



INTERNATIONAL DAY OF LIGHT 2021 Trust Science Declaration and Pledge

Lighting the Way to Truth: Determining Scientific Facts from Fiction

Jess Wade, 16 June 2021

First published on www.trust-science.org 2021

When it comes to scientific information, discerning what's trustworthy requires more effort than ever. Ironically, after a year in which scientific breakthroughs have saved countless lives, some doubt and question the recommendations of scientists. As the world starts to open up, it's time for a renewed focus on scientific literacy.

Scientific literacy starts with an appreciation of the wonder and advancements of science. Vaccines may come to mind as the most obvious example of a scientific miracle, but the past year was made tolerable by many other scientific advances.

For instance, thanks to advancements in light science, families were able to stay connected through videoconferencing enabled by high-speed communications, and children were able to attend school from home — things that wouldn't have been possible even a decade ago. Access to movies and television made stay at home orders more bearable. While contributing to treatment and testing for COVID-19 here on Earth, light science paved the way for advancements in space exploration such as NASA's Perseverance Rover landing on Mars.

Improving scientific literacy will require a strengthened commitment to education — empowering the next generation with information on how to navigate a crowded informational space. The challenges of the 21st Century require an understanding of the scientific process, and an appreciation of how scientific knowledge evolves over time. From engineering to economics to the arts, science is connected to all disciplines.

But it's not just children that should brush up on their skills for differentiating fact from fiction. We all share a responsibility for seeking out trustworthy information. Before sharing information about a scientific statement, we can check the source of claims, research the credibility of the author, and double check the facts with fact checking organizations.

Part of the scientific process is testing a hypothesis repeatedly until you are no longer skeptical about the results. When you question something that is positioned as a scientific fact, you can try the following:

Embrace your inner skeptic and check the source of the claims. We've become all too familiar with click-bait schemes, but sometimes they still catch us for the wrong reasons. Scientific (mis)information can be packaged the same way and may not be coming from a credible source. Connections between the source and established universities, well-known government institutions that conduct scientific research (think National Academies vs. political organisations) and brands you trust are good signs that the author is relying on fact and evidence-based science.

Watch out for rhetoric. A trustworthy author will cite verifiable facts rather than "science" itself.

Double check the facts with fact checking organizations such as AP and org and sources like Science Integrity Digest. Sometimes, even something that appears completely true and factual can make us do a double take.

Connected to the UNESCO-organized International Day of Light, a Trust Science pledge aims to promote support for the scientific process and to acknowledge the many benefits of science for society. The pledge — signed by Nobel and Breakthrough laureates, scientific leaders, CEOs, as well as everyday citizens around the world — is a first step in building trust in science. With the rise of misinformation, declaring support for the scientific process provides a concrete way to stand up for science.

As we gradually rebuild our post pandemic world, the light brought to us by science is worth celebrating and defending.

About the Author

Jess Wade is a physicist working in the Department of Materials at Imperial College London. She specializes in organic (carbon-based) semiconductors; materials that can be fabricated in ways such as to produce lightweight, low-cost, flexible and sustainable next-generation technologies.