

What Happens When a Whale Dies?

Lesson Overview:

In this activity, students will go on a unique journey and follow a whale carcass as it slowly sinks into the abyss of the ocean. As the whale falls, many species come out of the darkness to feed. In this activity, students will see that in the ocean, nothing goes to waste. Students will also see that a whale fall provides marine biologists a unique way to study rare creatures of the deep.



Materials:

In order to complete this activity, you will need a computer with internet access, post-it notes and a large sheet of paper or small poster board.

5E Lesson Plan:

Engage

To begin this lesson, ask students to watch the video clip linked below. It is from BBC Earth's Blue planet series and does a great job showing the succession of organisms who feed on the featured grey whale carcass. After students watch the video clip, ask them to answer the thought provoking questions below.

BBC Video Link:

<https://www.youtube.com/watch?v=I7t1WguYJyE>

Thought provoking questions:

1. How large was the whale?
2. Who was the first scavenger species to feast on the whale?
3. What is unique about these scavengers' mouths?
4. What species was newly discovered thanks to the study of whale falls?
5. How long can the whale carcass provide sustenance to the ecosystem at the bottom of the ocean?
6. How many different species can feed on a single whale vertebra?

Explore

After students finish watching the whale fall video clip and answer the corresponding questions, it is time to take a deeper dive into whale falls. Ask students to read the NPR “What Happens After A Whale Dies?” Reading. This provides more detail about a whale fall and how a single whale fall has a profound effect on benthic marine ecosystems.

NPR Reading Link:

<https://www.npr.org/2019/09/13/760664122/what-happens-after-a-whale-dies>

Explain

Now that students watched video footage of a whale fall and read an article about whale falls, it's time to create a timeline starting year zero (when the whale died) all the way until the last bit of nutrients is removed from the whale carcass. The parameters for this timeline are below.

- The timeline must start at zero and the numbers noted after that tell the viewer of the timeline the amount of time that passed after the whale died.
- The timeline should be written on a large poster paper (bonus points if it's cut in the shape of a whale) and the timeline itself should go down the middle of the paper (or paper cut into the shape of a whale).
- The events noted on the timeline should be written on post-it notes and stuck to or near where they belong on the timeline.
- There must be at least 10 events noted on the timeline.

Elaborate

Matter is the building blocks of life and it cycles between living and nonliving things. Ask students to provide a detailed response to the prompt below asking about the flow of matter in ecosystems.

Question prompt:

Eventually, over many many many years, some of the matter that was once the building blocks of a whale that died is incorporated in a new whale. Explain in detail how this is possible.

Evaluate

Student responses to questions and timelines can be assessed for understanding.

Closure

Ask students to write down one thing they already knew about whale falls before this lesson, two things they learned and three questions they still have about the topic.

Connection to NYSSLs:

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.