

# 6-8th Grade Certificate Master List

## Science

### *Seiji Ogawa Medical Discovery Award*

Seiji Ogawa is a Japanese biophysicist who is credited with the invention of the technique that allows the magnetic resonance imaging (fMRI) machine to function. His work allows doctors and researchers to study and map different regions of the brain. The fMRI machine is responsible for most of what we know about how the brain functions.

### *Sabrina Gonzalez Pasterski Scientific Analysis Award*

Sabrina Gonzalez Pasterski has been nicknamed “The Next Einstein.” She discovered the spin memory effect in 2014, which may be used to detect or verify the net effects of gravitational waves. She continues to make new contributions in the field of physics. One of her papers was even quoted by Stephen Hawking.

### *James Tour Innovation Award*

James Tour is an American chemist that works with developing new molecular nano electronics. He is well known for his invention of the nanocar which is an “automobile” that is around 20,000 times thinner than a human hair. Nanocars are built to be able to transport things. Eventually, James hopes they can help build advanced electronics.

### *Patricia Bath Humanitarian Award*

Patricia Bath was born in Harlem, New York. She had a genius level IQ and was already working with professional scientists with cancer research when she was only 16. After becoming an ophthalmologist, she realized that many people from her home town were going blind due to the inability to treat common eye issues. Patricia Bath opened the first free community outreach program focused on eye health so that people who could not afford proper eye care would still have access to treatment. She even went on to invent the Laserphaco probe, which is a device that allows doctors to remove cataracts.

### *Sir Tim Berners-Lee Technology and Innovation Award*

Tim Berners-Lee is the inventor of the world wide web. In 1989, he successfully demonstrated the first devices that could communicate over the internet and continues to oversee aspects of web development today. He was even knighted by the Queen of England for his work.

### *Chien - Shiung Wu Grit and Determination Award*

Chien - Shiung Wu was a Chinese-American experimental physicist that worked on the Manhattan Project. As a female born and raised in China during the early 1900's it was very uncommon for her to receive an education. Her father was an early advocate for education for girls. With her father's support, Chien - Shiung Wu was able to receive a high quality education and eventually worked in the United States. Along with her work on the Manhattan Project during WWII, she also made significant contributions to the field of Beta-Decay.

### *James Chan Innovation Award*

James Chan was the first person to power an automobile motor with an ac (electric) current. His work served as the starting point used to develop many electric cars we are familiar with today. He has written over 400 technical papers on electric cars and holds 10 patents.

### *Tahani Amer Leadership Award*

Tahani Amer was born and raised in Egypt before deciding to pursue engineering in America. She moved to the United States without knowing any English, but that did not stop her. Tahani earned several degrees from American Universities and now works on the leadership team at NASA, where she leads a team that conducts independent reviews of NASA missions. Her team's reviews help ensure NASA success.

### *James West Creativity Award*

James West is credited with the invention of the foil electret microphone. The foil electret microphone is a small device that can be found in almost all modern microphones. This means that microphones found in phones, hearing aids, etc. are all based off of West's original work.

### *Idelisa Bonnelly de Calventi Passion Award*

Idelisa Bonnelly de Calventi was born and raised in the Dominican Republic. She pursued an education in marine biology in New York. After learning and working in the field of marine biology in the United States, she brought what she learned home to the Dominican Republic. Idelisa founded the Marine Research center in the Dominican Republic and helped create the first legally protected area for humpback whales. She has been nicknamed the "Mother of Marine Biology in the Caribbean" because of her passion and determination.

### *Avicenna Scientific Pioneer Award*

Avicenna made countless contributions to early science and is considered the "father of modern medicine." Avicenna is well known for being the first person to suggest the idea of a quarantine, or keeping people that are sick away from those that are healthy so the spread of disease is slowed.

### *Tiera Guinn Innovation Award*

Tiera Guinn is a rocket scientist that helped design the Space Launch System that is set to take humans to Mars. While many scientists work their entire careers hoping to get a chance to work for NASA, Tiera was able to start designing the SLS while she was still in college!

### *Sanghamitra Bandyopadhyay Critical Thinking Award*

Sanghamitra Bandyopadhyay has conducted award winning research in algorithmic optimization. She has been able to apply algorithms to the field of biology and has used them to study the human body. This has led to the discovery of a genetic marker for breast cancer and the role of white blood cells in Alzheimer's disease.

### *Xue Shifeng Scientific Inquiry Award*

Xue Shifeng is working to discover more about how genetics control organism development. For example, she recently conducted a research project to determine how a human fetus develops a nose. By understanding how humans develop, she is hoping to better understand how development goes wrong for humans that have rare genetic diseases. She hopes to be able to create better protocols for diagnosing and treating rare genetic diseases.

### *Mario José Molina-Pasquel Henríquez Environmentalist Award*

Mario Henriquez is a Mexican chemist that is best known for his work related to the discovery of the Antarctic ozone hole. He went on to help educate the public about the danger of chlorofluorocarbon gases (or CFC's), which he showed to be contributors to the ozone hole. He received the Nobel Prize in Chemistry in 1995 for his work.

### *Charles Kao Innovation Award*

Charles Kao is a Chinese electrical engineer and physicist. He is well known for his research on transmitting laser light through glass fibers. His work led the way for fiber optics to be used in communication. He is often known as the "godfather of broadband" because his work paved the way for the development of high speed internet.

### *William Robinson Disaster Preparedness Award*

William Robinson was a seismic engineer from New Zealand. He spent his career studying how earthquakes impact buildings and other structures. Then, he worked to counteract their effect. William is credited with inventing the lead rubber bearing(LRB) seismic isolation device, which helps buildings absorb the force put on them by earthquakes, keeping everyone inside and around the building safer.

### *Mae Jemison Exploration Award*

Mae Jemison grew up watching the launch of the Apollo missions to space. However, she never saw anyone go to space that looked like her. Mae first saw herself in Star Trek's Lieutenant Uhura and was motivated to pursue a career in space exploration. In 1992 Mae Jemison became the first African American woman in space. She has since started and formed multiple companies that focus on solving problems that humans face in space exploration.

### *Jack Horner Paleontology Award*

Jack Horner is well known for finding a piece of a T-Rex with soft tissue still intact. This led to the hypothesis that dinosaurs are more closely related to birds than to lizards. He was also the inspiration for the main character in the original Jurassic Park Series.

### *Rachel Carson Sustainability Award*

Rachel Carson was a biologist that helped bring attention to the environmental damage caused by pesticides. Her book titled, "Silent Spring," brought many environmental issues to the attention of the general public, eventually helping to demand change in several policies outlining how pesticides could be used.

*Kathrin Barboza Marquez Field Study Award*

Kathrin Barboza Marquez is a Bolivian biologist who is an expert in bat research. In 2006, she and her partner discovered a species of bat that was thought to be extinct. She then went on to complete some of the most comprehensive field studies on bats ever done and has helped create a better understanding of bats in general.

*Sau Lan Wu Scientific Discovery Award*

Sau Lan Wu was part of a team that used the world's most powerful particle accelerator (using the world's largest electromagnets) to make particles of matter smash into each other to figure out why things have mass. They discovered the Higgs Boson that explains why protons and electrons have mass but photons of light do not.

*Charles H Turner Animal Research Award*

Charles Turner was a behavioral scientist that was a pioneer in the field of insect intelligence and behavior. He was the first to discover that insects can hear. He also ran a series of famous experiments to prove that insects can learn patterns and adjust their behavior to fit the patterns.

*David Baltimore Research Award*

David Baltimore has made several contributions to the understanding of how and why people get sick. His research has greatly contributed to our understanding of diseases such as cancer, HIV, and a variety of retroviruses.

*Jane Goodall Animal Advocate Award*

Jane Goodall has spent decades of her life studying and advocating for chimpanzees. She is well known for her tactics of studying chimps by climbing into trees with them, mimicking their behavior, and gaining their trust. Her research has revolutionized our understanding of chimpanzee behavior.