

Crown of Thorns starfish II

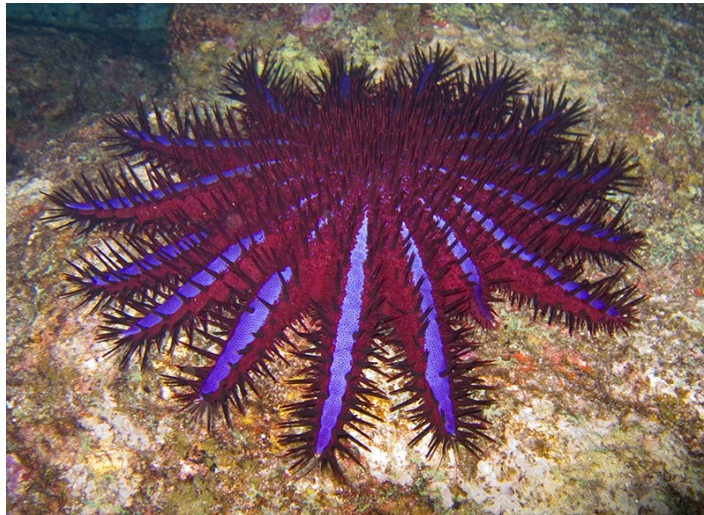
This task is about how observations inform theories.

Over the past 20 years outbreaks of the Crown of Thorns starfish have caused large amounts of damage to coral reefs in the Pacific Islands. Crown of Thorns starfish feed on the fast growing corals of the coral reefs.



The Crown of Thorns starfish have certain adaptations/features that help them survive and reproduce in the coral reef environment.

a) Explain in the boxes below how each of the adaptations/features could help this starfish survive.



How could the colour of the starfish help it survive?

How could the bristles/thorns of the starfish help it survive?

How could the many legs of the starfish help it survive?

Scientists wanted to work out why Crown of Thorns starfish have become such a problem. One theory suggests that when there are fewer predators starfish numbers increase.

Scientists made these four observations. Two of these observations show that when there are fewer predators the starfish numbers increase [**the predator removal theory**].

Choose the **two** observations that support this theory.

- | | |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <input type="radio"/> No starfish remains have been found in the stomachs of large predator fish on coral reefs | <input type="radio"/> Triton shells (which can eat starfish) are heavily harvested for Pacific Island ceremonies |
| <input type="radio"/> Overall numbers of puffer fish (seen eating starfish) are low on coral reefs | <input type="radio"/> Whole starfish can regenerate from small pieces left behind when they are eaten. |

Choose the two observations that would **not support** the theory.

- | | |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <input type="radio"/> No starfish remains have been found in the stomachs of large predator fish on coral reefs | <input type="radio"/> Triton shells (which can eat starfish) are heavily harvested for Pacific Island ceremonies |
| <input type="radio"/> Overall numbers of puffer fish (seen eating starfish) are low on coral reefs | <input type="radio"/> Whole starfish can regenerate from small pieces left behind when they are eaten |

Do you think there is enough evidence to support the theory?

No starfish remains have been found in the stomachs of large predator fish on coral reefs

Triton shells (which can eat starfish) are heavily harvested for Pacific Island ceremonies

Overall numbers of puffer fish (seen eating starfish) are low on coral reefs

Whole starfish can regenerate from small pieces left behind when they are eaten.

- | | |
|---------------------------|--------------------------|
| <input type="radio"/> Yes | <input type="radio"/> No |
|---------------------------|--------------------------|

Explain why you think this.

Scientists decided to do some further observations.

Choose **one** of the following observations.

- | | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <input type="radio"/> Count the number of triton trumpet shellfish on reefs in areas that are inaccessible to people. | <input type="radio"/> Observe how much of each Crown of Thorns starfish a triton trumpet shellfish eats. |
| <input type="radio"/> Examine the stomach contents of the triton trumpet shellfish. | |

Explain how this observation would help support or would not help support the theory.