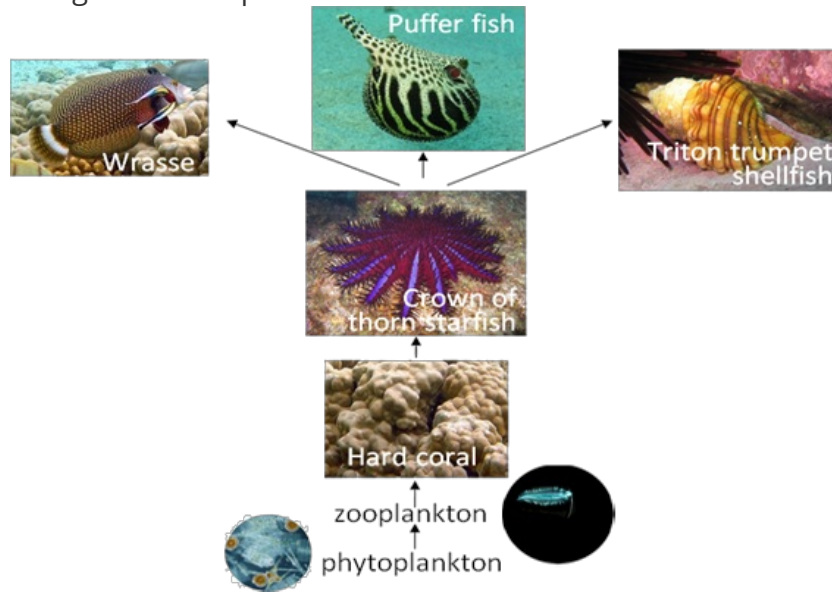


# Crown of Thorns starfish I

This task is about what diagrams of food chains can and/or cannot tell you about the organisms involved.

Scientists have observed the Crown of Thorns starfish eating hard coral and being eaten by fish such as wrasse, puffer fish and the triton trumpet shell fish.

They represent this feeding relationship in food chains as shown below.



The order of the organisms and the direction of the arrows are agreed upon by scientists to describe the feeding relationship [what eats what to obtain nutrition] between the species in a biotic community.

Choose which idea below is being represented by the direction of the arrows?

- |   |   |
|---|---|
| <input type="radio"/> The energy transferred from one species to another. | <input type="radio"/> The nutrients the predators obtain. |
| <input type="radio"/> The producer species.                               | <input type="radio"/> How much energy the predators need. |

Choose which **2 things** the Crown of Thorns food chain **tells us** about the hard coral?

- |  |   |
|--|---|
| <input type="radio"/> Hard coral is eaten by the Crown of Thorns starfish. | <input type="radio"/> Hard coral is eaten by zooplankton. |
| <input type="radio"/> Pufferfish are a predator of hard coral.             | <input type="radio"/> Hard coral eats zooplankton.        |

Feeding relationships can be very complex. Food chain diagrams tell just a little part of the food relationship story.

Choose which **2 things** the Crown of Thorns food chain **does not tell us** about the Crown of Thorns predators?

- |   |  |
|---|--|
| <input type="radio"/> Wrasse, pufferfish and triton trumpet shellfish are predators of Crown of Thorn starfish. | <input type="radio"/> Wrasse, pufferfish and triton trumpet shellfish each eat the same amount of Crown of Thorn starfish. |
| <input type="radio"/> Wrasse, pufferfish and triton trumpet shellfish only eat Crown of Thorn starfish.         | <input type="radio"/> Wrasse, pufferfish and triton trumpet shellfish are not predators of hard coral.                     |

Knowing about the interactions of organisms in a food chain helps scientists predict what might happen when there is a change in the environment.

From the information in the Crown of Thorns food chain, for each of the following three statements choose whether you think scientists could confidently predict an outcome without gathering further information.

1. Overfishing of the triton trumpet shellfish will affect the COT starfish population  
*confidently predict / it depends / can't predict*
2. A phytoplankton bloom [increase in the phytoplankton population] will affect the zooplankton population  
*confidently predict / it depends / can't predict*
3. An increase in COT starfish will affect the hard coral population of a coral reef  
*confidently predict / it depends / can't predict*

Choose one of your answers and explain why you think this.

- |   |
|---|
| <input type="radio"/> Overfishing of the triton trumpet shellfish will affect the COT starfish population                     |
| <input type="radio"/> A phytoplankton bloom [increase in the phytoplankton population] will affect the zooplankton population |
| <input type="radio"/> An increase in COT starfish will affect the hard coral population of a coral reef                       |

Explanation