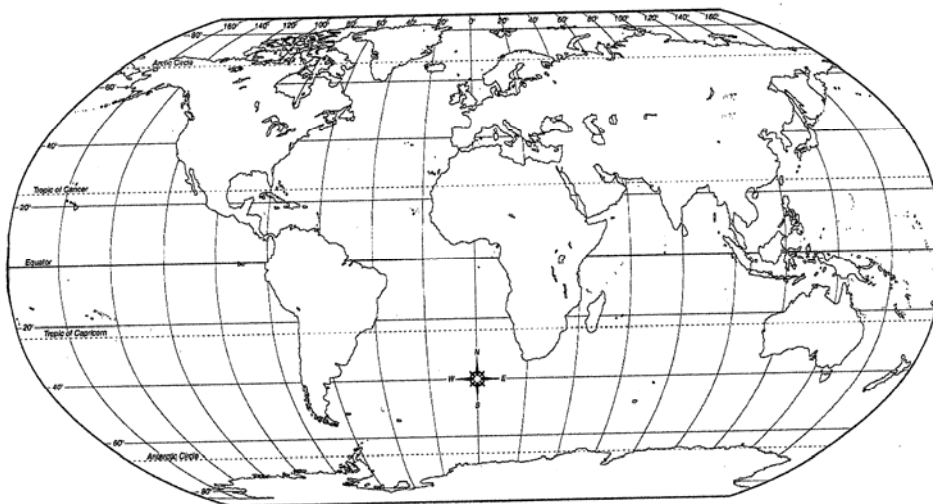


Sixth Grade “Oceans” Assessment

- 1a. The oceans of the world cover about what percentage of the planet’s surface?
- a. 20%
 - b. 50%
 - c. 70%
- 1b. How much of the Earth’s surface is covered by ocean?

- 1c. What is the approximate ratio of ocean to land on Earth?

- 2a. Which of the following is not among the major subdivisions of the world’s ocean?
- a. Atlantic
 - b. Mediterranean
 - c. Pacific
 - d. Indian
- 2b. Classify the following bodies into oceans and seas:
Atlantic, Yellow, Pacific, Mediterranean, Indian, South China
Oceans: _____
Seas: _____
- 2c. Identify the five oceans and two largest seas of the world:
Atlantic, Pacific, Indian, Arctic, Antarctic, Mediterranean, South China



- 3a. What are islands?
- a. high parts of submerged continents
 - b. volcanic peaks
 - c. coral atolls
 - d. all of the above

3b. Give an example of one type of island formation.

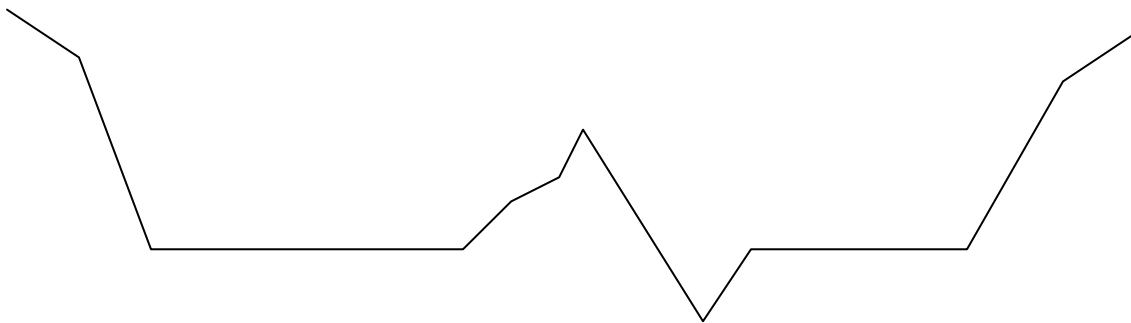
3c. Among the three types of island formations, which would most likely be found along the Pacific Rim, or “Ring of Fire?”

4a. Name three subsurface (underwater) land features:

- 1. _____
- 2. _____
- 3. _____

4b. Label following features according to the contour of the Atlantic sea floor from the coast of North America to the coast of Europe:

- continental shelf
- continental slope
- continental rise
- abyssal plain
- mid-Atlantic Ridge
- trench



4c. Create a labeled diagram showing the following subsurface (underwater) features:

- continental shelf
- continental slope
- continental rise
- abyssal plain
- mid-Atlantic Ridge
- trench

- 5a. Which of the following best describes the ocean floor?
- About 1/3 mile thick, made of mostly rock particles and organic remains.
 - Three miles thick and made up of salt, sand, and petroleum.
 - Only a few feet thick, and composed of mud and seaweed.
- 5b. What part does not fit with the following description of the ocean floor?
 (a)The ocean floor is about 1/3 mile thick, and (b) although it has never been examined, (c) it is believed to be made of rocky particles and the remains of marine plants and animals.
- 5c. Describe the ocean floor and how oceanographers determine the thickness and composition of the ocean floor?
-
-
-
- 6a. Where do the salts and minerals in ocean water come from?
-
-
-
- 6b. Select the best definition for the term *salinity*.
- The amount of total dissolved solids, mostly sodium chloride, in ocean water.
 - How much salt there is in salt water.
 - The amount of fresh water in salt water
 - The difference in boiling point between fresh and salt water.
- 6c. Identify the most common compound in ocean water. What are its constituent elements?
-
-
-
- 7a. The amount of ocean life is limited by:
- Large numbers of predators
 - Pollution
 - Weak concentrations of necessary elements, such as carbon and phosphorus
 - All of the above
- 7b. Although many compounds exist, ocean life is limited by the relatively weak concentrations of necessary elements. Give an example of two such elements.
-
-
-

7c. Explain why ocean life is limited; given vast amounts of food and habitat, why don't populations explode and overrun the oceans?

8a. Sometimes referred to as "rivers in the ocean" the Gulf Stream and Kuroshio are examples of ocean:

- a. tides
- b. currents
- c. waves

8b. The strong current that primarily affects Florida's weather is called the _____.

- a. Whirlpool
- b. Electric
- c. Gulf Stream
- d. Kuroshio

8c. Give two examples of ocean currents:

9a. Tides are caused by the gravitational effects of the sun and the moon on the Earth. How many tides are there each day?

- a. two high and two low
- b. one high and one low
- c. one high and two low

9b. What kind of tide occurs when the sun and the moon are aligned (in a line) with Earth?

9c. Draw a diagram showing the positions of the Moon and Earth relative to the Sun during spring tide.



10a. Match the ocean movement with its primary cause:

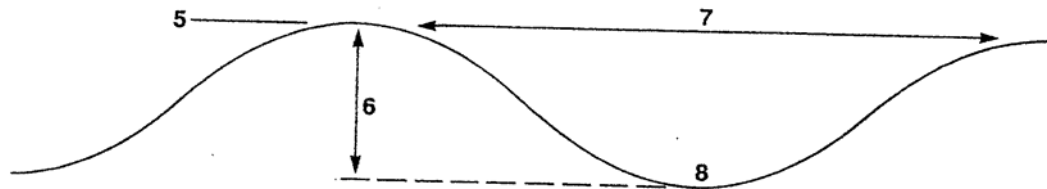
- | | |
|-------------|--|
| a. Tides | 1. winds |
| b. Waves | 2. gravity of the sun and moon |
| c. Currents | 3. differences in temperature and salinity |

- 10b. Match the ocean movement with its primary cause:
- | | |
|-------------|--|
| a. Tides | 1. winds |
| b. Waves | 2. gravity of the sun and moon |
| c. Currents | 3. differences in temperature and salinity |

- 10c. Identify the primary cause of each type of ocean movement:
- | | |
|-------------|-------|
| a. Tides | _____ |
| b. Waves | _____ |
| c. Currents | _____ |

- 11a. Match the wave part description with its definition.
- | | |
|----------------|--|
| a. Crest | 1. The lowest part of the wave |
| b. Trough | 2. The distance between wave crests |
| c. Wavelength | 3. The distance from the crest to the trough |
| d. Wave height | 4. The top of the wave |

- 11b. Identify the following features on the wave diagram:
 - crest, trough, wavelength, wave height



- 11c. Create a diagram showing the following wave features:
 - crest, trough, wavelength, wave height

- 12a. What is the main cause of the large, fast, destructive wave known as a tsunami?
- | |
|----------------|
| a. wind |
| b. tides |
| c. earthquakes |

- 12b. State the nature and cause of a tsunami:

- 12c. What are the cause and effect of a tsunami?

- 13a. Which of the following factors determines ocean life zones?
- | |
|---|
| a. depth of light penetration and availability of food, especially plankton |
| b. temperature and density |
| c. salinity and pressure |

13b. Explain why the depth to which light can penetrate helps determine zones where particular ocean life lives.

13c. What is the effect on ocean life of having less light available at greater depths?

14a. Sea creatures that live on the ocean bottom, or are attached to one spot their adult lives are referred to as _____ organisms.

- a. benthos
- b. wallflower
- c. starfish
- d. inorganic

14b. Give an example of a benthic life form and where it might be found.

14c. What is the classification of sea creatures that live on the ocean bottom or are attached to one spot their entire lives? Give two examples.

15a. Water in the open ocean is called the:

- a. Benthic zone
- b. Deep zone
- c. Pelagic zone

15b. Identify the ocean zone where one would find most free-swimming creatures.

15c. What is the Pelagic Zone?

16a. Free swimming sea creatures belong to a class of animals called _____.

- a. emancipated
- b. nekton
- c. floaters

16b. Classify Sharks, Whales, clams, diatoms, dinoflagellates, kelp, starfish, and sea turtles into the three categories of ocean life:

Plankton

Nekton

Benthos

16c. Define the three classifications of ocean life and give examples of each.

17a. Because they carry on photosynthesis at or near the surface, the basis of most marine life is _____.

- a. phytoplankton
- b. nekton
- c. zooplankton

17b. What is the primary importance of phytoplankton in terms of its forming the basis of most marine life?

- a. It carries on photosynthesis at or near the surface
- b. It is the primary predator of zooplankton
- c. It provides a light source at extreme depths
- d. It regulates the temperature of ocean water

17c. Distinguish between phytoplankton and zooplankton. Which provides photosynthesis near the surface?

18a. Where is most ocean life found?

- a. in the deepest waters
- b. near the surface and in shallow, lighted waters
- c. where there are the fewest predators

18b. Why is most marine life found near the surface or in shallow, lighted waters?

- a. More predators are found in deeper water
- b. Marine life sometimes has to come up for air
- c. It's easier to see food and find others of the same species
- d. The concentration of organic matter serving as food is greater

18c. Explain why most marine life is found near the surface or in shallow, lighted waters.

The following Colorado Model Content Standards are addressed in this assessment by the questions indicated:

Questions 14a, 14b, 14c, 16a, 16b, 16c: Standard 2.1a examining, describing, comparing, measuring, and classifying objects based on common physical and chemical properties

Questions 11a, 11b, 11c: Standard 2.2a measuring quantities associated with energy forms

Questions 7a, 7b, 7c, 9a, 9b, 9c, 10a, 10b, 10c, 13a, 13b, 13c: Standard 2.3a identifying and classifying factors causing change within a system

Questions 13a, 13b, 13c, 18a, 18b, 18c: Standard 3.1c creating and interpreting food chains and food webs

Questions 7a, 7b, 7c, 9a, 9b, 9c, 13a, 13b, 13c, 17a, 17b, 17c: Standard 3.1d explaining the interaction and interdependence of nonliving and living components within ecosystems

Questions 7a, 7b, 7c, 13a, 13b, 13c: Standard 3.1e describing how an environment's ability to provide food, water, space, and essential nutrients determines carrying capacity

Questions 17a, 17b, 17c: Standard 3.2a describing the basic processes of photosynthesis and respiration and their importance to life

Questions 3a, 3b, 3c, 9a, 9b, 9c, 10a, 10b, 10c, 12a, 12b, 12c: Standard 4.1c explaining the distribution and causes of natural events

Questions 1a, 1b, 1c, 2a, 2b, 2c, 8a, 8b, 8c, 9a, 9b, 9c, 10a, 10b, 10c, 11a, 11b, 11c: Standard 4.3b describing the distribution and circulation of the world's water through oceans, glaciers, rivers, groundwater, and atmosphere

Questions 4a, 4b, 4c, 5a, 5b, 5c, 6a, 6b, 6c, 8a, 8b, 8c, 9a, 9b, 9c, 10a, 10b, 10c, 11a, 11b, 11c, 13a, 13b, 13c: Standard 4.3c describing the composition and physical characteristics of oceans

Questions 9a, 9b, 9c, 10a, 10b, 10c: Standard 4.4b explaining the effects of relative motion and positions of the Sun, Earth, and Moon

Answer Key

- 1a. 70%
- 1b. about 71%
- 1c. 3:1

2a. b. Mediterranean

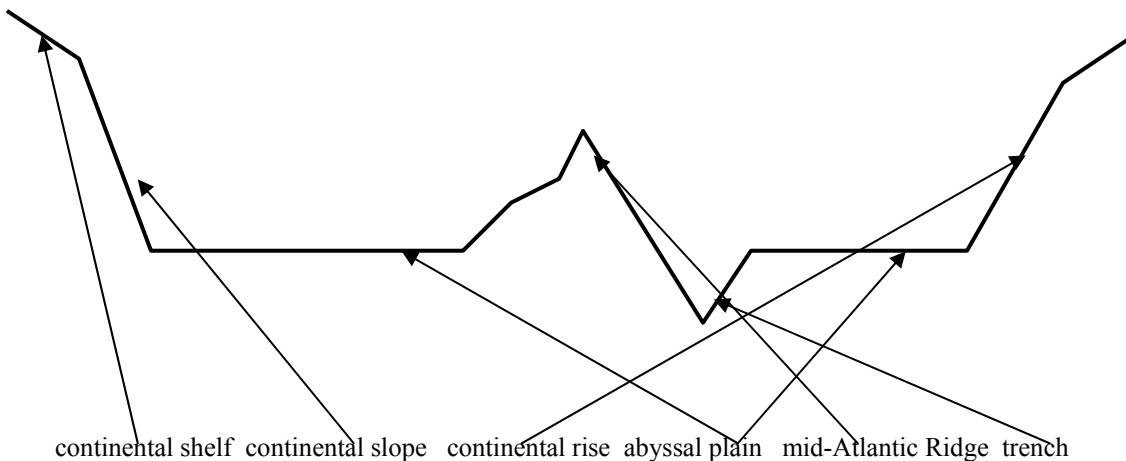
2b. Oceans: Atlantic Pacific Indian
Seas: Yellow Mediterranean South China

2c.



<http://clarke.ci.lexington.ma.us/teams/explorer/mehler/seas.htm> (2003)

- 3a. d. all of the above
- 3b. Coral atoll, high parts of submerged continents or mountains, volcanic peaks
- 3c. Volcanic peaks
- 4a. continental shelf, continental slope, continental rise, abyssal plain, trench, ridge, rift valley
- 4b.



4c. See diagram 4b.

5a. a. About 1/3 mile thick, made of mostly rock particles and organic remains.

5b. b – it has never been examined

5c. Acceptable answers could include:

-average depth of sediment .3 mile, consists of rock particles and organic remains

-By drilling and taking core samples and examining them for content and depth. *May also include:* Sonar, radar mapping, spectrography, and satellite imagery.

6a. From erosion and runoff from the continents (land)

6b. a. The amount of total dissolved solids, mostly sodium chloride, in ocean water.

6c. Sodium Chloride, sodium and chlorine (NaCl)

7a. c. Weak concentrations of necessary elements, such as carbon and phosphorus

7b. Acceptable answers could include:

-calcium, carbon, chloride, hydrogen, magnesium, oxygen, phosphorus, potassium, sodium, sulfur

7c. Acceptable answers could include:

-weak concentrations of necessary elements (such as calcium, carbon, chloride, hydrogen, magnesium, oxygen, phosphorus, potassium, sodium and sulfur)

8a. b. currents

8b. c. Gulf Stream

8c. Acceptable answers could include:

-Gulf Stream, Kuroshio, Humboldt, West Wind Drift, California, North Pacific, South Equatorial, East Australian Current, Peru, North Equatorial, Canary, Norwegian East/West Greenland, Guinea, Benguela, Falkland, Agulhas, Brazil, etc.

9a. a. two high and two low

9b. Spring tide

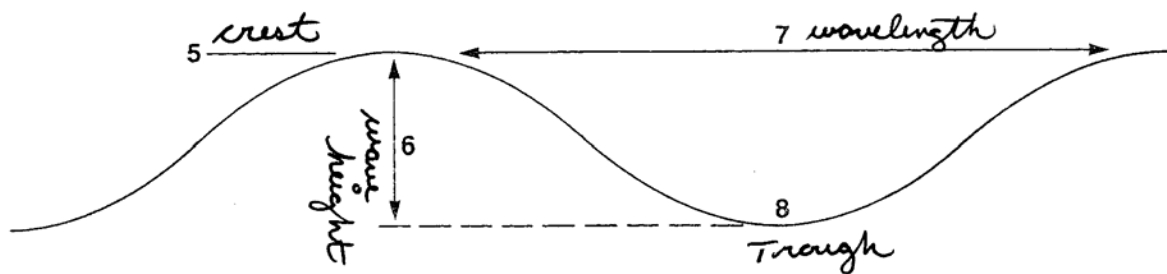
9c. Sun, moon, and Earth should be aligned, not at an angle to one another.

10ab. a2, b1, c3

10c. a. gravity of the sun and moon b. winds c. differences in temperature and salinity

11a. a4, b1, c2, d3

11b.



11c. See diagram 11b.

12a. c. earthquakes

12b. Acceptable answers could include:

-A large, destructive, fast moving wave usually caused by an earthquake.

12c. Acceptable answers could include:

-Caused by an earthquake, a tsunami can result in damage to coastlines and their buildings.

13a. a. depth of light penetration and availability of food, especially plankton

13b. Acceptable answers could include:

-photosynthesis is only possible where there is light, therefore, the amount of nutrients available changes as light becomes less abundant

13c. Acceptable answers could include:

-the depth to which light can penetrate helps determine zones where particular ocean life lives because photosynthesis is only possible where there is light, therefore, the amount of nutrients available changes as light becomes less abundant

-adaptations are determined by these factors

14a. a. benthos

14b. Acceptable answers could include:

-benthic life forms live on the ocean floor, or are attached to one spot, their entire lives. (might include shellfish, marine plants, barnacles, coral, etc.)

14c. Acceptable answers could include:

-Benthos (might include shellfish, marine plants, barnacles, coral, etc.)

15a. a. Benthic zone

15b. Pelagic Zone

15c. Acceptable answers could include:

-Water in the open ocean.

16a. b. nekton

16b.

Plankton

diatoms

dinoflagellates

Nekton

sharks

whales

sea turtles

Benthos

kelp

starfish

clams

16c. Acceptable answers could include:

-Plankton: Microscopic plants and animals; primary ocean food source.

-Benthos: Life forms that live on the bottom or are attached to one spot their entire lives.

-Nekton: Free-swimming creatures

-See 16b for examples.

17a. a. phytoplankton

17b. a. It carries on photosynthesis at or near the surface

17c. Acceptable answers could include:

-Phytoplankton are microscopic marine plants, zooplankton are microscopic marine animals.

-Photosynthesis is provided by phytoplankton.

18a. b. near the surface and in shallow, lighted waters

18b. d. The concentration of organic matter serving as food is greater

18c. Acceptable answers could include:

-The concentration of organic matter serving as food is greater