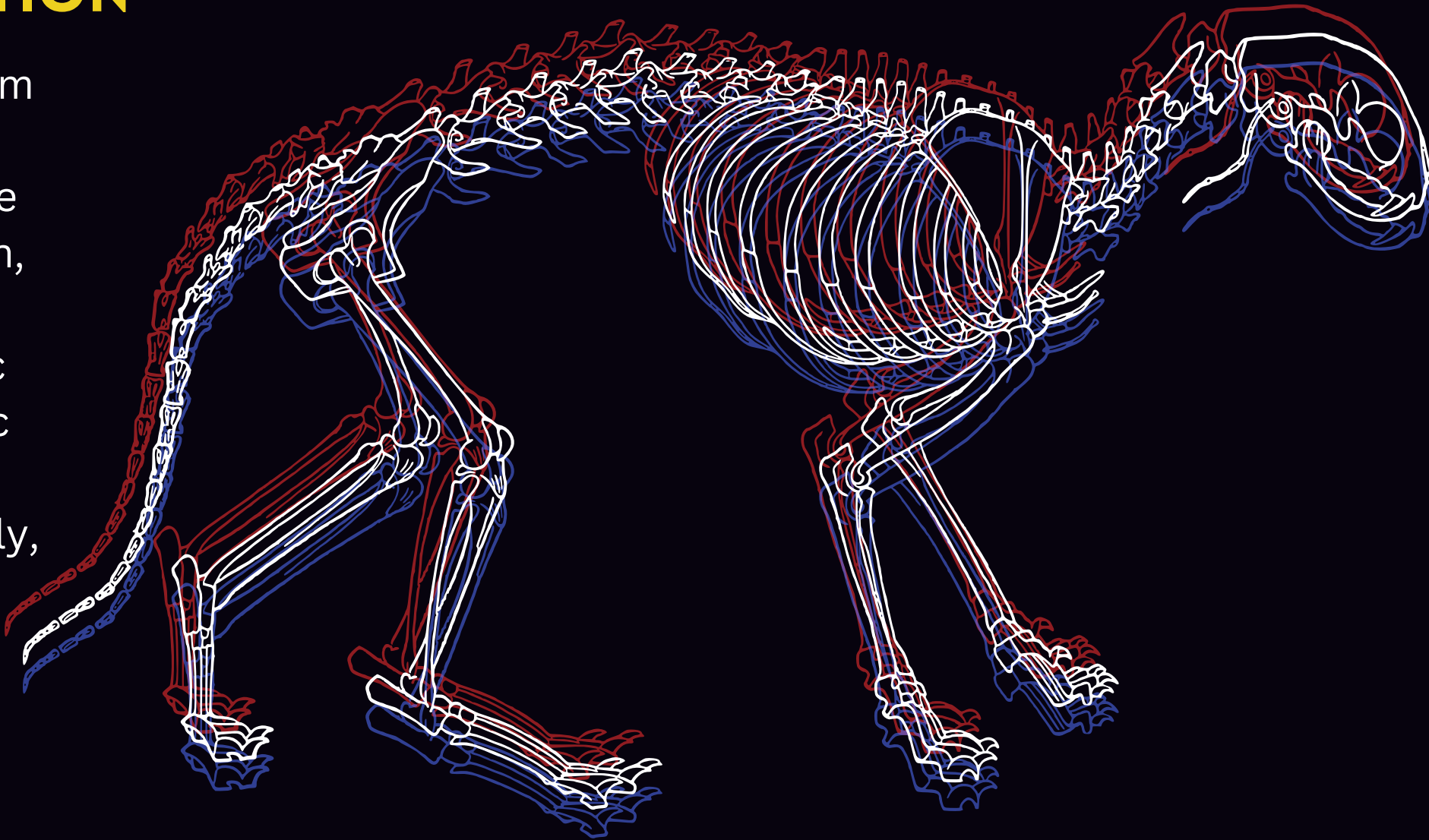
Imagine a cat, comfortably resting inside a sealed box. According to quantum physics, the cat exists in a unique state of being both alive and dead until the box is opened and it is observed. This thought-provoking scenario, widely recognized as Schrödinger's Cat, provides insight into one of the most perplexing principles in physics: **Superposition.**

In 1935, Austrian physicist Erwin Schrödinger created this thought experiment to demonstrate the peculiar implications of quantum physics (Schrödinger, 1935). At its essence, the paradox questions our traditional understanding of reality. In the quantum realm, particles such as electrons can simultaneously occupy multiple states, a phenomenon referred to as superposition. Schrödinger extended this concept to macroscopic entities by introducing a hypothetical cat that exists in a state of being both alive and dead until observed.

Here's how it functions: Within the box, a radioactive atom has a 50% probability of decaying within one hour. If it decays, it activates a mechanism that releases poison, resulting in the cat's death. According to quantum theory, an atom remains in a superposition of decayed and undecayed states until it is observed, resulting in the cat being both alive and dead at the same time (New Scientist, 2023).

UNDERSTANDING SUPERPOSITION

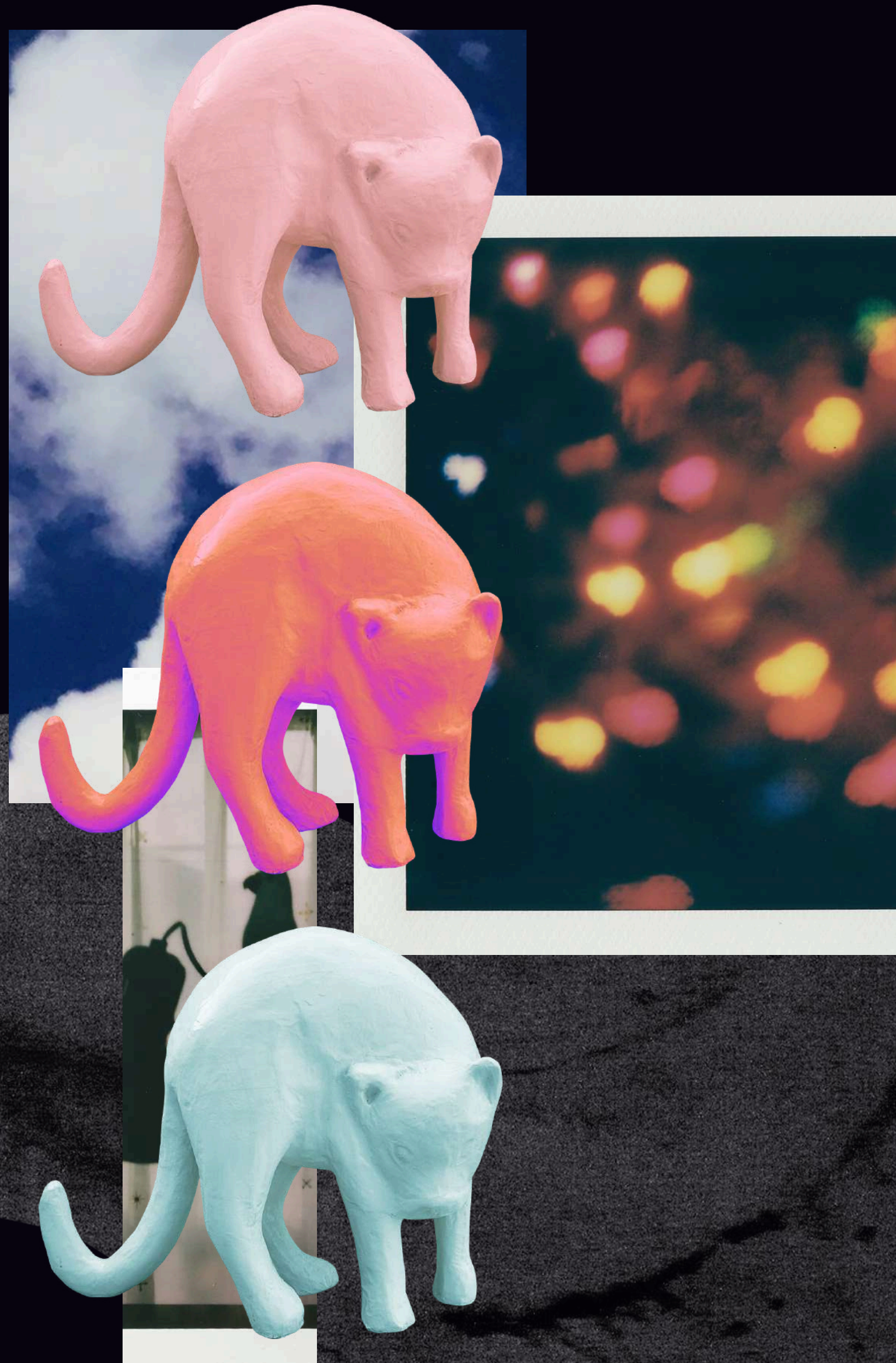
Superposition is fundamental to quantum physics. It suggests that particles can be in multiple states or positions at the same time until they are measured (Scientific American, 2023). This principle contradicts our daily experiences, where objects possess specific properties and locations. In the microscopic realm, superposition enables particles to execute multiple calculations simultaneously, forming the basis for quantum computing. However, applying this concept to macroscopic objects, such as Schrödinger's cat, raises paradoxes that question our perception of reality.



A MODERN **TWIST** ON SCHRÖDINGER'S PARADOX

Recent developments in quantum theory have reinvigorated Schrödinger's thought experiment. A compelling development investigated by scientists pertains to quantum entanglement and decoherence, shedding light on the functioning of superposition in larger systems (Scientific American, 2023).

Quantum entanglement arises when particles become linked, so that the state of one immediately affects the state of another, regardless of the distance between them. Incorporating entanglement into the Schrödinger's Cat scenario implies that the cat's state may be entangled with other quantum systems, potentially providing novel approaches to observe and manipulate superposition (New Scientist, 2023). On the other hand, decoherence explains why macroscopic objects, such as cats, are not observed in superposed states. It states that interactions with the environment cause quantum systems to rapidly lose their coherent states, rendering superposition effects largely unobservable at larger scales (Scientific American, 2023). This phenomenon facilitates the connection between the quantum and classical realms, indicating that although superposition is genuine, its effects are transient and limited to the microscopic domain.



IMPLICATIONS FOR QUANTUM THEORY

Recent interpretations of Schrödinger's Cat carry significant consequences for quantum theory:

Quantum Computing:

Grasping and utilizing superposition and entanglement could transform computing, allowing machines to resolve complex issues at a rate significantly faster than classical computers (New Scientist, 2023).

Quantum Communication:

Entanglement may lead to invulnerable encryption techniques, improving the security of information transmission (Scientific American, 2023).

Foundations of Reality:

Investigating these paradoxes extends the limits of our understanding, encouraging new theories that could eventually integrate quantum physics with general relativity (Schrödinger, 1935).

Philosophical Insights:

Schrödinger's Cat obscures the distinction between observer and observed, raising inquiries about the essence of consciousness and reality itself (New Scientist, 2023).





BEYOND THE PARADOX: REAL-WORLD EXPERIMENTS

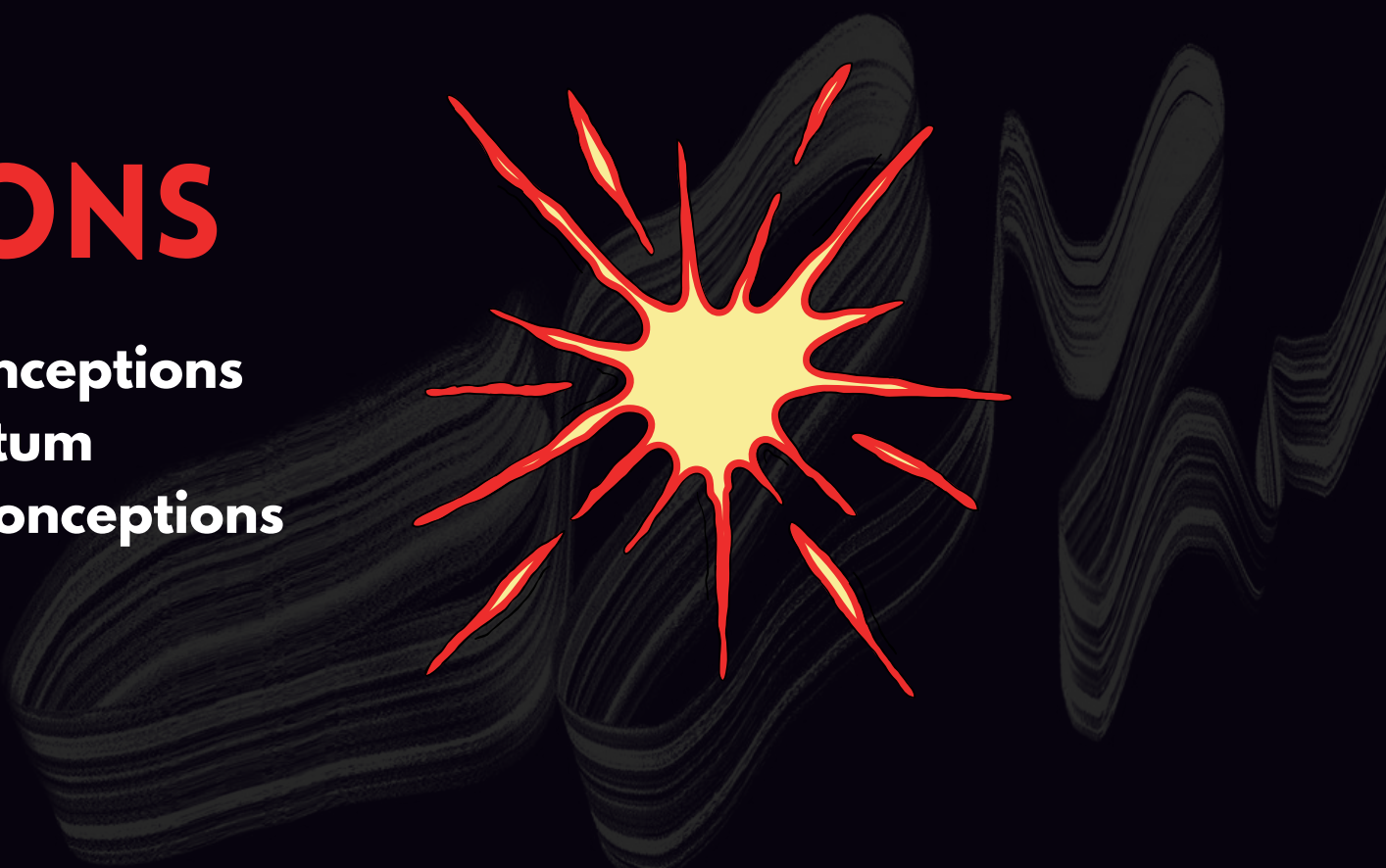
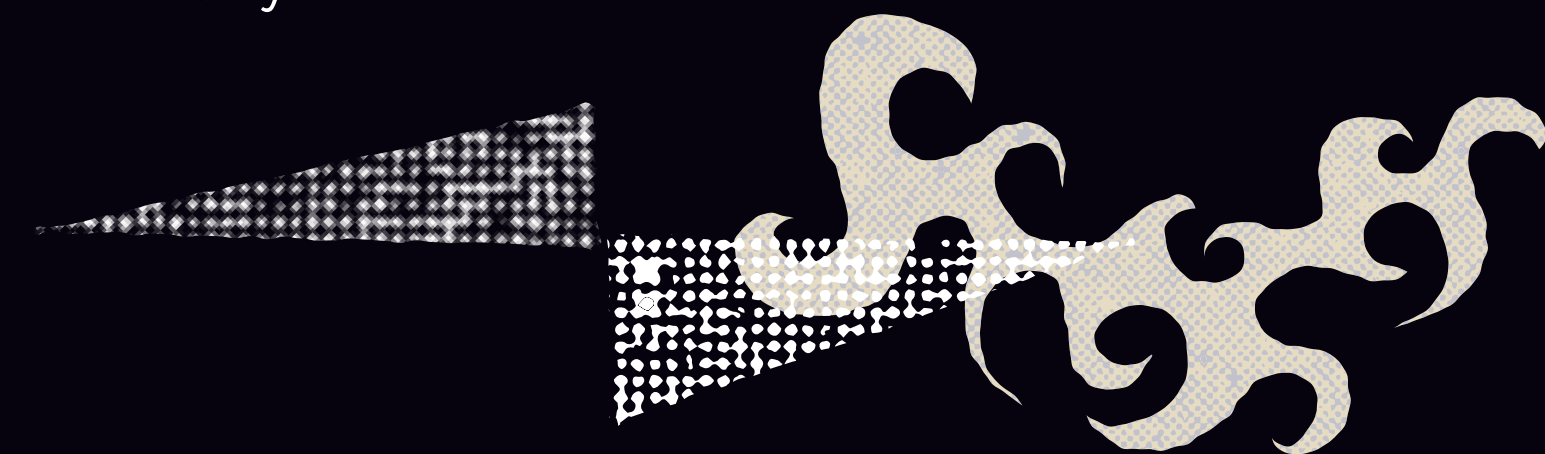
Though Schrödinger's Cat is primarily a thought experiment, researchers are increasingly performing experiments that reflect its principles. Projects focused on superconducting qubits and trapped ions are designed to generate and observe superposition states in progressively larger systems, moving nearer to the demonstration of macroscopic quantum phenomena (Scientific American, 2023).

For example, researchers have effectively positioned small mechanical resonators in superposition, setting the stage for prospective future experiments with larger objects (New Scientist, 2023). These efforts not only push the boundaries of quantum physics but also encourage technological advancements that have the potential to change numerous industries.

CONCLUSION

Schrödinger's Cat continues to serve as a compelling metaphor for the enigmatic aspects of quantum physics. By questioning our perceptions of reality, it encourages us to investigate the fundamental principles that govern the universe at its core. As scientists explore the complexities of superposition and entanglement, we are on the verge of discoveries that could change our understanding of existence itself.

Whether you are an experienced physicist or just a curious individual, the paradox of Schrödinger's Cat provides an intriguing insight into the quantum world: a domain where the unimaginable becomes feasible, and the limits of reality are continually redefined.



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QUANTUM MISCONCEPTIONS

While quantum physics are real and plausible, misconceptions happen when the general public has ideas of what quantum physics are on the surface level. Below are common misconceptions that are widely regarded as true.

1. "QUANTUM PHYSICS AFFECTS DYSTOPIAN SOCIETIES AND CAN'T BE USED IN SOCIETY."

This misconception comes from many movies and the notion that quantum in itself is counterintuitive. In reality, quantum physics works to mathematical frameworks that might seem strange from an outside perspective, but simply is not what many people are used to understanding.

2. "THERE IS NO LIMIT TO WHAT QUANTUM PHYSICS COULD DO, INCLUDING CREATING "FASTER THAN LIGHT" COMMUNICATION."

This is somewhat true, quantum physics does have a limit, as all things do, and certainly will not go faster than light, but there is no doubt that quantum physics will allow for an increase in speed of communication.



5. "QUANTUM COMPUTERS WILL EVENTUALLY RID THE NEED OF MODERN COMPUTERS."

This is entirely untrue, as quantum computers are specialized to do certain things, and will not work as complete replacements for computers. They excel at solving intractable problems that involve high degrees of complexity (Himes, 2024).

6. "ONLY GOVERNMENTS CAN USE QUANTUM TECHNOLOGIES."

This is false, many healthcare organizations and small businesses will eventually be able to use quantum technologies and can be used to improve the quality of the services that are offered by these companies.

While quantum physics might seem like a heavy topic for many to grasp, it isn't as formidable of a topic as we think. Quantum physics is meant to improve how our society functions, and clearing misconceptions up is the first way to integrate quantum into the world.



3. "QUANTUM PHYSICS COULD BREAK THROUGH THE SECURITY THAT WE HAVE."

Although quantum computers are said to be extremely intelligent and could break certain encryption methods, governments are prepared for what will happen. They are developing quantum resistant technologies to ensure that all data is not spread (Oxford, 2024).

4. IN TERMS OF DANGER LEVELS, QUANTUM PHYSICS IS EXTREMELY DEADLY AND COULD CAUSE THE END OF EARTH AS WE KNOW IT.

Quantum Physics is dangerous, but not more dangerous than anything else, as long as it is managed properly. Regulations will help mitigate risks for the future.



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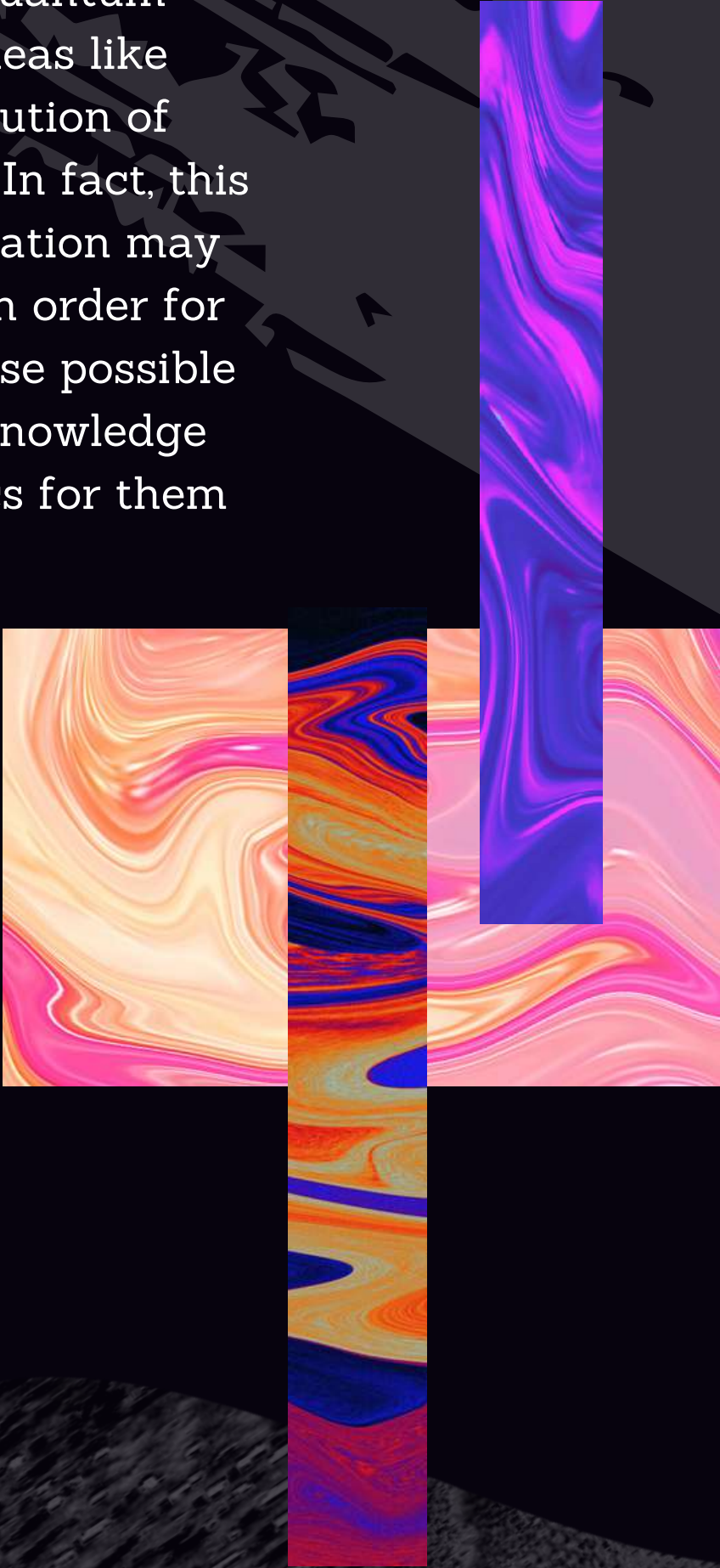
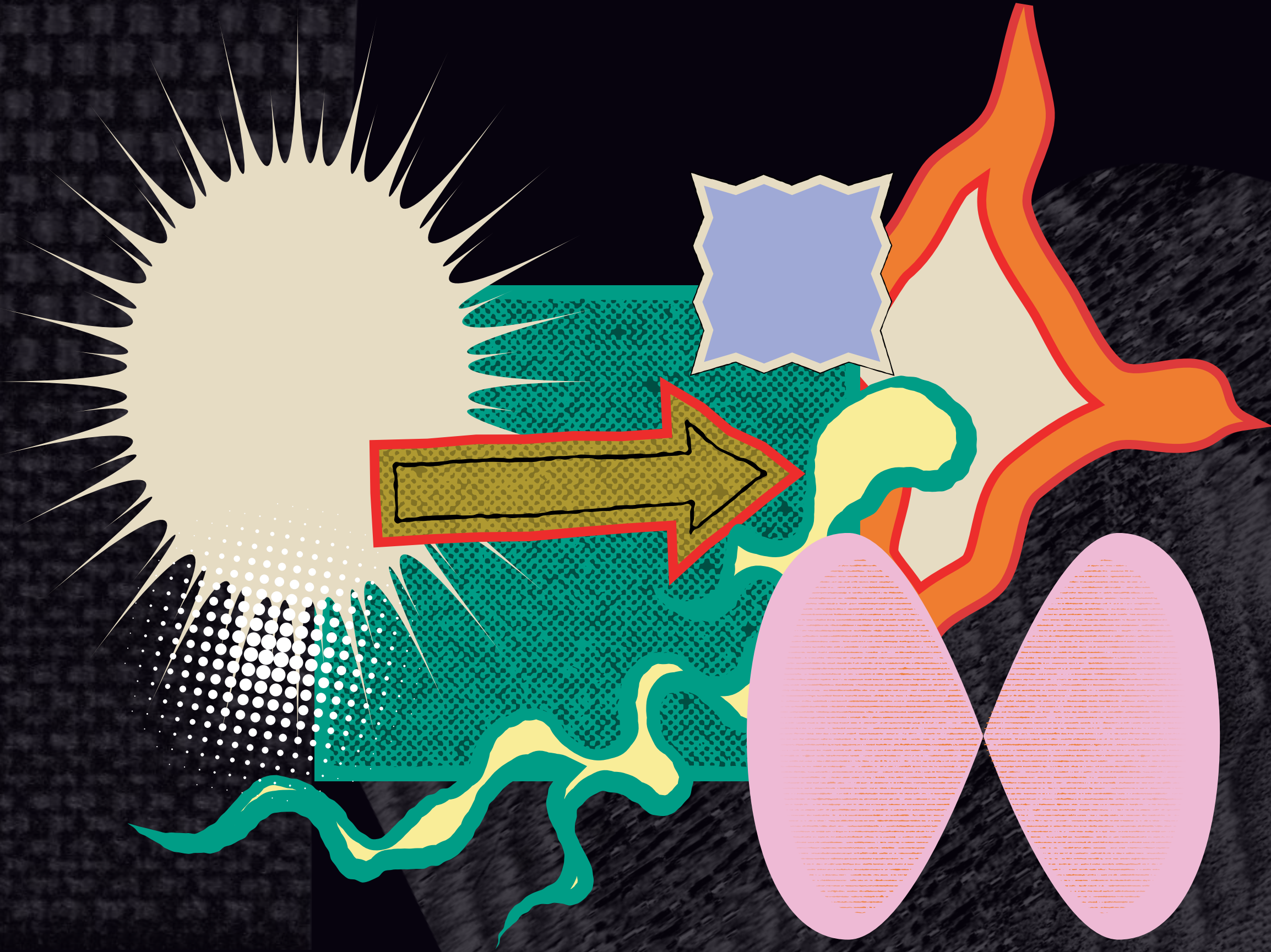
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FUTURE POTENTIAL:

Quantum physics is growing in many aspects, and with this will come breakthroughs in the field of tech and energy. One of the most anticipated breakthroughs is that quantum physics could be used to achieve near-perfect efficiency in regards to solar cells specifically. In a study by Lehigh University, researchers found that quantum efficiency could go up to 190% after new quantum materials were discovered. It's ideas like these that contribute to the evolution of quantum physics as we know it. In fact, this is where the notion that teleportation may exist in the future comes from. In order for our society to focus more on these possible happenings, the public must acknowledge and understand quantum physics for them to substantiate.



Getting Started with quantum physics

Fiona Wang

QUANTUM LAB SIMULATION -

This fun and engaging simulation allows for the user to explore all things quantum physics related! While it might be confusing at first, this real simulation will teach things such as superposition and entanglement.

Not sure where to start learning about quantum physics? Check out the links below!

PHET QUANTUM WAVE INTERFERENCE SIMULATION -

This simulation will explore the properties of a photon, electron, neutron, or helium atom as a wave packet that collapses upon detection. This is helpful to start to visualize and understand certain mechanics behind quantum physics.

QUANTUM MECHANICS EXPLAINED IN RIDICULOUSLY SIMPLE WORDS -

A video that is extremely helpful in understanding quantum mechanics without using overly complicated wording. Uses humor and common examples to relate to the viewer and is perfect for any viewer who doesn't know where to start learning.

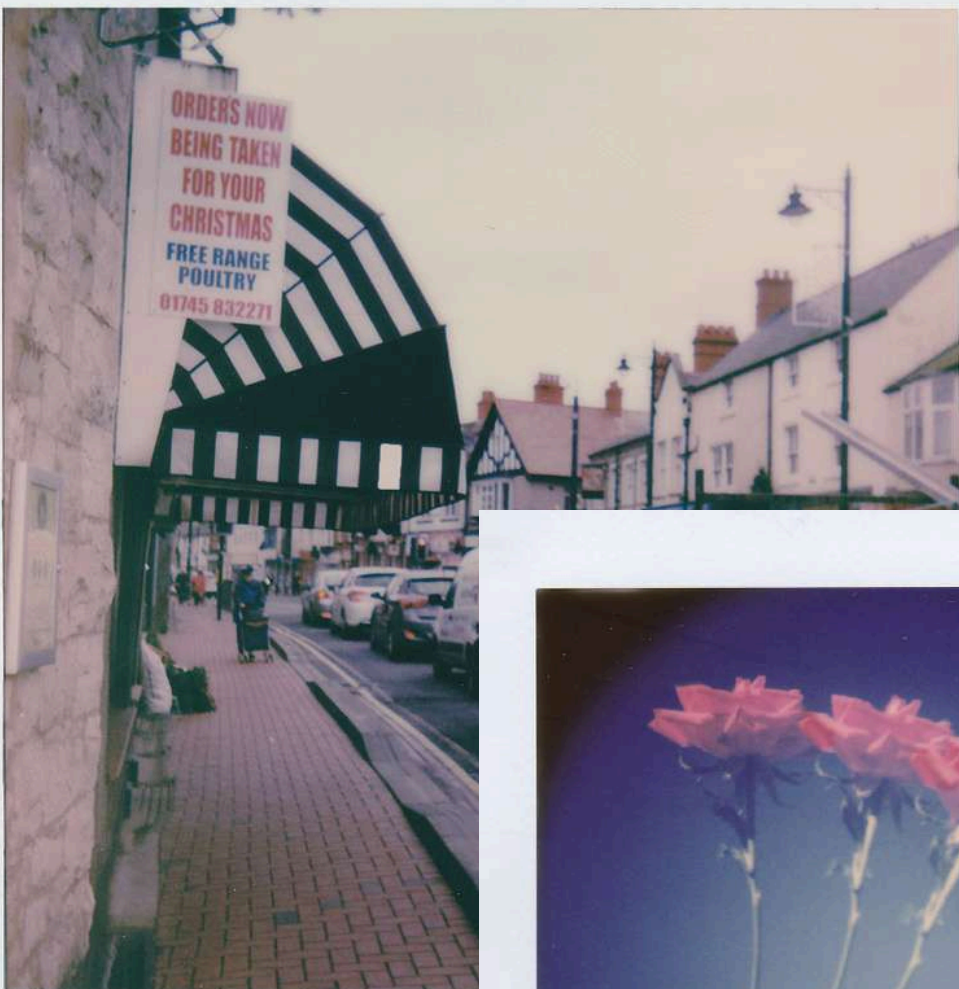
IF YOU DON'T UNDERSTAND QUANTUM PHYSICS, TRY THIS!

This video is a comprehensive overview of quantum physics, but also is simple enough for new learners to understand! This explains many common experiments and theories which might be helpful to curious students!

QUANTUM MECHANICS - CRASH COURSE PHYSICS SERIES -

Crash courses may be helpful with a previous understanding of quantum physics, but can also boost the engagement of those who are not as familiar with the topic. This series delves into the specifics of quantum mechanics in a way that is easy for the audience to follow. This crash course is recommended if you have extra time to explore!

These are a few resources that would be helpful to new viewers and provide an in-depth yet appealing presentation of the basics behind quantum physics. As quantum physics grows as an interest, simplified and effective resources may be the most efficient way to learn more about the topic.



Twenty nine Palms, USA

Mon, Sep 23rd 2019

Quantum PHYSICS POP IN EVERYDAY LIFE & CULTURE

ERWIN WANG

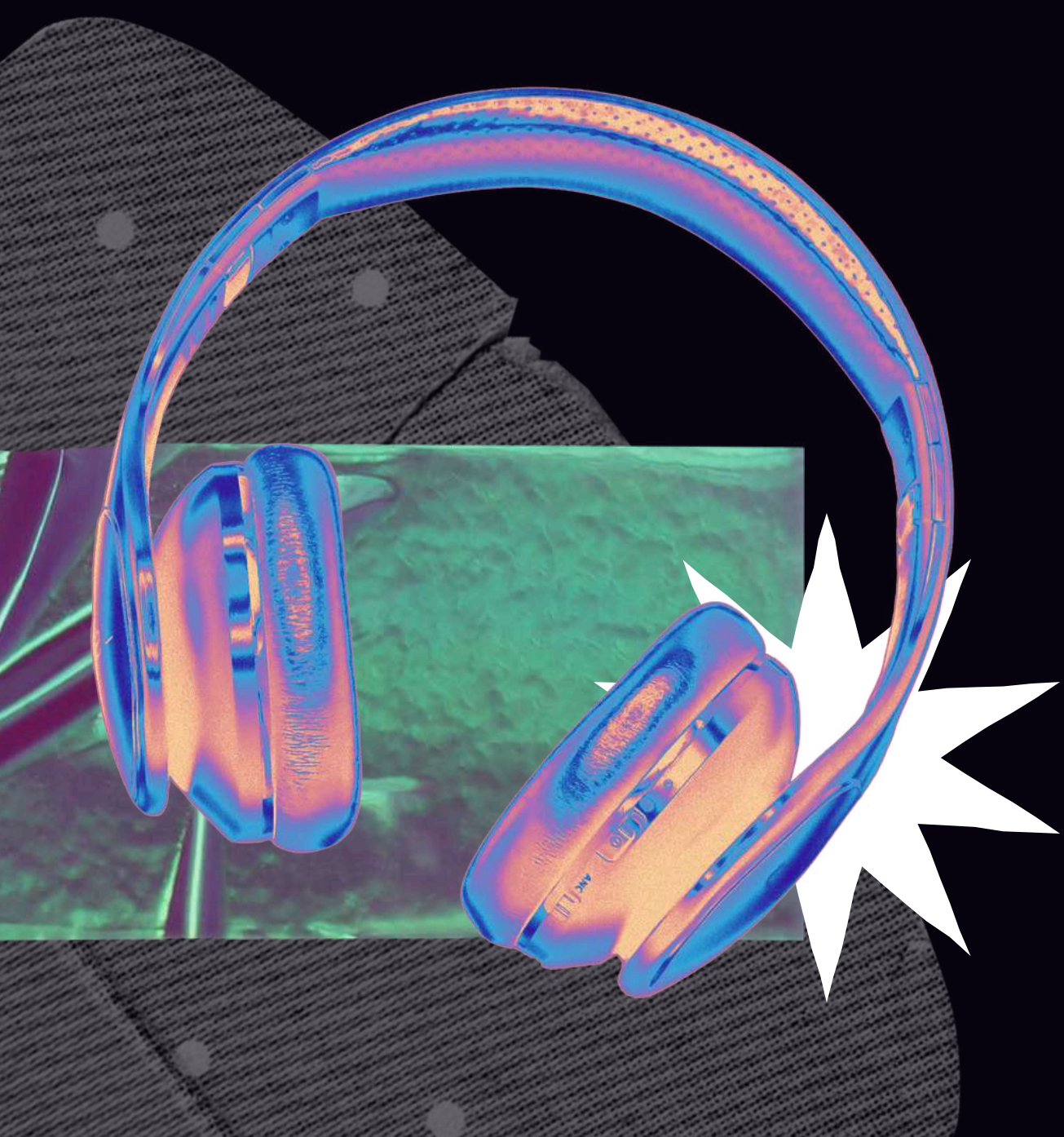
Quantum physics, often regarded as a complex and enigmatic branch of science, influences much more of our everyday lives than you might think. From the device you're reading this on to pop culture references that have seeped into movies and TV shows, quantum concepts are everywhere, even if we don't always notice.

Take your smartphone, for example. Did you know that its processor relies on quantum mechanics to function? The semiconductors that make your phone run are made possible by quantum theories governing the behavior of electrons. Without these strange quantum phenomena, modern electronics—including the computer you're using right now—would simply not exist. The GPS systems we rely on to navigate are another great example. They depend on atomic clocks, which operate based on quantum principles to maintain precise timing.

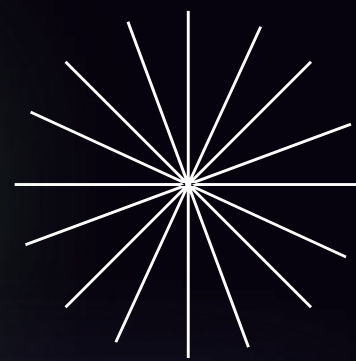
Quantum physics is not just practical; it has also deeply embedded itself into popular culture. Remember Schrödinger's cat, a thought experiment devised by Austrian physicist Erwin Schrödinger? It's become a symbol of the strange paradoxes inherent in quantum theory, and it's regularly referenced in everything from sitcoms like *The Big Bang Theory* to blockbuster movies. The *Marvel* universe, too, uses quantum realms to explain time travel and alternate realities, bringing a taste of quantum weirdness into the imaginations of millions. Even the film *Everything Everywhere All At Once* embraces the concept of quantum multiverses, using it to illustrate the endless possibilities of alternate timelines.

Quantum mechanics' pop culture penetration isn't just about confusing cats or alternate timelines. It's a testament to humanity's fascination with the mysteries of the universe. The quirks and contradictions of quantum theory such as particles existing in multiple states at once or teleporting between locations make for compelling storytelling that sparks curiosity about the world beyond our perception.

The next time you check your phone, laugh at a quantum joke, or ponder the possibilities of a multiverse, remember that quantum physics isn't just for scientists in labs. It's a fundamental part of how we live, navigate, and even dream of what might be out there in the universe everywhere, all at once.



THE SPECTRUM



How high schools choose their science classes & how they can step it up for the next generation OF STEM:

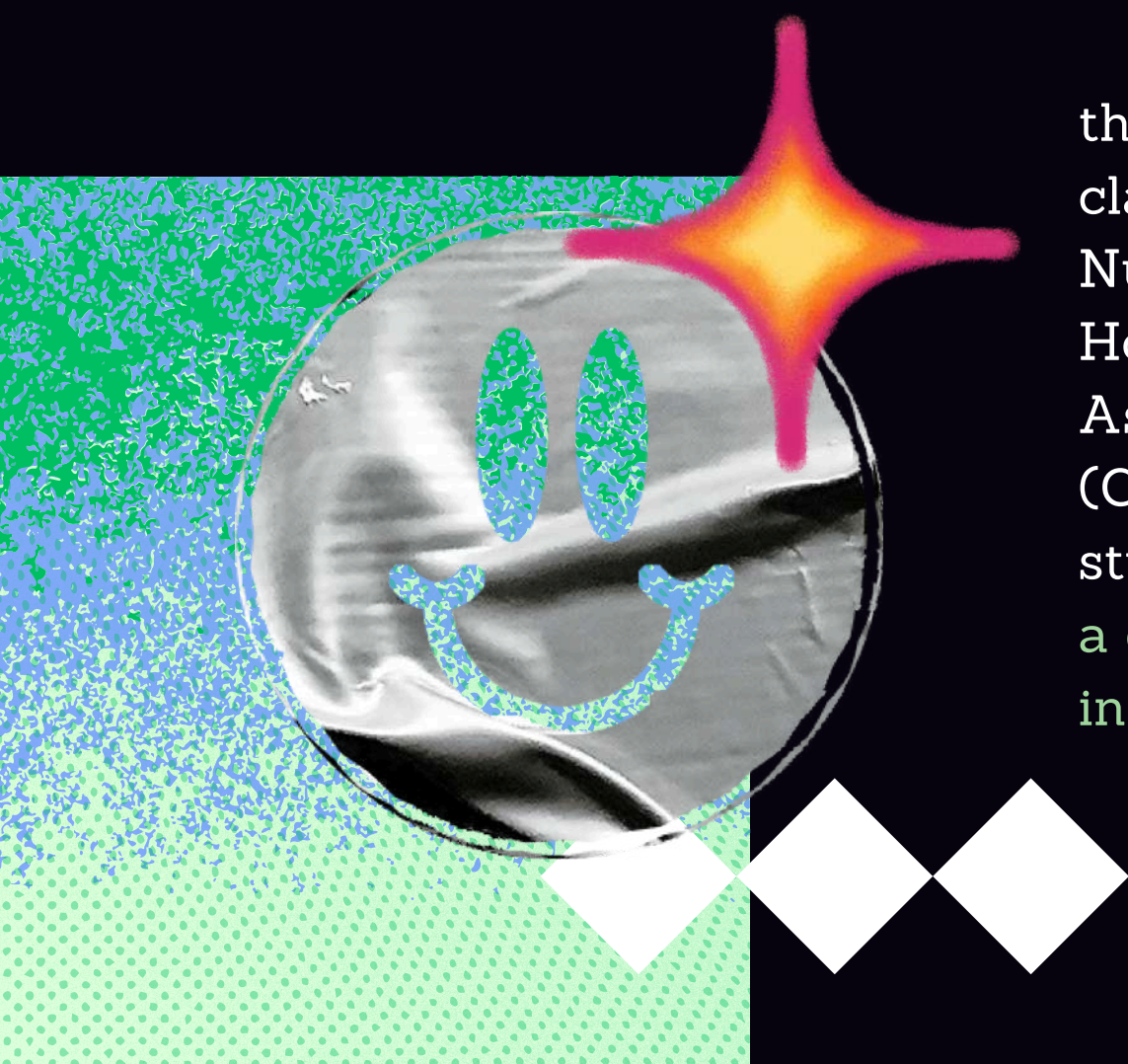
FATIMAH AL-SALEEM

One of the core five classes in schools is science, and many schools require students to take multiple years of science, such as physics, chemistry, and biology. However, how do schools choose their science classes and how do they choose the order in which they are taken? Do schools have any science extracurriculars?

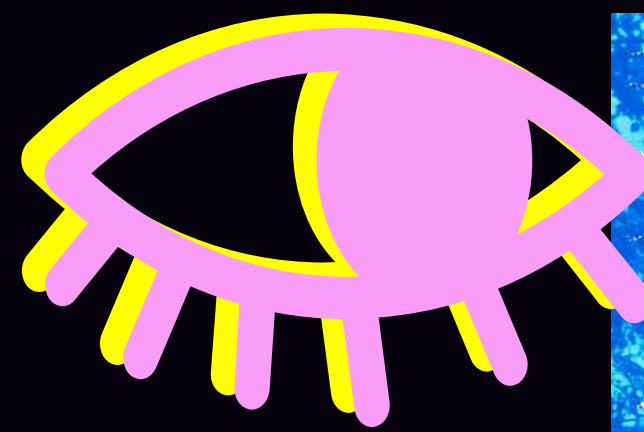
Many high schools require students to take three years of science to give them a full overview of the subject. Some students are more inclined to choose one type of science over the other, but the rationale behind the sequence of high school classes differs from school to school (National Science Teaching Association Forum). Some school administrators prefer that freshmen begin their science journey with biology, as it is the easiest of the sciences. Then, they would progress to taking chemistry and finally physics. Other schools have chosen to have their freshman take physics, as taking it their first year would alleviate some stress from their already stressful junior year. They would then take chemistry their sophomore year and biology their junior year.

Many high schools offer extracurricular activities that are related to the sciences, such as the Science Olympiads. Some high schools also offer classes that are related to the sciences, such as the Scientific Principles of Nutrition (Leuser) or natural science classes like Astrology (NHRHS). However, many other clubs and classes could be added such as an Astronomy Club, Oceanography class, Neuroscience class, and more (CollegeVine). The initiation of such clubs or courses would depend on student interest; however, bringing these ideas to the discussion would be a good start towards expanding the opportunities available to students interested in the sciences.

For now, we can improve current high school science classes through making them more fun and interactive for students. This would not only make students more interested in the sciences, but it would also provide them with a more expanded view on the subject. For example, classes could incorporate hands-on experiments instead of just lectures, or organize a class-trip for students to go see a museum (Home Science Tools Resource Center). Another trip could be a wastewater treatment plant, where students can see and learn how water is chemically cleaned. This would help get students more involved in the sciences and it would provide them with a deeper understanding of their world as well.



Overall, the sciences are a very important part of high school curricula across the world. From basic sciences like biology and chemistry to more complex sciences like neuroscience and astrology, the fields offered by the sciences are endless. Many career paths are connected to the sciences, making the science curriculum in schools a very important one to focus on. Therefore, we should strive to improve our science course offerings and extracurricular activities for the next generation as many students persist to show that there is an ongoing interest in the sciences as a whole.



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Lucia Chellgren

Resources for your Quantum Journey ✨

Quantum Physics—the study of matter at its most fundamental level—is a rising field that is especially interesting due to its mind-bending concepts and intriguing phenomena. Many students are drawn to this remarkable field; however, they may be intimidated by its complex and abstract nature. Here is a compact collection of resources that can make this complicated topic more approachable for students.

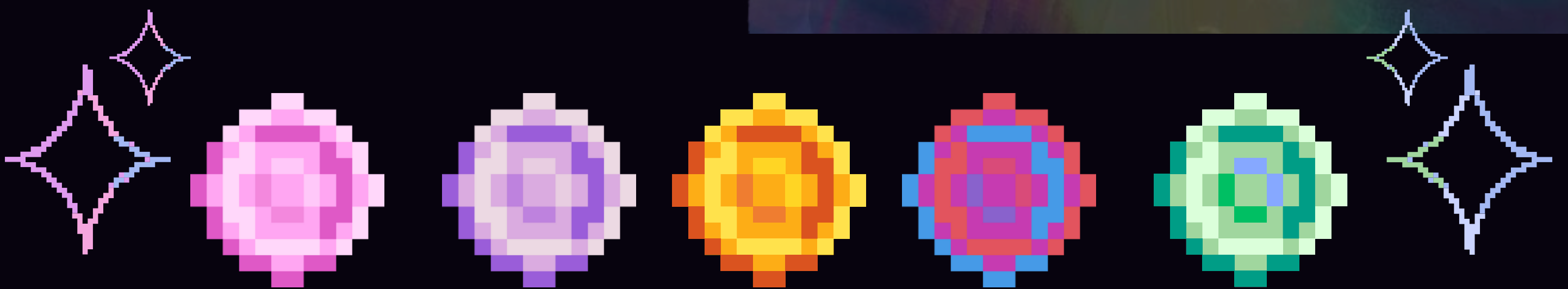
One recommendation for students seeking to gain an understanding of this topic is *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory* by Brian Greene. This book is written by a highly-regarded author who makes the topic of quantum physics accessible and entertaining for all audiences, and entertaining as well.



Another recommendation is a book titled *Quantum: Einstein, Bohr, and the Great Debate about the Nature of Reality* by Manjit Kumar. This book was shortlisted for the BBC Samuel Johnson Prize for Non-Fiction in 2009. This book not only provides an opportunity for students to immerse themselves in the world of quantum physics, but also exposes the thrilling story of a scientific revolution.

One final recommendation for students seeking to learn about quantum physics is the *MIT OpenCourseWare Quantum Physics I online course*. MIT offers free online courses, along with class resources such as lecture notes, exams, and assignments. These courses provide students with ample opportunity to explore a new topic, such as quantum physics, at no-cost, through a top-tier university. Ultimately, this provides students with the perfect opportunity to be challenged in an environment that would allow them to develop an initial understanding of quantum physics.

Whether you are a beginner or advanced student of quantum physics, these resources are sure to provide you with new perspectives in an emerging field. *You will gain not only knowledge, but also an appreciation for the fascinating field of quantum physics.*





Classifieds



Join Animal Welfare Alliance (AWA) – Make a Difference for Animals!

Are you passionate about animal welfare? Do you want to be part of a dynamic team dedicated to raising awareness and making a real impact? Animal Welfare Alliance (AWA) is looking for passionate individuals to join our mission!

Our Mission:

At AWA, we are committed to raising awareness about crucial animal issues, including welfare, animal testing, abuse, the plight of homeless pet owners, stray animals, and promoting animal knowledge. We strive to educate the public and advocate for the rights and well-being of all animals.

Open Positions:

We are currently seeking dedicated individuals for various positions, including:

- **Website/Media Designer:** Help us create engaging and informative online content.
- **Recruitment:** Bring passionate volunteers and team members to AWA.
- **Outreach:** Connect with the community and spread our message far and wide.
- **Communications:** Craft compelling messages and manage our public relations.

Please feel free to reach out about any other possible positions you are interested in!

Why Join AWA?

- **Impact:** Be a part of meaningful work that makes a difference in the lives of animals.
- **Community:** Join a supportive and passionate team of like-minded individuals.
- **Growth:** Gain valuable experience and develop new skills in various areas.

How to Apply:

If you're ready to make a difference, we want to hear from you! Please fill out the form to apply for positions and join our mission! Email sophiazhang0088@gmail.com for any questions or concerns. Together, we can create a better world for animals.

Animal Welfare Alliance – Advocate, Educate, Protect

https://docs.google.com/forms/d/e/1FAIpQLSeGfoiV3-KRUVhPqNi_OptcVXYc0GB_NQhD7L2GIB9ulhm8Hg/viewform

FUTURE VOICE

FutureVoice is developing an application to help singers who are transitioning from one voice to another. In just the first few weeks, we've already developed a foundational plan and have gathered connections with professionals in voice to aid with our design. Our vision is to create a guiding light for the many LGBTQ+ singers, especially youth. With a passionate team, we're poised to have a large impact on singers. Email ericxiyin@gmail.com for more info.

Youth of Letters

Youth of Letters's mission is to uplift teenage voices through written expression. We celebrate the transcending of convention and steadfast rules. By teens and for teens, we embrace all styles and genres of writing, and hold firm to the belief that every voice deserves to be heard. Our stories are our lifelines, our souls, our loaded guns, as George Orwell phrases. We welcome you. To new writers, let's stretch our wings. To existing writers, let's continue to soar.

We're looking for people who would enjoy and succeed at:

- Filtering through submissions
- Putting the issue together
- Marketing/PR
- Someone to expand our reach to the global scale
- Editors for that specialize in various submission types (prose, poetry, essay, etc.)

Email rachelyin11@gmail.com for more info.

StarMind

StarMind is a nonprofit dedicated to supporting individuals recovering from eating disorders. We've developed a mental health app that integrates astronomy-themed therapeutic elements to provide a unique and effective support tool. In just six months, we've conducted extensive research and collaborated with mental health professionals to create this comprehensive resource. We have already impacted numerous lives by providing an accessible, astronomy-themed mental health app and support through our nonprofit initiatives. Our vision is to revolutionize the approach to eating disorder recovery by combining the awe of the universe with effective therapeutic practices. With a passionate team and the support of our community, we can definitely make a significant impact in the mental health field. Your contribution can help us expand our reach, develop more features, and support more individuals on their recovery journey. Interested in joining our mission?

We need people who can help with:

- **App Development:** Expertise in mobile app development, particularly in building and maintaining apps that require user engagement and data security
- **Nonprofit Management:** Knowledge of running a nonprofit organization, including fundraising and legal requirements
- **Fundraising and Development:** Experience in organizing fundraising campaigns and securing grants and sponsorships
- **Marketing and Outreach:** Skills in digital marketing, social media management, and public relations to effectively promote the app and the nonprofit's mission
- **Mental Health Professionals:** Psychologists, therapists, and counselors with experience in eating disorder treatment to ensure the app's content and tools are effective

We offer:

- **Meaningful Work:** An opportunity to make a significant impact on the lives of individuals recovering from eating disorders
- **Professional Growth:** Opportunities for professional development and growth within a dynamic and supportive team environment
- **Flexible Work Environment:** Options for remote work and flexible hours to accommodate different lifestyles and commitments
- **Collaborative Culture:** A collaborative and inclusive culture that values input from all team members and fosters innovation
- **Recognition and Impact:** A chance to be recognized for their contributions to an important project in the mental health field

Email sophie.duan888@gmail.com for more info.

"Unboxed" - Startup and Mental Health App

Unboxed provides services and products to track and improve people's mental health through our gamified wellness tracker as well as customized "boxes," or toolkits, for users looking to achieve their wellness goals. Customers access our tracker by downloading the app (coding still in progress) from the app store to monitor their emotional, mental, and physical activities. Our services and products can be purchased from the app as well as our website. The business has attracted 500 followers and around \$1000 in revenue within the last 6 weeks.

- **We are looking for interested students to join our startup team, including the following positions:**
 - R&D Managers
 - Research Engineers
 - Operations Managers
 - Marketing Managers
 - Financial Manager
 - Accounting Managers
- **Interested students should fill out this [Google Form](#) or contact unboxed.org@gmail.com with any questions.**

JOIN US TODAY

EarthCare Alliance



Our Mission

- To prepare the next generation for caring for the ailing environment
- To encourage youth to notice and engage with their local environment
- To provide resources to companies big and small that solve local environment problems

Positions you can apply for!



01

Social Media/ Web Manager

- Help with promoting ECA's platform on social media and website
- Help with marketing strategy



02

Treasurer

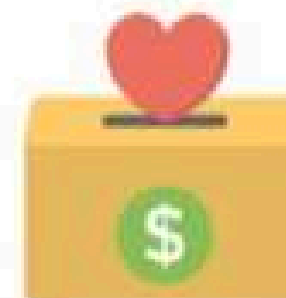
- Make sure donations are recorded
- Make sure tax paperwork is filed



03

Secretary

- Record keeping of meetings
- Hold votes
- Meeting coordination
- Help with meeting preparation



04

Fundraising Director

- Marketing to donors
- Planning fundraisers
- Help with fundraising strategy
- Recruit volunteers



05

Program Director

- Executes the programs
- Helps with event planning
- Makes sure that the programs are running smoothly

Together, we can make a difference. Join EarthCare Alliance and be part of the solution.
Let's create a sustainable future for generations to come!

Protecting Our Planet, Securing Our Future

allianceearthcare@gmail.com



Miracle Steps Foundation

Miracle Steps Foundation is dedicated to providing urgent care and support to **NICU babies and their families**. Members will be able to create kits for parents of NICU children, memory boxes, art supplies, and donate baby clothes for preemies for volunteer hours. Your help can create a meaningful impact and bring positive change to those in need.

Join the executive leadership board!

Treasurer:

- Manage the nonprofit's finances, including budgeting, tracking expenses, and overseeing financial records.
- Ensure transparency and accuracy in financial reporting.
- Handle donations, grants, and other revenue streams, ensuring funds are allocated properly.
- Provide regular financial updates to the leadership team and assist in financial planning for future projects.

Volunteer Coordinator:

- Recruit, train, and manage volunteers for various nonprofit activities.
- Organize volunteer schedules and ensure adequate staffing for events, outreach programs, and other initiatives.
- Serve as the primary point of contact for volunteers, addressing their questions and concerns.
- Foster a positive and engaging environment for volunteers to feel motivated and connected to the nonprofit's mission.

Email: **miraclestepsfoundation@gmail.com** for more information!

AND ONE SPORTS



WHERE ALL KIDS
HAVE ACCESS TO
THE BENEFITS OF
SPORTS & PLAY

Help us expand

GET INVOLVED

We're looking for passionate leaders:

- Lead sports equipment drives in your area
- Spread the word about sports equity
- Collaborate with local schools, club teams, and organizations
- Help kids across the country to thrive through play
- Work with teens, coaches, and community leaders to make sports accessible to all

THE PROBLEM

- 1-in-3 kids stopped playing sports
- Equity gaps among families in affording sports gear, training etc.
- Importance of play is overlooked in our education system. Comes in last for state funding.

OUR MISSION

Youth-led initiative advocating for sports and play equity, ensuring all kids, regardless of background, have the right to play. We run equipment drives, offer volunteer coaching, and fundraise to reach those with the greatest needs and fewest resources.

www.andonesports.org / niam.taylor@gmail.com



Rethink Consumption!

Tired of wondering what important **climate data** is being **ignored, overlooked, or locked away in confusing corporate and government reports?**

I am launching a project to reveal the true cost of what we consume in Singapore, from carbon footprints to water use, and we need a dream team to make it happen.

Here's who this project needs:



Social Media Content Creator

Transform complex data into stunning, shareable infographics that capture attention and spark change. Your creativity will turn facts into visuals that everyone can understand.



Two (2) Website Creators

Design an interactive platform to display our research in a dynamic, easy-to-digest way. Help us build the go-to site for real, impactful data on daily consumption.

Researcher

Dive deep to gather crucial stats on carbon footprints, water use, and product origins. Your research will provide the backbone of our initiative and fuel the movement.

Data Analyst

Crunch the numbers, uncover insights, and use analytics tools to turn raw data into stories that everyone can understand.

Gmail:

kaylynn.yrx@gmail.com

Telegram: [@kaylynn_yrx](https://t.me/kaylynn_yrx)



AddOneSports

AndOneSports.org is a youth-run initiative that advocates for equity in sports because all kids regardless of their background have the right to play. We hold equipment drives, offer volunteer coaching, and run impactful fundraisers all with the goal of reaching kids with the greatest needs and fewest resources. So far, we've put free gear in the hands of over 100 kids and donated to four after-school programs in Southern California. With team leads in Southern California and Colorado, we're now focused on expanding our impact by launching a youth-to-youth coaching program in after-school programs and Title 1 schools, where play takes priority.

We currently have team leads in the Southern California region and are looking to expand to different states and countries. As an AndOneSports Team Leader, you will collect new/usable sports equipment from your community to distribute to under-resourced communities. The responsibilities of this role will include:

- Lead/ help plan equipment drive at schools, community, etc.
- Share a commitment to sports and making an impact on children
- Market AndOneSports on social media
- Recruit team members in your area

If you are passionate about sports and want to take action in your own community, please email me, Niam Taylor at niam.taylor@gmail.com

Foodbridge

Food Bridge aims to connect users who have food for donation with those who are in need of food assistance. Food Bridge empowers users to easily donate or receive food. Through Food Bridge, surplus food finds its way to those who need it most, effectively addressing both food waste and food insecurity issues. Food Bridge is looking for a social media director; relevant skills include (1) tech-savviness, (2) an eye for design, (3) organization, & (4) AT LEAST 5 hours of time per week to devote to Food Bridge work.

inCHESSive

My name is Tianle Liang, a current high schooler infatuated with chess, and I am creating the platform [inCHESSive](#) to connect people through in-person chess, with partnerships with local schools and libraries to stimulate community engagement. My website will offer useful resources/templates that I used to start my own chess club at the library and discussion forums to facilitate chess meet-ups, as well as volunteering opportunities at chess events.

My mission is to bring chess players together, promote the in-person culture of the game, and strengthen local communities through shared interest.

Head of Finance

- Manage organization funds
- Will plan and direct fundraisers in the future
 - Would like this person to have some sort of experience with organizing fundraisers, though not required

President of Marketing

- Handles advertising and marketing the organization
- Instagram/social media page
 - To put it simply, somebody who knows how to chase the clout
- It would be good if this person has good graphic designing skills

President of Networking

- Will find potential partnerships and events and connect them with CEO
- Will handle gathering volunteers for events in the future
 - Sending a lot of emails, talking with libraries/schools
 - Will work closely with CEO (me)

Note: I am looking for people that are creative and innovative; I don't want people who just follow my instructions and can't contribute substance to any ideas. I like bouncing ideas off others and having nice discussions.

Contact: contact me at tianle.liang16@gmail.com. I will try to schedule interviews/pitches within two weeks of your expression of interest.

other opportunities

The U.S. National Science Foundation [Game Maker Awards](#) is an exciting opportunity for students in grades K-12 to showcase their creativity, technical skills and passion for game design. Entries for the NSF Game Maker Awards are due by Jan. 31, 2025, at 5 p.m. EST.

The [NFPW High School Communications Contest](#), one of only a few nationwide communications competitions for high school students. It inspires students to do outstanding work in their quest for excellence. In this highly acclaimed competition, entries are judged at three levels.

DEADLINES:

November 1, 2024: High School Communications Contest opens

February 19, 2025: Entry deadline, at noon in the entrant's time zone

[StudentCam](#) is C-SPAN's annual national video documentary competition that encourages students to think critically about issues that affect our communities and our nation.

In this presidential election year, we're asking students in grades 6-12 to create a short (5-6 minute) video documentary on a topic that relates to the competition theme, *"Your Message to the President."*

The submission deadline for all entries is Inauguration Day on Monday, January 20, 2025.

C-SPAN awards cash prizes totaling \$100,000 to the student filmmakers of the top 150 student documentaries.

other opportunities

In *Profiles in Courage*, John F. Kennedy recounted the stories of eight U.S. senators who risked their careers to do what was right for the nation. These leaders demonstrated political courage by taking a stand for the public good in spite of pressure by interest groups, their political party, or even their constituents. [The Profile in Courage Essay Contest](#) challenges students to write an original and creative essay that demonstrates an understanding of political courage as described by John F. Kennedy in *Profiles in Courage*.

The maximum word count is 1,000 with a minimum of 700, not including citations and bibliography. Use at least five varied sources such as government documents, letters, newspaper articles, books, and/or personal interviews. All submissions must adhere to [contest requirements](#). The contest deadline is January 17, 2025.

Green Science (<https://www.green-science.net/>) is an online environmental journal I have started based on the belief that everyone can be an environmentalist. This journal is a way for all to share their experiences helping to preserve the environment and thus encouraging/inspiring others to take action. GreenScience is a platform which welcomes all aspiring student writers targeting environmental conservation. We believe that each individual and each student has the possibility to make their impact on this world. We hope that through this journal we bridge the gap between awareness about environmental issues and taking actual environmental action.