



Vocabulary

Use the picture and the sentences to talk with a partner about each word.



Mike's **artificial** leg did not prevent him from playing most sports.

When might you need something to be artificial rather than real?



Many students will **collaborate** to create our school's new banner.

What other projects might require you to collaborate with others?



Tina **dedicated** herself to learning the song for the choir concert.

When have you dedicated all your efforts to learning something?



The dancer's body was so **flexible** that he could twist into almost any position.

Why is it important for athletes to be flexible?



The main **function** of a hammer is pounding nails.

What is the main function of another common tool?



Some insects can **mimic** a tree branch or twig to hide themselves.

What other animals can mimic something?



The fallen tree created an **obstacle** in the road, and cars could not get through.

What sort of obstacle have you encountered trying to get somewhere?



Maria uses a variety of bowing **techniques** when playing her violin.

What are some techniques you use to help you study?

Your Turn



Choose three words. Write three questions for your partner to answer.

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Essential Question

What benefits come from people working as a group?

Read about how a variety of people worked together after the Deepwater Horizon oil spill in the Gulf of Mexico.

(I) Joe Raedle/Getty Images News/Getty Images, (r) (bkgd) Photodisc/Getty Images, (inset) US Coast Guard/Getty Images

Fans of comic books know that sometimes it takes a team of superheroes to save the day. Each one uses his or her special powers to fight an enemy or solve a problem. On April 20, 2010, the Deepwater Horizon drilling platform exploded in the Gulf of Mexico. Massive fires raged above the waters. Down below, gallons and gallons of oil spewed from a broken pipeline. Such a huge disaster would require the skills and abilities of many heroes working together.



Fire boats at work at the off shore oil rig Deepwater Horizon.

Responders in the Water

Immediately after the explosion, firefighters worked with the U.S. Coast Guard to battle the blaze. Boats and aircraft transported survivors from the platform to safety before the rig sank.

Meanwhile, scientists raced to understand what was happening underwater. Each type of scientist had a specific **function**. Oceanographers mapped out the ocean floor and charted water currents in the area. Biologists looked for ways to protect animals in the region from the spreading oil.

What was most important, engineers discussed **techniques** to fix the broken well. The leak was more than a mile below the Gulf's surface. That was too deep for human divers to work effectively. For that reason, experts relied on robots with **artificial** arms and special tools to stop the spill. Many of their first efforts failed.

After nearly three months, workers finally plugged up the damaged well. It would take many more months to clean up the mess left behind.

■ Workers move absorbent material to capture some spilled crude oil at Fourchon Beach, Louisiana.

Watchers from the Sky

From the water, it was hard to see where the oil was spreading. Responders had to collaborate with other agencies, such as the NASA space program. Satellites in the sky sent information to scientists on the ground. Meteorologists tracked storms that might pose an obstacle to the response teams. Photographs helped team leaders decide how to assign their workers.

Pilots and their crews flew over the Gulf region in helicopters and planes. Some studied how the oil slick moved from place to place. Others directed the placement of floating barriers to protect sensitive areas. Some crews transferred needed supplies back and forth between land and sea.

Heroes on Land

As the oil approached land, new responders leapt into action. Veterinarians dedicated their efforts to helping out marine animals, such as pelicans and turtles. They would capture and treat affected animals before returning them to the wild. Naturalists and ecologists cleaned up the animals' habitats. Quite often, these groups' efforts overlapped and they helped one another. Volunteers also helped out on many tasks.

Local fishermen also needed help. They relied on crabs, shrimp, and other seafood for their livelihood. Government officials monitored fishing areas to decide which were safe. Bankers and insurance companies also reached out to the fishermen. They helped find ways to make up for the lost income from seafood sales.



Biologists catch an oil-soaked brown pelican to clean and return to the wild.

(bkgd) Photodisc/Getty Images; (inset) Joe Raedle/Getty Images News/Getty Images

In Florida, experts worked together in a "think tank."
They needed to trap floating globs of oil before they ruined area beaches. They created the SWORD, or Shallow-water Weathered Oil Recovery Device.
The SWORD was a catamaran with mesh bags hung between its two pontoons. The small craft would mimic a pool skimmer and scoop up oil as it moved. Because of its size and speed, the SWORD could be quite flexible responding to spills.



Workers place absorbent materials to catch oil in Orange Beach, Alabama.

As we have seen, the Deepwater Horizon accident required heroic efforts of all kinds. In some cases, workers' jobs were quite distinct. In others, their goals and efforts were similar. The success of such a huge mission depended on how well these heroes worked together. The lessons learned will be quite valuable if and when another disaster happens.

Make Connections



How did people from other locations work together with those responders at the site of the Gulf oil spill?

ESSENTIAL QUESTION

How have others helped you achieve a goal? Explain how you all worked together to meet the challenge.

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