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STANDARDS

- **CCSS:** RST.9-10.1, 2, 4, 5, 6, 8, 10; RST.11-12.1, 2, 4, 6, 8, 10

ONLINE CONTENTS

- [*Crown of Thorns Starfish Crisis Video*](#) The crown-of-thorns starfish (COTS for short), named for its bristling helmet of sharp venomous spines. These giant starfish, found in the Pacific and Indian Oceans, have up to 21 arms and can grow as large as a meter in diameter. They are a major coral predator and eat coral by extruding their stomach through their mouth and excrete digestive enzymes that allow them to absorb the dissolved coral tissue externally.
- [*Ocean Alert: Overfishing Video*](#) The world's oceans are the biggest source of food for the whole planet. Almost 35% of the world's population gets most of their protein from ocean animals. Although seafood markets around the market appear to be full, they hide a crisis: overfishing. Overfishing occurs when people catch more animals than the ocean can sustain.

CORAL REEF THREATS

This lesson is part of the *Coral Reef Threats* unit, which describes the natural and anthropogenic threats to coral reefs. Below is a summary of what is included in the entire unit. **THIS UNIT IS STILL IN DEVELOPMENT.**

UNIT CONTENTS

A. Lessons

Bleaching

[Read It! Life & Death on the Reef](#)

- A worksheet to accompany the [*Life & Death on the Reef*](#) field blog

Crown-of-Thorns

[Watch It! Crown-of-Thorns Crisis](#)

- A worksheet to accompany the [*Crown-of-Thorns Starfish Crisis*](#) video

[Read It! Addressing Acanthaster](#)

- A worksheet to accompany the [*Addressing Acanthaster*](#) field blog

[Read It! Life, Death, and Rebirth](#)

- A worksheet to accompany the [*Life, Death, and Rebirth \(Part 1 and Part 2\)*](#) field blogs

Overfishing

[Watch It! Ocean Alert: Overfishing](#)

- A worksheet to accompany the [*Ocean Alert: Overfishing*](#) video

[Read It! The Man-eaters](#)

- A worksheet to accompany the [*The Man-eaters*](#) field blog

[Read It! Best Wishes for Reef Fishes](#)

- A worksheet to accompany the [*Best Wishes for Reef Fishes*](#) field blog

[Read It! Sea Cucumber Craze](#)

- A worksheet to accompany the [*Sea Cucumber Craze \(Part 1 and Part 2\)*](#) field blogs

Pollution

[Watch It! Pollution Everything is Connected](#)

- A worksheet to accompany the [*Pollution Everything is Connected*](#) video





WATCH IT!

EVERYTHING IS CONNECTED

INSTRUCTIONS: Watch *Pollution: Everything is Connected* YouTube video (<https://youtu.be/sE0BaaHQwrl>) and answer the following questions.

1. List three different types of pollution that you notice in the first 40 seconds of the video.

2. Can our pollution end up in the ocean?

3. How does debris that ends up in the ocean affect corals?

4. Do ocean animals sometimes eat debris? Provide one example from the video.

5. What are microbeads and what products are they found in?

6. Do microbeads affect humans? Explain.

7. What do coral reefs need to survive?





WATCH IT!

EVERYTHING IS CONNECTED

8. How can coastal mining and tree removal negatively affect coral reefs?

9. What are three main types of runoff?

- a. _____
- b. _____
- c. _____

9. How can the answers to #9 be harmful to coral reefs?

10. List 4 things that people can do to reduce pollution.

- a. _____
- b. _____
- c. _____
- d. _____

11. Reflecting on the video, how might you help to reduce pollution?



VIDEO SCRIPT:

We may not realize it, but what we do every day impacts the fate of coral reefs.

That's because everything is connected.

Who would have thought "our stuff" could end up here?

But it does. In some places, corals are suffocating under debris.

Have you ever thought about what happens to a plastic bag when it reaches the ocean?

It looks like a jellyfish. That's dinner for some sea turtles, but this meal can be lethal.

That's also true of microbeads, little bits of plastic commonly found in facial scrubs and other products.

Fish mistake them for food. Then they enter our food chain too.

Coral reefs are critical to the health of our oceans. They provide food and shelter to millions of different creatures.

But now, they're in grave danger. A quarter of them are severely damaged, another two-thirds, seriously threatened.

To thrive, reefs need clean water. That's not what we on land are giving them.

Coastal mining displaces sediment that washes away in the next big rainstorm.

Cutting trees is just as devastating. Tree roots hold dirt in place; without them, it erodes into the sea.

Once there, it blocks out sunlight essential to coral reefs. Sediment clogs the mouths of coral polyps too, making it difficult for them to feed.

Since everything is connected, the chemicals we use and waste we create on land also makes their way to the sea in agricultural runoff, sewage, and stormwater. They carry nutrients that alter the natural balance of nutrients in the ocean.

For coral reefs, the excess phosphorus and nitrogen can be deadly over time. It removes oxygen and triggers massive blooms of algae that can overwhelm a reef.

But the idea that everything is connected brings good news too.

It means that we can make a difference.

We can plant trees.

Not only do they hold soil in place, they absorb carbon dioxide and add oxygen to the air.

We can stop littering and recycle bottles and cans.

We can use reusable bags and containers instead of disposables.

We can choose environmentally friendly products.

We can consume less electricity, oil, and gas.

We are the greatest threat to coral reefs. They've survived for tens of thousands of years and we need them more than ever.

Now, they need us.

Let's do our part to help them survive.