Coral Reef Rescue Mission

Climate Change. Climate change is the biggest worldwide threat to coral reefs. Scientific evidence now clearly shows that the Earth's atmosphere and ocean are warming. These changes are due almost entirely to greenhouse gases from human activities.

As temperatures rise, big coral bleaching events and infectious disease outbreaks are becoming more frequent. On top of that, excess carbon dioxide absorbed into the ocean from the atmosphere has already begun to make it harder for reefs to build their skeletons. This process is called ocean acidification, because when excess carbon dioxide dissolves into the ocean, it changes the seawater chemistry by making it more acidic.

Climate change is affecting coral reef ecosystems by making the environment they live in more stressful and more difficult to reproduce and grow in.

Your mission is to find a way to

(1) Reduce the ocean acidification and warming on coral reefs, OR
(2) Make corals stronger and healthier so they're less stressed by climate change. (circle one)

1. Think about the problem and what could help solve it. There are no limits! What would you do if you had all the people and resources you needed to help you?

Coral Reef Rescue Mission

2. Draw your idea.

3. Explain your idea.

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Pollution. Many serious coral reef ecosystem stressors come from land-based sources, most notably toxicants, sediments, and nutrients. Florida's Coral Reef is even more vulnerable than other reefs around the world, because it's so close to major cities along the coast – Miami, Ft. Lauderdale, and West Palm Beach. In these cities, nutrient pollution can come from sewers and pipes breaking, sediments can come from construction projects along the coast or in the water that dredge up sand, and toxicants can come from rain storms washing chemicals on lawns and streets into the ocean (known as runoff). Boats can also release toxicants and nutrients from chemical and fuel spills onboard or by releasing their waste in the ocean.

When these pollutants reach coral reefs, they can make it harder for corals to grow and reproduce and cause disease and mortality in some sensitive types of coral.

Your mission is to find a way to

(1) Reduce the land-based of pollution (from sewers, dredging/construction, and runoff) that is reaching coral reefs, OR
(2) Reduce pollution from boats (spills and waste) that is reaching coral reefs. (circle one)

1. Think about the problem and what could help solve it. There are no limits! What would you do if you had all the people and resources you needed to help you?

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2. Draw your idea.

3. Explain your idea.

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Overfishing and fishing gear. Florida's Coral Reef has supported fishing for thousands of years! At first, people just fished for food (subsistence fishers). Today, there are people who fish for fun (recreational fishers) and people who fish to sell their catch (commercial fishers). Fishers in the United States are only allowed to catch a certain amount of fish each year, so that there are enough left in the ocean for the reef to be healthy and for future fishers to catch. Scientists use a lot of research to decide how many fish can be caught each year. However, in Florida, there has been a huge increase in recreational fishing, by tourists and people who live here. Most fish are released by recreational fishers, but they can get stressed and hurt if fishers aren't very careful, so they don't always survive when they're released back to the ocean. Commercial fishers can sometimes use fishing equipment that damages coral reefs and seagrass beds by dragging nets or tangling lines.

Your mission is to find a way for

(1) Recreational fishers to keep the coral reef fish they catch healthy, so the fish survive after being released back to the ocean, <u>OR</u>
(2) Commercial fishers' gear (nets and fishing lines) not to hurt coral reefs and seagrass beds. <u>(circle one)</u>

1. Think about the problem and what could help solve it. There are no limits! What would you do if you had all the people and resources you needed to help you?

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3. Explain your idea.

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Anchors, boats, and diver damage. Florida's Coral Reef attracts tourists and locals who want to experience the amazing resource. However, all this traffic on the water has been hard on the reef. Anchors are dragging across corals, boats are grounding right on coral reefs and seagrass, and divers are touching and kicking corals. These anchors, boats, and divers are breaking apart corals from their habitat and damaging the sensitive tissue that corals need to survive! Entire areas of the coral reef have been damaged or reduced to flat rubble.

Your mission is to find a way for

(1) Boats and their anchors to not damage Florida's Coral Reef–We need to anchor on sand away from corals and seagrass beds and to not drive our boats near shallow reefs where boats could become grounded, **OR**

(2) Divers to not damage Florida's Coral Reef–We need to not touch or kick the corals while exploring the reef. **(circle one)**

1. Think about the problem and what could help solve it. There are no limits! What would you do if you had all the people and resources you needed to help you?

Coral Reef Rescue Mission

2. Draw your idea.

3. Explain your idea.