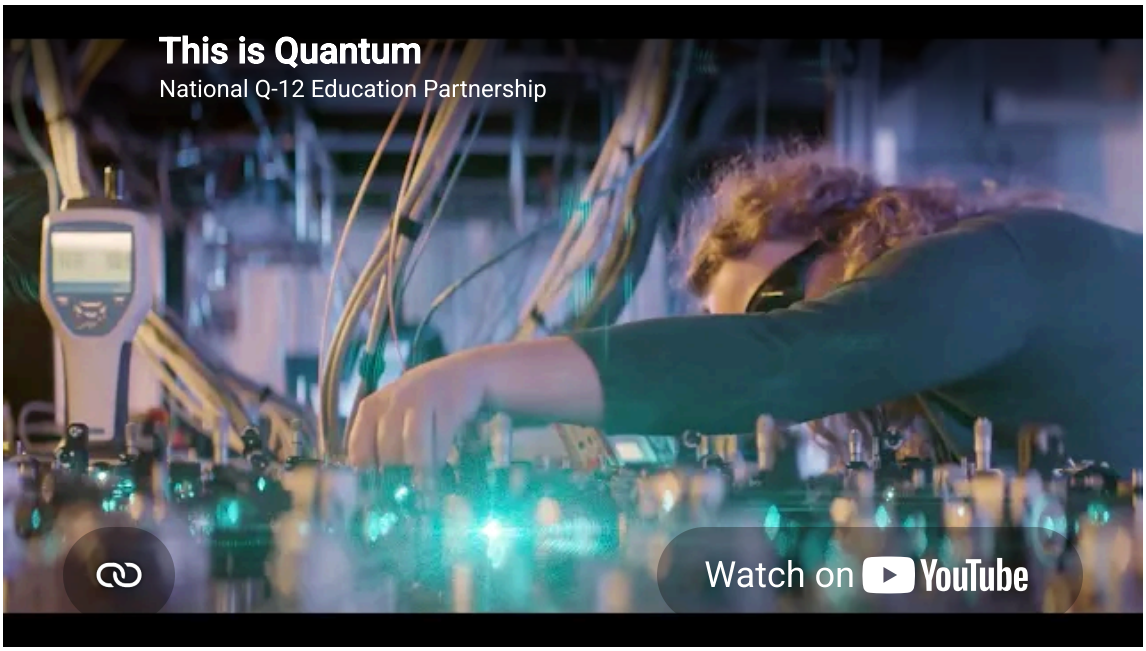
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White House Office of Science and Technology Policy (OSTP) Marks World Quantum Day

By the OSTP National Quantum Coordination Office

Today, the White House Office of Science and Technology Policy (OSTP) is observing the first-ever official World Quantum Day. April 14th — or "4.14" — marks the rounded first 3 digits of Planck's constant, a value which sets the quantum scale. This day is a result of an international, grassroots initiative and is intended to promote public understanding of quantum science and technology.



"This is Quantum!" A World Quantum Day video made by the Q-12 Education Partnership, spearheaded by OSTP and NSF, featuring the Acting Science Advisor to the President Francis Collins and Deputy NASA Administrator Pamela Melroy.

Emerging technologies, like quantum information science (QIS), are poised to transform society. The Biden-Harris administration is dedicated to ensuring these advancements are used to advance the principles of freedom of inquiry, openness, transparency, honesty, equity, fair competition, objectivity, and democracy. World Quantum Day exemplifies these ideals by

connecting people around the world and highlighting the need to create inclusive scientific communities – from classrooms to research centers – so that every person is able to fully participate and have an equal opportunity to succeed.

What are quantum technologies and how do they impact the public? Think atomic clocks that make the global positioning system (GPS) possible, semiconductors that enabled the information age, magnetic resonance imaging (MRI) for medical applications, and lasers for telecommunication. The United States helped pioneer many of these revolutionary quantum technologies, and our nation is investing to launch another revolution in quantum technology in order to develop novel quantum computers, quantum networks, and quantum sensors.

The National Quantum Initiative — which is helping to lead those efforts — was launched in 2018, and it is a whole-of-government effort to accelerate QIS research and development in the United States. The National Quantum Coordination Office (NQCO), a component of OSTP, is tasked with supporting the National Quantum Initiative, which includes performing and supporting public outreach around QIS.

So how is the Biden-Harris Administration celebrating World Quantum Day? OSTP and the National Science Foundation (NSF), through the National Q-12 Education Partnership, along with the National Aeronautics and Space Administration (NASA), are advancing **learning opportunities in classrooms across the Nation**. Here are some specifics:

- This Is Quantum: A montage video of students, teachers, scientists, and more sharing what quantum is, what technologies it has enabled, and what attracted them to the field. It includes an invitation, “Let’s quantum together,” and wishes to have a “Happy World Quantum Day.”

- QuanTime: A coordinated set of middle and high school quantum activities and games, each under an hour long. To date, over 150 teachers have signed up for the online and hands-on learning experiences. More than 600 kits were sent out, and thousands of students from at least 33 states will be engaging in quantum activities over the next month. And it is not too late to join the fun, as QuanTime activities are running until May 31, 2022. Sign up here.

- PhysicsQuest Kits: These kits help students discover quantum mechanics and learn about the incredible life and work of the National Institute of Standards and Technology (NIST) Fellow Dr. Deborah Jin, who passed away in 2016. Dr. Jin was a leading quantum scientist who used lasers and magnets to cool down atoms and make new states of matter. To date, more than 15,000 kits have been distributed across the country.
- Learning Quantum with NASA: NASA developed classroom worksheets and online games for learning quantum.

All are encouraged to learn about and participate in quantum science. Toward this goal, NQCO has **coordinated activities across a number of federal agencies** to celebrate World Quantum Day. For a complete list of federal activities, see NQCO's World Quantum Day webpage. Some of the activities include:

- Videos and social media posts. Federal agencies are posting on social media using #WorldQuantumDay, including short videos from scientists explaining what quantum is, why it excites them, and how it shows up in our everyday lives.
- National Quantum Initiative Fact Sheet. NQCO and NSF, with input from other agencies, created a factsheet about the National Quantum Initiative, which is a whole-of-government approach to ensuring American leadership in quantum information science.
- Planck's constant infographic. The date for World Quantum Day, 4/14, was chosen in honor of Planck's constant, which is 4.14 in appropriate units. NIST created an infographic about Planck's constant and how it plays a role in quantum science and technology.
- Quantum image gallery. Federal agencies contributed images of quantum research that they funded. The images are free to use with appropriate citations.
- Graphics and background images. Graphics for World Quantum Day that are free to use and share. Free images, sized in 1920×1080 pixel resolution, for use as backgrounds for video conferencing.

There is also tremendous excitement and **engagement from industry, academia, and the public**. For example, the NIST-established Quantum

Economic Development Consortium (QED-C) is highlighting its industry members in short clips of companies talking about their experiences in quantum science, along with the quantum applications and quantum technologies they are developing. In addition, the QED-C, along with several international quantum consortia, released a joint statement on the importance of quantum technologies. A number of academic institutions and national laboratories, many connected to the 13 U.S. National Quantum Information Science Centers, are holding webinars, question and answer sessions, and virtual and in-person lab tours. Finally, there are a number of new videos that content producers have created and uploaded to the internet that introduce quantum principles and concepts.

How do efforts like this support the U.S. National Quantum Initiative? World Quantum Day is a celebration of the many ways that quantum science has transformed modern society and the possibilities it holds for our future. The National Strategic Overview for Quantum Information Science outlines the United States' quantum strategy. Two pillars of the strategy are building a diverse, eminent workforce and fostering international cooperation. In February, the National Science and Technology Council's Subcommittee on Quantum Information Science released its Quantum Information Science and Technology Workforce Development National Strategic Plan. A major action of the Plan is introducing broader audiences to QIS through public outreach and educational materials. Today's World Quantum Day activities are a big step in that direction.

All around the world, countries are setting up quantum programs. In fact, more than 40 countries are taking part in World Quantum Day with more than 100 activities planned across Africa, the Americas, Asia, and Europe. Continuing to engage with and support international cooperation is key. To this end, the United States recently signed quantum cooperation agreements with Finland and Sweden; these accompany past agreements with Japan, Australia, and the United Kingdom.

So, to everyone around the world we say, "Let's quantum together, Happy World Quantum Day!"

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