

## Ocean Expert Exchange - Educator Resources

TOPIC: ***Using Tech to Advance Reef Science***

FEATURED EXPERT: ***Will Greene of Perry Institute for Marine Science (PIMS)***

**TARGETED LEARNING STANDARDS:** NGSS Connections to Nature of Science - Science is a Human Endeavor  
Technological advances have influenced the progress of science and science has influenced advances in technology.  
Science and engineering are influenced by society and society is influenced by science and engineering.

**ELEMENTARY SCHOOL NGSSS:**

**SC.4.N.1.3:** Explain that science does not always follow a rigidly defined method ("the scientific method") but that science does involve the use of observations and empirical evidence.

**MIDDLE SCHOOL NGSSS:**

**SC.6.N.1.5:** Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.

**SC.6.N.2.3:** Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goods.

**CTE-TECED.68.ENTECH.05:** Demonstrate an understanding of the relationships among technologies and the connection between technology and other fields of study.

**CTE-TECED.68.ENTECH.12:** Demonstrate an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

**HIGH SCHOOL NGSSS:**

**SC.912.N.1.1:** Define a problem based on a specific body of knowledge; pose questions, conduct systematic observations, examine books and other sources of information to see what is already known, review what is known in light of empirical evidence, plan investigations, use tools to gather, analyze, and interpret data...

**SC.912.N.1.2:** Describe and explain what characterizes science and its methods

**SUPPLEMENTAL RESOURCES:**

- 3D Models - Perry Institute for Marine Science (PIMS) [Coral & Reef 3D Models](#) (K-12 resource)
- Reading & Interactive - PIMS [Photogrammetry: A New Tool to Practice Coral ID](#) (Secondary resource)
- Recorded Webinar - PIMS [Coral Reef Photogrammetry](#) (Secondary resource)
- Video Short - Scripps Institution of Oceanography at UC San Diego [3D coral Reefs](#) (K-12 resource)
- Video Short - Quartz [3D Photogrammetry Maps of Coral Reefs](#) (K-12 resource)
- Resource Library - 100 Island Challenge [program page](#) & [3D reef model videos](#) (K-12 resource)
- Activity - ClassVR [Photogrammetry & ARC View](#); model importable to other viewers (Secondary resource)
- Guide - Yasmeen Smalley Photography [Underwater Photography & Photogrammetry 101](#) (advanced)
- 360/VR Expedition - ANGARI Foundation [Generation Ocean: Coral Reefs](#) (K-12 resource)
- Infographic - NOAA Ocean Service [10 Ways to Protect Coral Reefs](#) (K-12 resource)
- Reading & Reference Material - PIMS [2020 Bahamas Coral Reef Report Card](#) (Secondary resource)
- Recorded Webinar - PIMS [2020 Bahamas Coral Reef Report Card](#) (Secondary resource)