



# Ocean Literacy Essential Principle 1

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Ocean Literacy Rebooted

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The  
**Lawrence**  
Hall of  
Science  
UNIVERSITY OF CALIFORNIA, BERKELEY

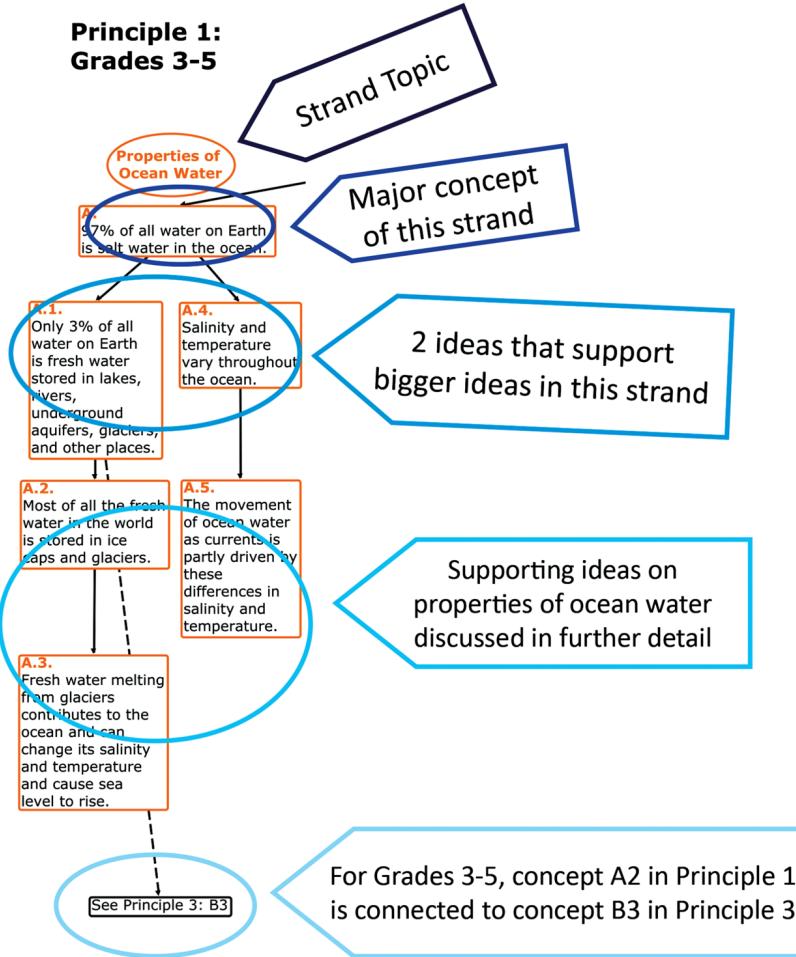


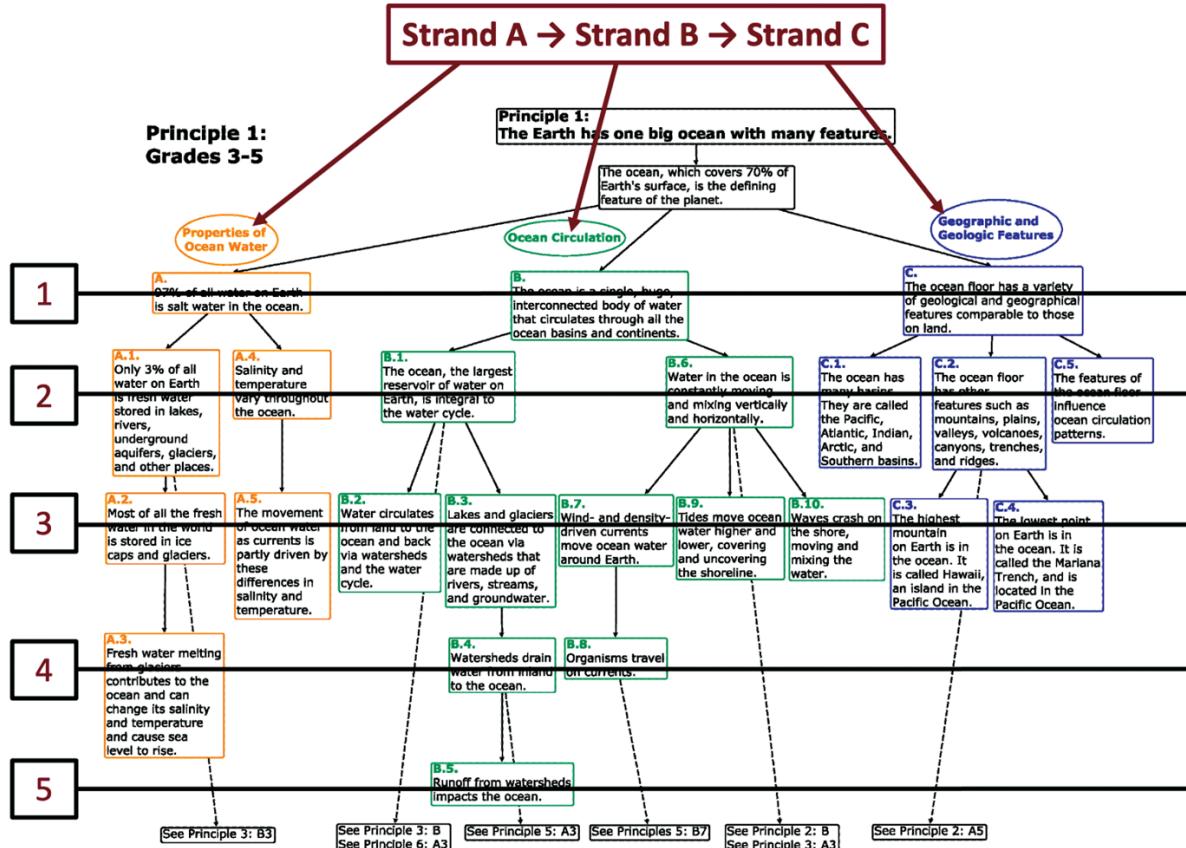


# Essential Principle 1

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**Principle 1:  
Grades 3-5**





Dashed lines lead to cross-referenced concept statements in other essential principles.

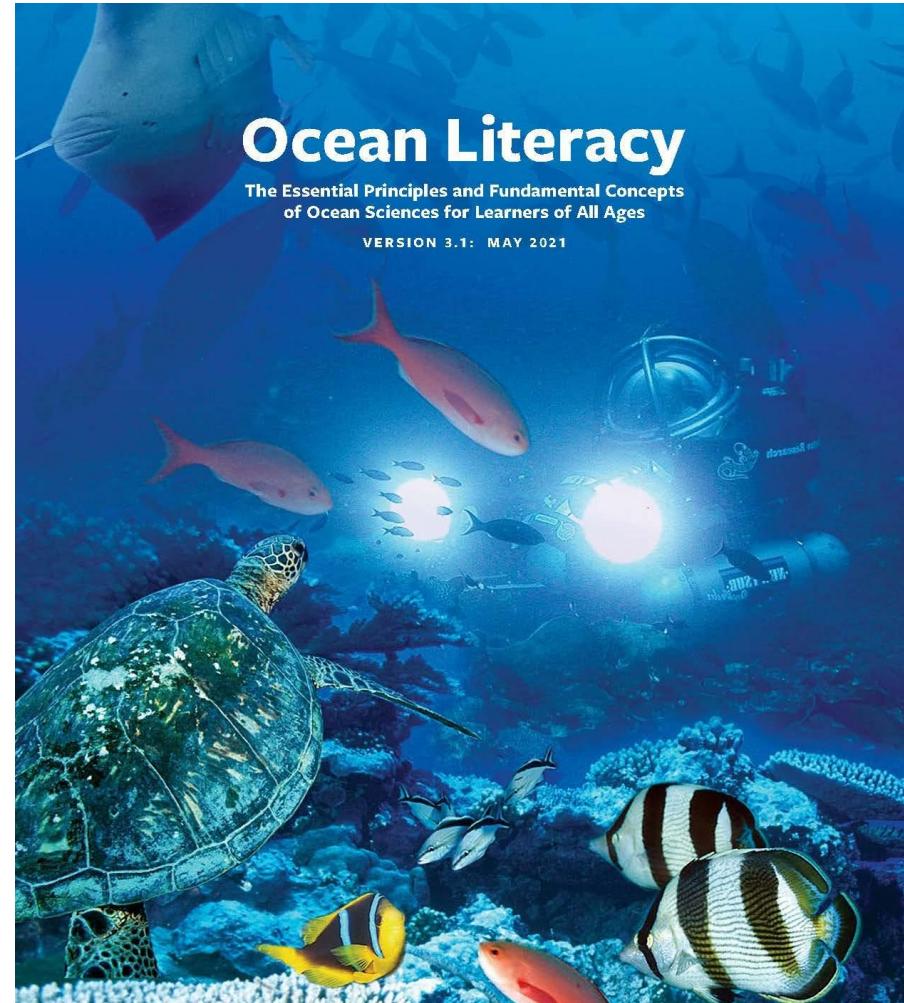
# Using the OL Framework with Your Learners

1. **Look at the Guide** to determine the Essential Principles and Fundamental Concepts you want &/or need to address with your learners.
2. Then **look at the Scope and Sequence** for that principle for your grade level, and locate the concepts you decided to focus on.
3. Finally, **choose an activity** that addresses one or more of those concepts, following the flow shown in the scope and sequence.

# Ocean Literacy Guide:

*The Essential Principles  
& Fundamental Concepts  
of Ocean Sciences*

<http://www.marine-ed.org/ocean-literacy/guide>

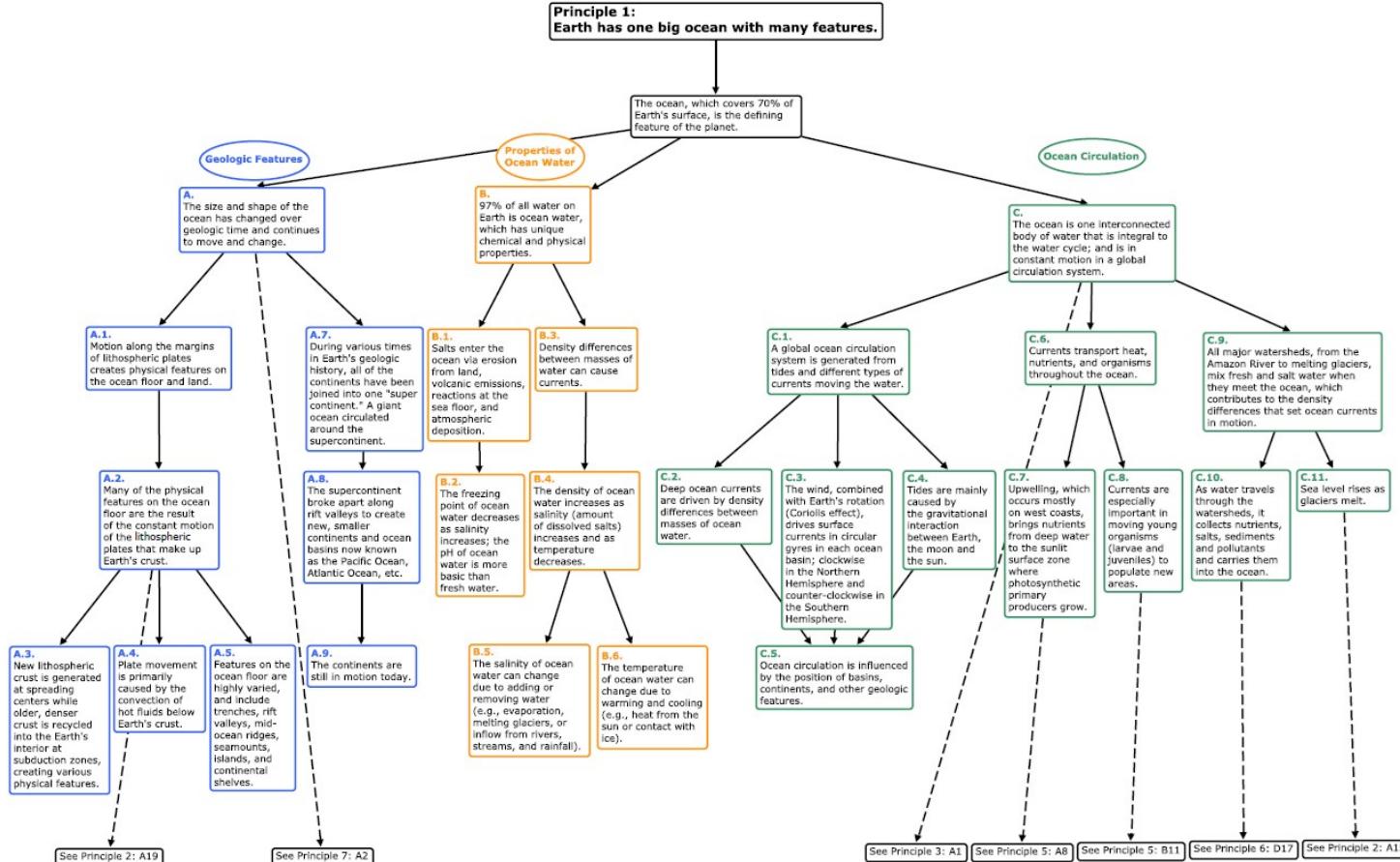


# Earth has one big ocean with many features.

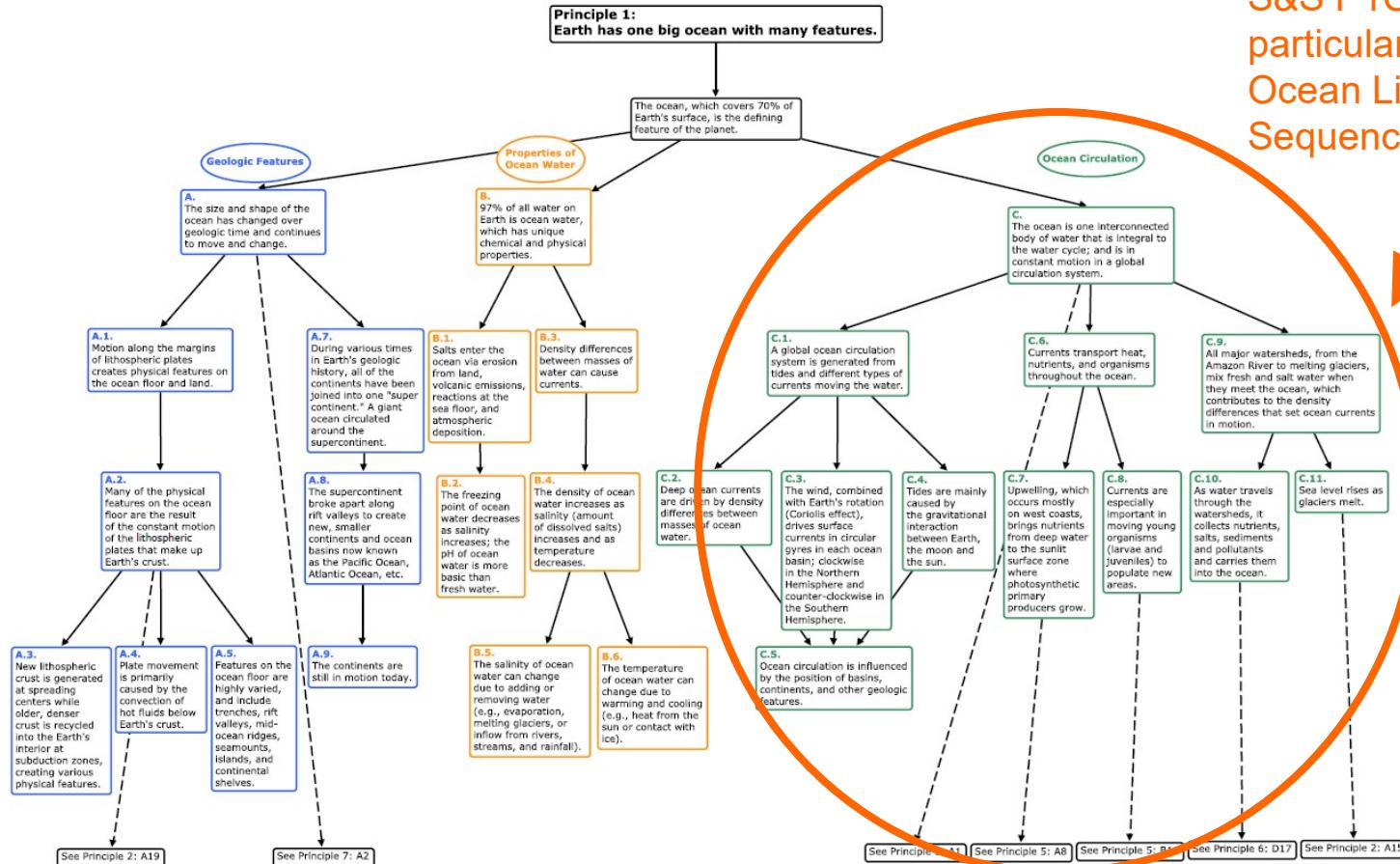
- a. The ocean is the defining physical feature on our planet Earth—covering approximately 70% of the planet's surface. ***There is one ocean with many ocean basins***, such as the North Pacific, South Pacific, North Atlantic, South Atlantic, Indian, Southern and Arctic.
- b. Ocean basins are composed of the seafloor and all of its ***geological features*** (such as islands, trenches, mid-ocean ridges and rift valleys) and vary in size, shape and features due to the movement of Earth's crust (lithosphere). Earth's highest peaks, deepest valleys and flattest vast plains are all in the ocean.
- c. Throughout the ocean there is ***one interconnected circulation system*** powered by wind, tides, the force of Earth's rotation (Coriolis effect), the Sun, and water density differences. The shape of ocean basins and adjacent land masses influence the path of circulation. This 'global ocean conveyor belt' moves water throughout all of the ocean's basins, transporting energy (heat), matter, and organisms around the ocean. ***Changes in ocean circulation have a large impact on the climate and cause changes in ecosystems.***

# EP1 continued...

- d. ***Sea level*** is the average height of the ocean relative to the land, taking into account the differences caused by tides. Sea level changes as plate tectonics cause the volume of ocean basins and the height of the land to change. It changes as ice caps on land melt or grow. It also changes as sea water expands and contracts when ocean water warms and cools.
- e. ***Most of Earth's water (97%) is in the ocean. Seawater has unique properties.*** It is salty, its freezing point is slightly lower than fresh water, its density is slightly higher, its electrical conductivity is much higher, and it is slightly basic. Balance of pH is vital for the health of marine ecosystems, and important in controlling the rate at which the ocean will absorb and buffer changes in atmospheric carbon dioxide.
- f. ***The ocean is an integral part of the water cycle*** and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.
- g. The ocean is connected to major lakes, watersheds and waterways because ***all major watersheds on Earth drain to the ocean.*** Rivers and streams transport nutrients, salts, sediments and pollutants from watersheds to estuaries and to the ocean.
- h. ***Although the ocean is large, it is finite and resources are limited.***



S&S P1C strand: a particular portion of the Ocean Literacy Scope & Sequence



See p.33  
of your  
copy of  
the  
Handbook

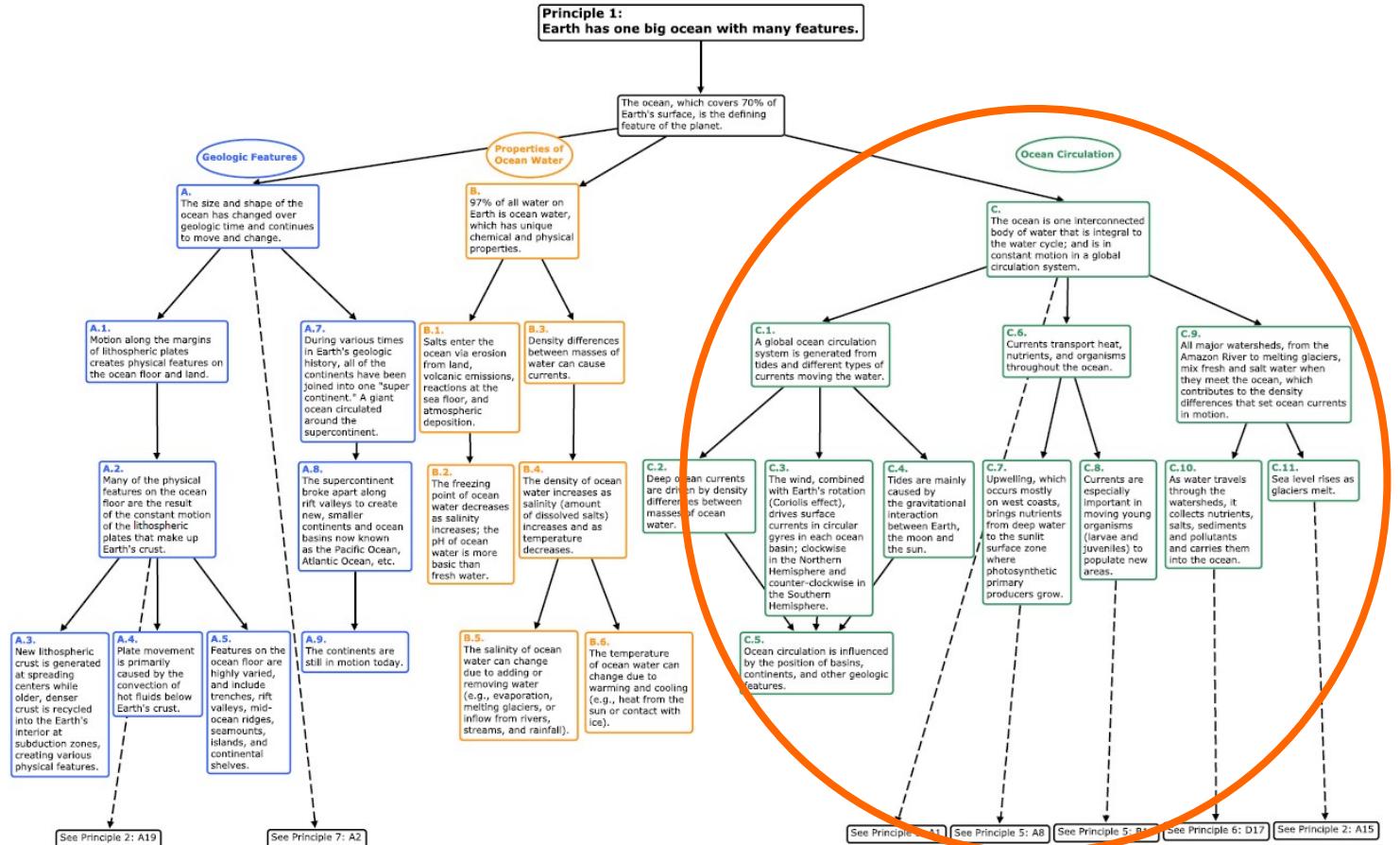




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## Activity





# Pause & Reflect in the South Pacific

**Consider the following.  
Scribble down your thoughts.**

Take a look at the Principle 1 scope and sequence for your grade level.

What jumps out for you?