Principle 7: Grades 9-12

Principle 7:
The ocean is largely unexplored.

People Explore the Ocean

Ocean Exploration Requires Collaboration

A.
Exploration leads to a better understanding of ocean systems.

B.
Ocean exploration involves collaboration of people in different careers, disciplines, countries, and organizations, which include universities, research institutes, government agencies, and private industries.

A.1.
There are many opportunities for ocean exploration, which can lead to hypothesis-generated science.

B.1.
People in different countries with knowledge and skills in a diverse range of careers and disciplines propose ideas and develop methods for exploring and understanding the ocean.

B.2.
Understanding the ocean requires the use of data and technologies from many domains of knowledge, such as computer science, engineering, biology, geology,chemistry and physics.

B.3.
Political, social and scientific engagement on both national and international levels can affect the opportunity for, awareness of, and future directions of ocean exploration.

A.2.
Since 1970, the use of ocean resources has increased significantly. The sustainability of ocean resources therefore depends on our understanding of the potential and limitations of those resources.

A.3.
New methods and technologies are being developed to utilize the ocean for mineral and biological resources, and as a source of energy (e.g., tidal power, wave power and ocean thermal energy conversion).

A.4.
New habitats and species continue to be discovered throughout the ocean.

A.7.
Current exploration of ocean organisms is leading to new discoveries for human health and our interconnectedness to the ocean.

B.4.
Careers in ocean exploration require personal interest and commitment, and years of study and apprenticeships, which may include education and training in vocational schools, colleges and/or universities.

B.4.
The communication of accurate and timely information allows the public to make informed decisions that promote sustainability of the ocean.

B.5.
Exploring the ocean involves global participation because there is only one ocean that connects and sustains all life.

A.5.
Data gathered from advanced technology enable scientists to make better estimations and predictions of physical and biological phenomena.

A.8.
There are many ways that humans benefit from discoveries about the ocean (e.g., cancer research, new medicines, energy, etc.).

A.9.
There are many ways that human activities negatively impact the ocean that are not fully understood.

A.6.
Looking at data over time allows us to better understand the complexity and changing patterns in the ocean (e.g., noise pollution, weather, sea surface temperatures and dead zones).

See Principle 1: A1
See Principle 6: E7

See Principle 6: A4 & A6

See Principle 6: B2

See Principle 6: E