

# What Is Quantum Physics?

*Lesson Plan for Grades K-3*

## OVERVIEW & PURPOSE

This lesson introduces elementary students to quantum science, quantum scientists, and their benefit to society.

## EDUCATION STANDARDS

Tennessee K–8 Science Standards are built on six core principles:



This lesson includes introductory elements of Foundational Concepts, Data and Analysis, and Impacts of Computing.

## OBJECTIVES

1. Define the term quantum science and how it applies to our world.
2. Discover modern inventions we have because of quantum physics.
3. Explain what quantum scientists (physicists) are doing to improve our world.
4. Demonstrate how 'I' could improve the world if 'I' were a quantum scientist/physicist.



## MATERIALS NEEDED

1. Computer and projector screen (with speakers)
2. Optional: A printer will be needed for the activity.

## VOCABULARY

1. **Quantum physics**- the study of tiny, tiny particles inside of things and how they move or work
2. **Atoms**- tiny building blocks that make up everything around us
3. **Quantum Physicist**- a person who studies quantum physics

## APPROXIMATE CLASS LENGTH: 1-1.5 HOURS

1. Play “This is Quantum” video (3 minutes) - <https://youtu.be/RypSQKIKhyo>
2. Class discussion- What is one thing the video mentioned that we have because of quantum science? (MRIs, GPS, lasers for surgeries, etc.) Have any of you ever heard the word “quantum” before? Explain. (In Ant-Man, he goes into the quantum realm! Is that a real place?)
3. Watch “Ant-Man and Nasa Discuss Quantum Physics and the Quantum Realm” (3 minutes)- <https://youtu.be/pZp5-TFTIYY>
4. Read-Aloud: Quantum Physics for Kids (a slideshow e-book): [https://docs.google.com/presentation/d/1bK5NMwKr9WI2tAy\\_iGOLYi0hSZVxCYWo2Q5-FarCZT0/edit?usp=sharing](https://docs.google.com/presentation/d/1bK5NMwKr9WI2tAy_iGOLYi0hSZVxCYWo2Q5-FarCZT0/edit?usp=sharing)
5. Class discussion- Would you ever want to be a quantum physicist/scientist? Why or why not?
6. Meet a 14-Year Old Quantum Physicist!  
 Meet The 14-Year-Old Quantum Physics Whiz Who’s Already Graduating College | TODAY
7. Future Physicist Activity:  Future Physicist