

Subject Review

NOAA National Ocean Service Corals Tutorial

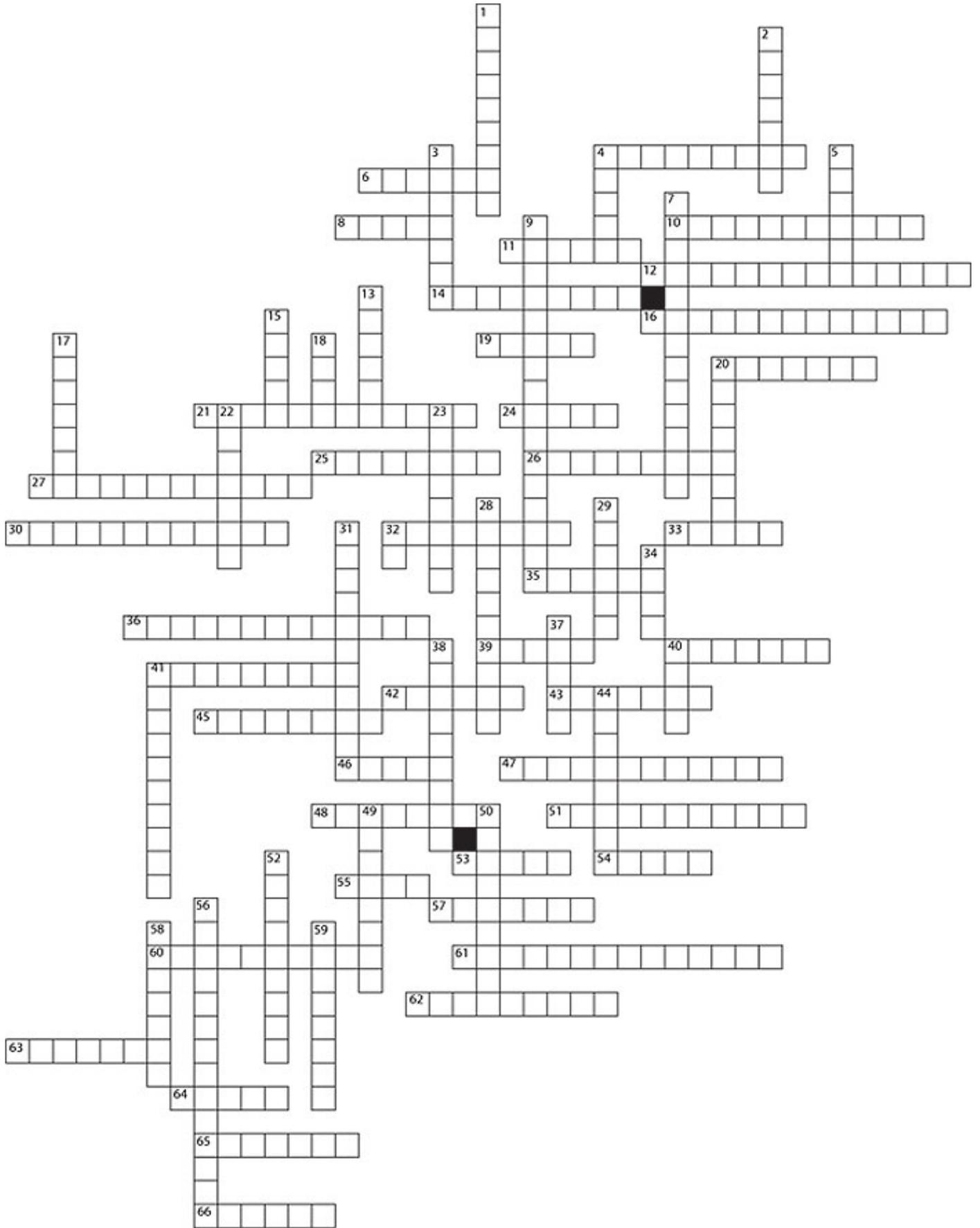
Full tutorial available online at oceanservice.noaa.gov/education/tutorial_corals/

1. _____ organisms are composed of hundreds to hundreds of thousands of individual animals.
2. Individual coral animals are called _____.
3. The mouth of individual coral animals is surrounded by a circle of _____.
4. After food is consumed by corals, waste products are expelled through the _____.
5. Time of day when most corals feed: _____.
6. To capture their food, corals use stinging cells called _____.
7. Nematocysts are capable of delivering powerful, often lethal, _____.
8. A coral's prey ranges in size from nearly microscopic animals called _____ to small fish.
9. Many corals collect fine organic particles in films and strands of _____.
10. Most reef-building corals contain photosynthetic algae called _____ which live in their tissues.
11. Corals and algae have a _____ relationship.
12. Symbiotic algae supply corals with glucose, glycerol, and amino acids, which are the products of _____.
13. Tropical ocean waters are generally [rich or poor] _____ in nutrients.
14. The relationship between the algae and coral polyp facilitates a tight _____ of nutrients, which is the driving force behind the growth and productivity of coral reefs.
15. The unique and beautiful colors of many stony corals are caused by _____.
16. _____ can cause coral polyps to expel their algal cells.
17. Coral _____ occurs when coral polyps expel their algal cells, causing the colony to take on a stark white appearance.
18. Because of their intimate relationship with symbiotic algae, reef-building corals respond to the environment like _____.
19. Because their algal cells need light for photosynthesis, reef corals require _____ water.
20. Although coral reefs require nutrient-poor water, they are among the most _____ and diverse marine environments.
21. Reefs form when polyps secrete skeletons of _____.
22. As they grow, coral reefs provide structural _____ for hundreds to thousands of different vertebrate and invertebrate species.
23. The skeletons of stony corals are secreted by the lower portion of the polyp. This process produces a cup, or _____, in which the polyp sits.
24. The walls surrounding the corals' skeletal cup are called the _____.
25. The floor of the corals' skeletal cup is called the _____.
26. _____ is a system of specially designed buoys that measure conditions that may cause bleaching on coral reefs.
27. When polyps are physically stressed, they contract into their calyx so that virtually no part is exposed above their skeleton. At other times, polyps extend out of the calyx. Most polyps extend the farthest when they _____.
28. _____ corals have primary and secondary branches.
29. _____ corals look like fingers or clumps of cigars and have no secondary branches.
30. _____ corals form table-like structures and often have fused branches.
31. _____ coral has large, flattened branches.
32. _____ corals have broad plate-like portions rising in whorl-like patterns.
33. _____ corals grow as a thin layer against a substrate.
34. _____ corals are ball-shaped or boulder-like and may be small as an egg or as large as a house.

35. _____ corals resemble the attached or unattached tops of mushrooms.
36. Coral reefs begin to form when free-swimming _____ attach to submerged rocks or other hard surfaces along the edges of islands or continents.
37. _____ reefs project seaward directly from the shore, forming borders along the shoreline and surrounding islands.
38. _____ reefs border shorelines, but are separated from their adjacent land mass by a lagoon of open, often deep water.
39. An _____ is formed when a reef has developed around a volcanic island that subsides completely below sea level while the coral continues to grow upward.
40. Massive corals have growth rates of 0.3 to 2 _____ per year.
41. Bottom topography, depth, wave and current strength, light, temperature, and suspended sediments act on coral reefs to create horizontal and vertical zones of living species. The reef _____ is usually the zone closest to shore, followed by the reef _____ or algal ridge, then the _____ zone, and finally the _____.
42. Reef-building corals cannot tolerate water temperatures [above or below] _____ 18° Celsius (C).
43. Most reef-building corals require very _____ water.
44. Reef-building corals' requirement for high light explains why most reef-building species are restricted to the _____ zone, the region in the ocean where light penetrates to a depth of approximately 70 meters.
45. As adults, almost all corals are _____, which means that they remain on the same spot on the sea floor for their entire lives.
46. In _____ reproduction, new polyps bud off from parent polyps to expand or begin new colonies.
47. In sexual reproduction, coral eggs and sperm join to form free-floating, or planktonic, larvae called _____.
48. Species that release massive numbers of eggs and sperm into the water to distribute their offspring over a broad geographic area are called _____ spawners.
49. The time between planulae formation and settlement is a period of exceptionally high _____ among corals.
50. Along many reefs, spawning occurs as a _____ event, when all the coral species in an area release their eggs and sperm at about the same time.
51. The long-term control of spawning may be related to temperature, day length and/or rate of temperature change (either increasing or decreasing). The short-term (getting ready to spawn) control is usually based on _____ cues.
52. The final release of gametes during spawning is usually based on the time of _____.
53. Planulae exhibit positive _____.
54. Once planulae settle on the bottom, they _____ into polyps and form colonies that increase in size.
55. Coral reefs support more _____ per unit area than any other marine environment.
56. Scientists estimate that there may be _____ of undiscovered species of organisms living in and around reefs. [how many?]
57. Coral reef biodiversity is considered key to finding new _____ for the 21st century.
58. Healthy reefs contribute to local economies through _____.
59. In developing countries, coral reefs provide critical _____ resources for tens of millions of people.
60. Coral reefs buffer adjacent shorelines from wave action and prevent _____, property damage and loss of life.
61. Natural damage to coral reefs frequently occurs because of _____.
62. Slow-growing corals that are damaged by storms may be overgrown by _____ before they can recover.
63. Reefs also are threatened by _____ that can cause shallow water coral heads to overheat and dry out.
64. Increased sea surface temperatures, decreased sea level and increased salinity from altered rainfall can all result from weather patterns such as _____.
65. Corals are vulnerable to _____ by fishes, marine worms, barnacles, crabs, snails and sea stars.
66. Human-caused, or _____ activities are major threats to coral reefs.
67. One of the most significant human-caused threats to reefs is _____.

68. When some contaminants enter the water, nutrient levels can increase, promoting the rapid growth of _____ and other organisms that can smother corals.
69. In many areas, coral reefs are destroyed when cyanide or dynamite are used for _____ activities.
70. Coral diseases generally occur in response to biological _____, such as bacteria, fungi and viruses, and nonbiological stresses, such as increased sea surface temperatures, ultraviolet radiation and pollutants.
71. Many scientists believe that the increased frequency of coral diseases over the last 10 years is related to deteriorating water quality and increased _____ that may allow for the proliferation and colonization of microbes.

Corals Crossword Puzzle



Across

4. The mouth of individual coral animals is surrounded by a circle of _____.
6. Many corals collect fine organic particles in films and strands of _____.
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21. The _____ is usually the zone farthest from shore.
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65. Coral reefs buffer adjacent shorelines from wave action and prevent _____, property damage and loss of life.
66. The final release of gametes during spawning is usually based on the time of _____.

Down

1. Species that release massive numbers of eggs and sperm into the water to distribute their offspring over a broad geographic area are called _____ spawners.
2. _____ reefs border shorelines, but are separated from their adjacent land mass by a lagoon of open, often deep water.
3. Healthy reefs contribute to local economies through _____.

4. The walls surrounding the corals' skeletal cup are called the _____.
5. Individual coral animals are called _____.
6. _____ are strips of grass located between a farm field and a body of water. (two words)
7. Human-caused, or _____ activities are major threats to coral reefs.
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56. Symbiotic algae supply corals with glucose, glycerol, and amino acids, which are the products of _____.

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59. Scientists estimate that there may be _____ of undiscovered species of organisms living in and around reefs.

WORD BANK

- algae
- anthropogenic
- asexual
- atoll
- barrier
- basal plate
- below
- bleaching
- branching
- broadcast
- buttress
- calcium carbonate
- calyx
- clear
- cm
- colonial
- crest
- CREWS
- digitate
- El Niño
- elkhorn
- encrusting
- erosion
- euphotic

- feed
- fishing
- flat
- foliase
- food
- fringing
- habitats
- larvae
- lunar
- massive
- medicines
- metamorphose
- millions
- mortality
- mouth
- mucous
- mushroom
- mutualistic
- nematocysts
- night
- photosynthesis
- phototaxis
- physical stress
- plants

- planulae
- pollution

- polyps
- poor
- predation
- productive
- recycling
- saline
- seaward slope
- sessile
- species
- stresses
- sunset
- synchronized
- table
- temperatures
- tentacles
- theca
- tidal emersions
- tourism
- toxins
- weather
- zooplankton
- zooxanthellae