

The powerful art-science combo

Skills development is not enough to thrive in the 21st century

BY AGNES CHAVEZ

SCIENCE AND NEW MEDIA art can build empathy and motivate our youth even at a time when daily COVID deaths and natural disasters may make them feel numb and overwhelmed. This powerful combo can help students process the devastating news they hear every day, overcome feelings of hopelessness and find their place in the world.

AT HOME WITH TWIRL
and Friends

There are wondrous discoveries and technologies that expand our understanding of nature and open up new fields of study for our youth. The past 50 years have been called the golden age of cosmology because revolutionary discoveries in astrophysics have expanded our understanding of the universe as an integral part of our history and who we are.

DNA sequencing has revealed that there are more microbial species on Earth than stars in the galaxy and that these endangered species are essential to our ecosystem. We can determine the health of our forests from outer space by using satellite remote sensing to monitor chlorophyll in trees. Yet at the same time, excessive unregulated satellites are affecting astronomers' ability to see and study the stars.

With technology comes the responsibility to mediate risk and regulate its use to create a balance with nature. There is an urgency for a research-

GUIDELINES AND TOOLS

Go to stemarts.com/biosteam/biosteam-design-challenge-biomachine. Links to resources from UNESCO on biodiversity and the humanistic future of learning at stemarts.com/biosteam/teacher-tools. Information on biocultural diversity and traditional ecological knowledge at terralingua.org. For more resources, visit stemartslab.com.



COURTESY PHOTO

STEAM in space – the combination of scientific and artistic literacy makes a powerful tool for youth to feel like they can make a difference in the world whether they are becoming scientists, doctors, artists or musicians.

based understanding of science and for critical thinking around its ethical and social impact.

Skills development is not enough to thrive in the 21st century, according to New York Times columnist and Pulitzer Prize-winning author Thomas Friedman. We need STEMPathy – science, technology, engineering and mathematics combined with empathy. Using art, humanities and philosophy to understand how nature works will make us better citizens and stewards of the earth. By adding art made from new media technologies to STEM, we move our youth from passive consumers to cultural producers contributing their much-needed voices and creativity to the global discussion.

In this time of COVID, when the world seems out of control, it is more important than ever for learning to be connected to what is happening around us. By creating meaningful real-world projects that excite their passion and curiosity, students can feel connected to each other and to their local and global communities, while developing essential 21st-century work skills,

such as computer literacy.

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How can teachers, schools and parents foster this new mindset of seeing art and science as a process of empowering ourselves to become more empathetic local and global citizens? Here are some tips and resources to get you thinking about what you can do at home or at school to build sci-art skills.

Teacher/parent project ideas and resources

“Use art as a brain break for students. When learning about scientific notation, for example, have students paint nebulas using watercolors. Although it has nothing to do with scientific notation, it has everything to do with building connections that will help the student remember the concept,” said Kaila Dickey of Anansi Charter School.

The free and easy-to-use Tagtool app for iPads allows finger-painting

animations to project on to walls and multiplayer sessions for collaborative art-making. The images in this article were created with Tagtool. Go to omai.at/tagtool.

Citizen science projects allow for quiet observation, connecting with nature and providing important data that help scientists preserve biodiversity. The experience of studying pollinators in such detail inspires art and design while improving science skills. Go to stemarts.com/biosteam/citizen-science.

Find tons of scientific discoveries to inspire creative expression at tinyurl.com/y3joppx8.

Students from home or school can join the BIO-MACHINE Design Challenge to explore biodiversity loss and pollinator decline and how important they are to our community, our food security and the health of our planet. Winning entries will be shared on the BioSTEAM website.

Agnes Chavez is founder of STEMarts Lab.