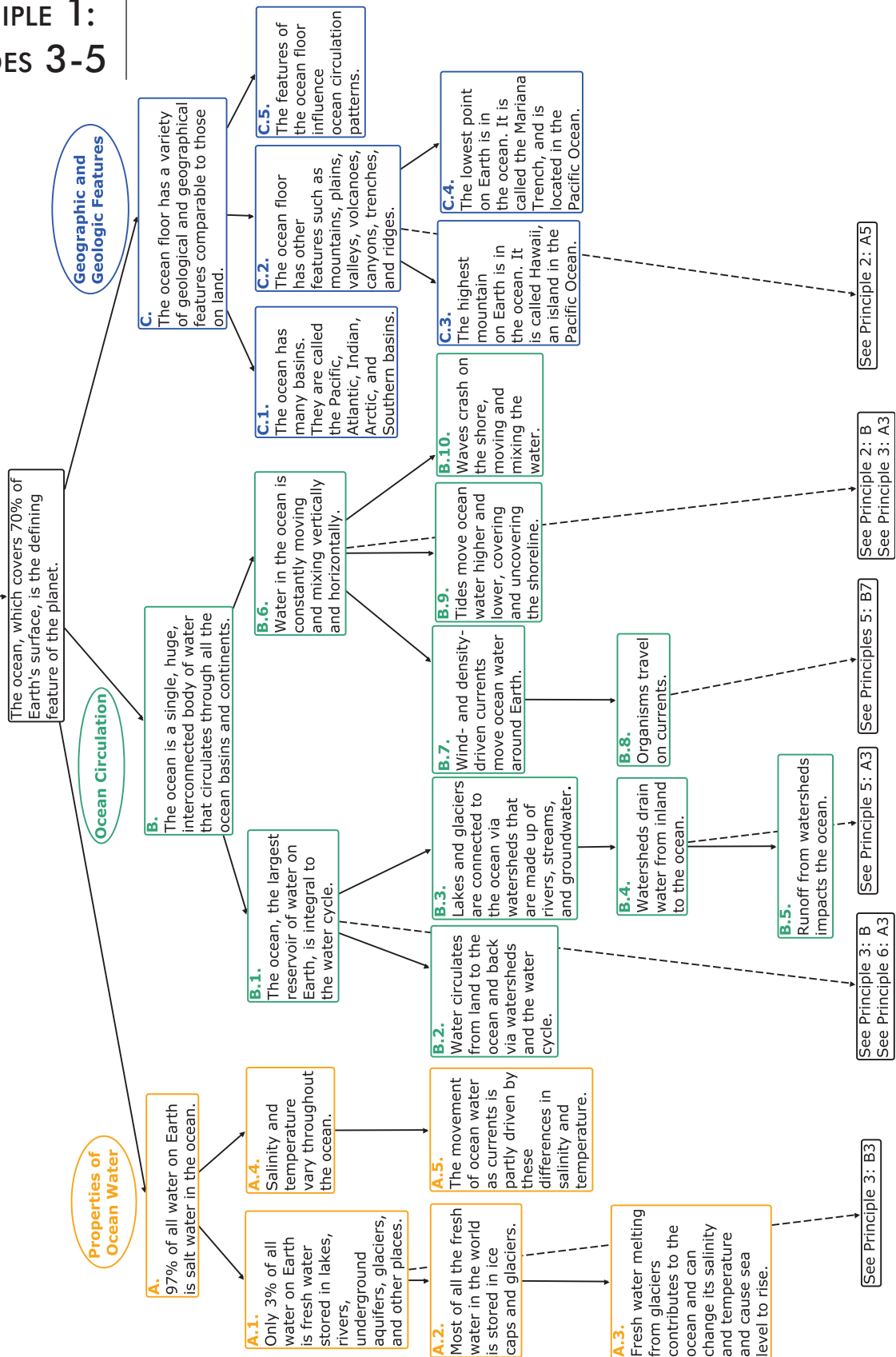
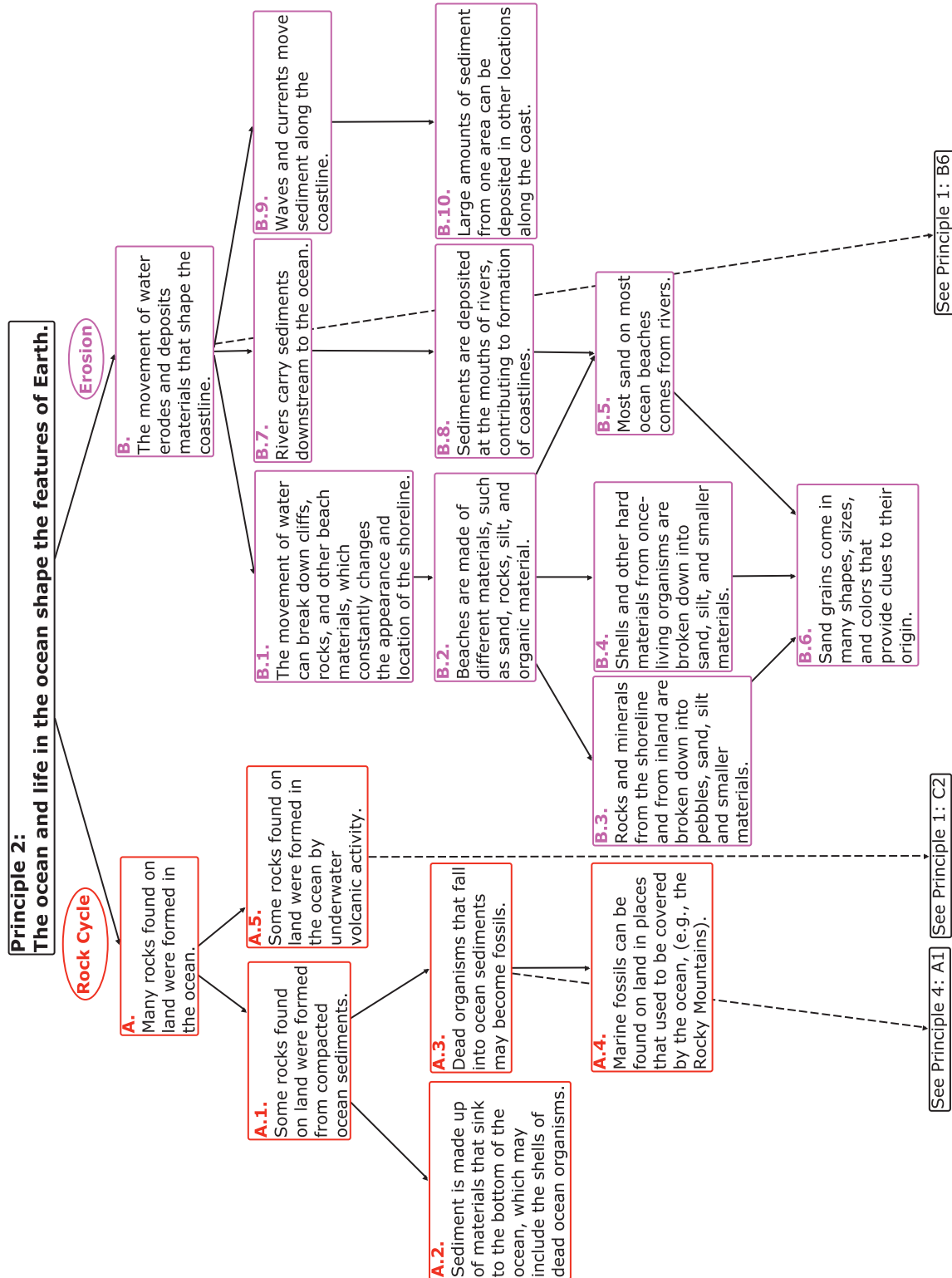


PRINCIPLE 1: GRADES 3-5

Principle 1: The Earth has one big ocean with many features.

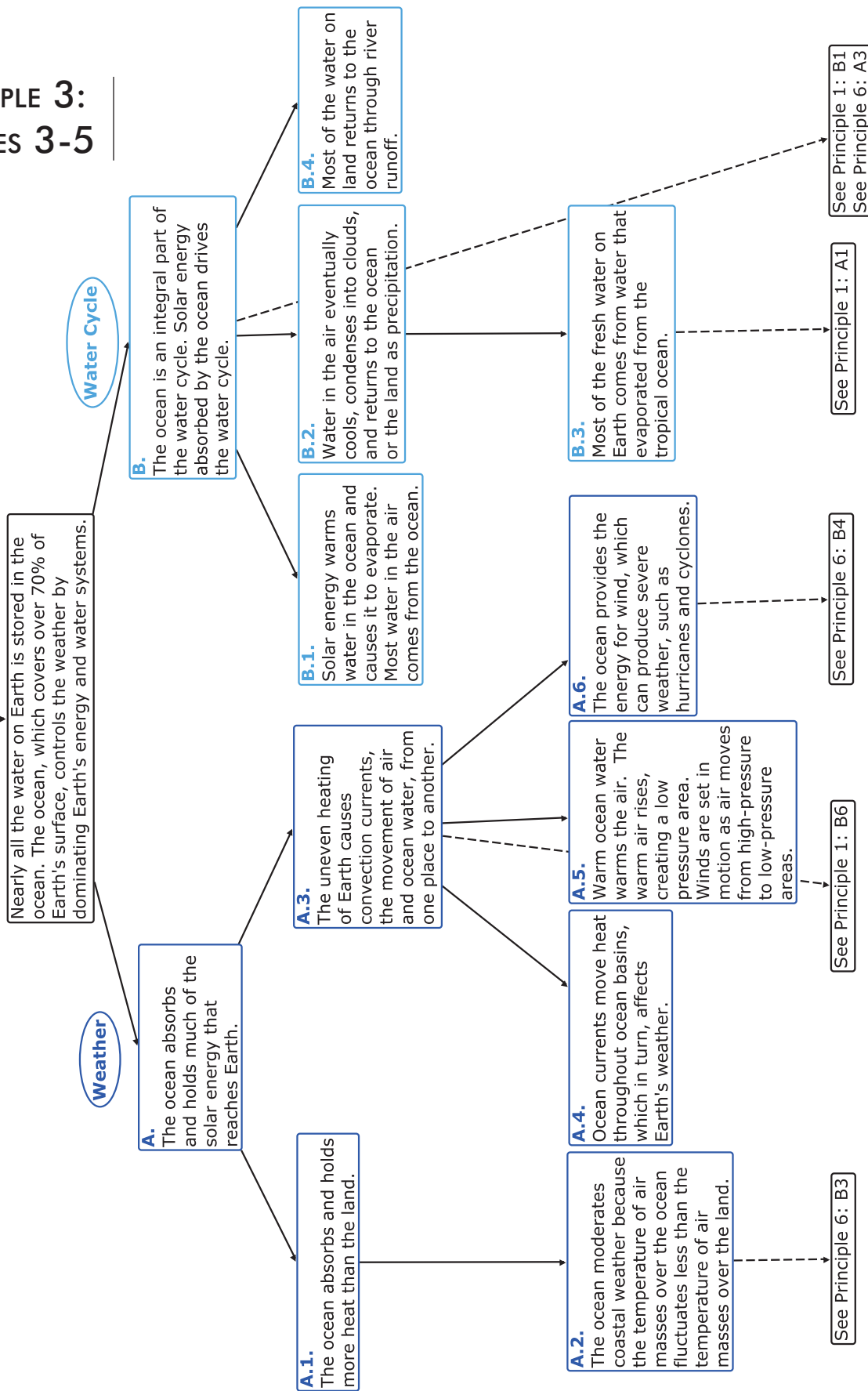


PRINCIPLE 2: GRADES 3-5

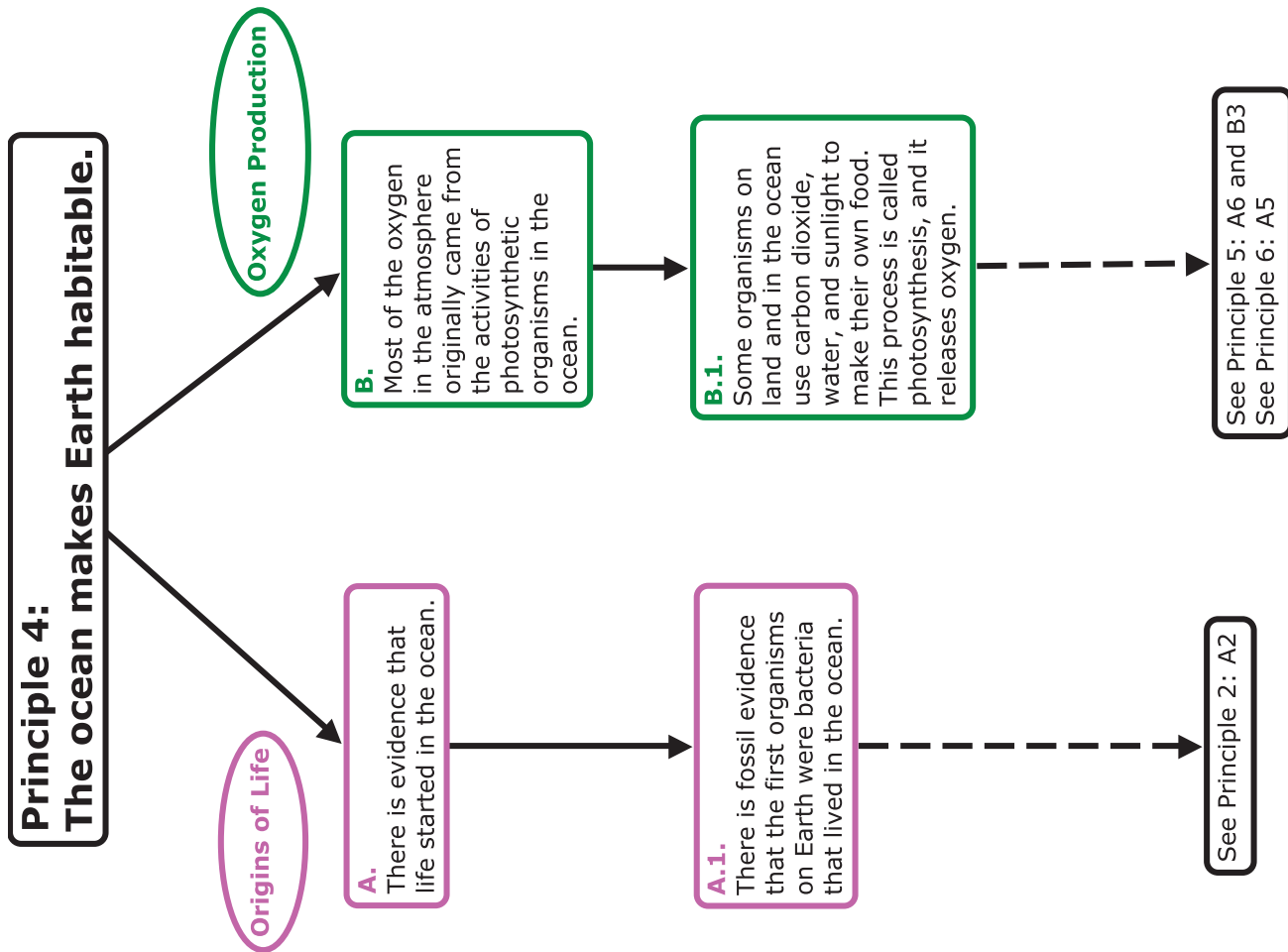


PRINCIPLE 3: GRADES 3-5

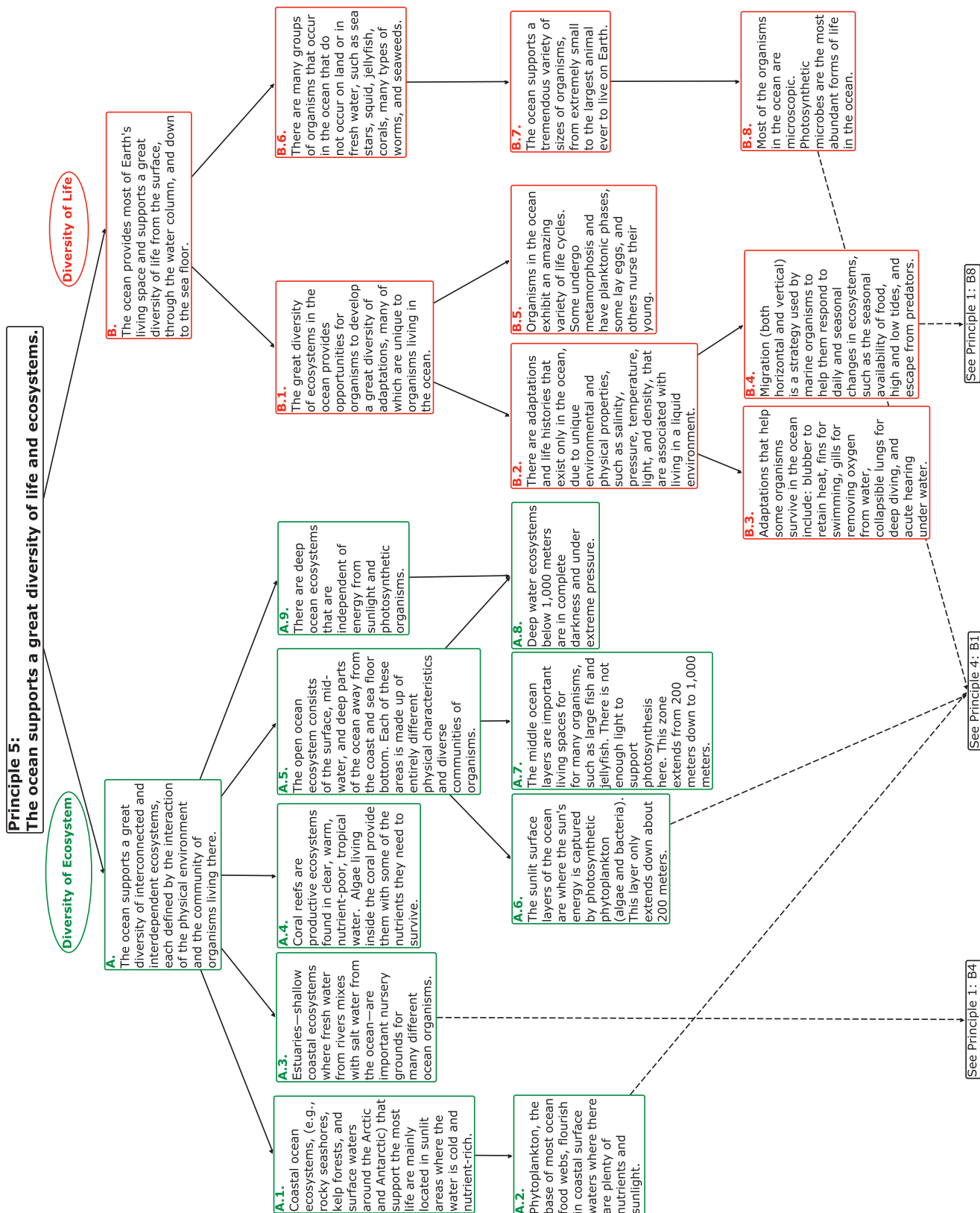
Principle 3: The ocean is a major influence on weather and climate.



PRINCIPLE 4: GRADES 3-5



PRINCIPLE 5: GRADES 3-5



PRINCIPLE 6: GRADES 3-5

Principle 6: The ocean and humans are inextricably interconnected.

Uses of the Ocean

A. The ocean provides basic support for all life, including human life.

A.1. The ocean is an important source of food for humans.

A.2. Food from the ocean includes organisms, such as fish, crab, and oysters, as well as prepared products that contain organisms, such as algae.

A.3. The fresh water that humans need is formed as a part of the water cycle when water evaporates from the ocean and returns to land as rain.

A.4. Humans use the ocean as a source for minerals, energy resources, and medicines.

A.5. Most of the oxygen humans breathe comes from photosynthetic organisms that live in the ocean.

A.6. Humans use the ocean for inspiration, recreation, and discovery.

Where People Live

B. The ocean has always influenced where the majority of the human population lives.

B.1. The ocean has influenced the evolution of transportation throughout human history.

B.3. People continue to live near the ocean because of access to resources, transportation, commerce, jobs, recreation, scenery, and moderate weather.

B.4. Living near the ocean exposes people to tsunamis, hurricanes, and severe storms.

B.2. Major coastal cities grew out of ports, which supported the transport and trade of goods and resources.

Human Impact on the Ocean

C. Humans impact the ocean in positive and negative ways.

C.5. Ocean resources are finite and should be respected and cared for by people.

C.7. Individuals can take action to protect the ocean.

C.9. Public knowledge and opinion can greatly affect the choices that people make about the ocean.

C.12. National and international laws define how we protect the ocean.

C.6. Overfishing can lead to the extinction of species.

C.8. Individuals can help protect the ocean by picking up trash, riding their bikes, using public transportation, and eating seafood that is not overfished.

C.10. Everyone can learn and influence other people about the wise use and protection of the ocean.

C.11. School clubs and afterschool groups can help educate the community about the wise use and protection of the ocean.

C.13. Laws create marine sanctuaries, reserves, and marine protected areas that are intended to keep these ocean areas safe and healthy.

See Principle 7: B4

See Principle 3: A5

See Principle 3: A2

See Principle 4: B1

See Principle 7: A

See Principle 1: B1
See Principle 3: B

PRINCIPLE 7: GRADES 3-5

Principle 7: The ocean is largely unexplored.

People Explore the Ocean

A. Human interest has led to the exploration of and research about the ocean and its resources; 95% of the ocean, however, remains unexplored.

A.1. People explore the ocean to learn and discover more about it for many different political, economic, scientific, and social reasons.

A.4. The future health of the ocean and our ability to use and benefit from its resources depends on our understanding of the ocean.

A.2. In the past, people explored the ocean for reasons that included discovering new land, locating trading routes, searching for gold and silver, spreading religion, and expanding political power.

A.3. Today we explore the ocean for reasons such as: to understand the climate, to assess the health of the ocean, to find medicine and food for humans, and to search for sources of energy (e.g., petroleum, natural gas, wind, wave, and tidal power).

A.5. The ocean affects all life on Earth because the ocean interacts with all other Earth systems: the atmosphere, biosphere, and lithosphere.

A.6. The ocean will provide future generations with many opportunities for exploration, discovery, inquiry, and investigation.

Ocean Exploration Requires Collaboration

B. Ocean exploration is a collaborative process. It requires people with different areas of expertise and from different places and/or countries to work together, share knowledge, and use many types of technology to build a better understanding of the complex ocean system.

B.1. People develop areas of expertise for careers and/or hobbies in ocean exploration. These careers and hobbies include scientists, engineers, filmmakers, photographers, divers, architects, boat crews, and technicians.

B.4. Communication of accurate and timely information by collaborative teams enables the public to make informed decisions that promote sustainability of the ocean.

B.2. Scientists specialize in different aspects of ocean exploration through the variety of science topics they study (e.g., weather, climate, animals, algae, geology). They share their expertise as they work with other scientists and engineers.

B.3. Engineers specialize in different aspects of ocean exploration through the variety of topics they study (e.g., chemical, mechanical, and electrical engineering). They share their expertise as they work with other engineers and scientists.

Ocean Exploration Requires Technological Innovations

C. Ocean exploration requires people to use creativity and knowledge to develop specialized tools because the ocean is so vast, and the human body and senses are not well adapted for life under water.

C.1. Humans require specialized equipment for immersion in the water or for gathering information about the ocean without actually going under water.

C.2. Humans are adapted to breathe air, and thus require special breathing equipment to explore under water (e.g., snorkels, SCUBA gear).

C.3. Human eyes are adapted to function in the air, and thus require special tools to see under water (e.g., masks, cameras).

C.4. Humans require a certain amount of light to see, and thus require special lights to see deep in the ocean (e.g., dive lights).

C.5. Humans are adapted to living on land, and thus require special tools for protection from the increasing pressure as we explore deeper into the ocean (e.g., human-occupied submarines).

C.6. Humans are adapted to survive within a particular range of temperatures, and thus require special equipment for protection from the cold temperatures in the ocean (e.g., wetsuits, dry suits, submersibles).

C.7. Ocean scientists and engineers develop specialized technology that allows the collection of complex information over large areas of the ocean without actually going under water themselves, such as satellites, sensors, computers, and robots.

See Principle 6: C7 and C9

See Principle 6: A