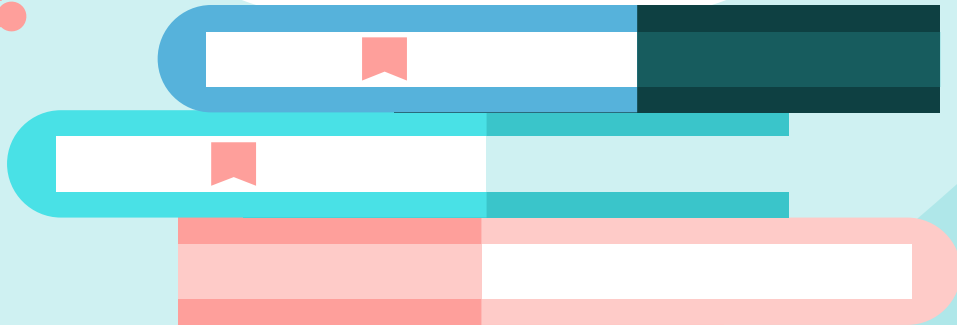
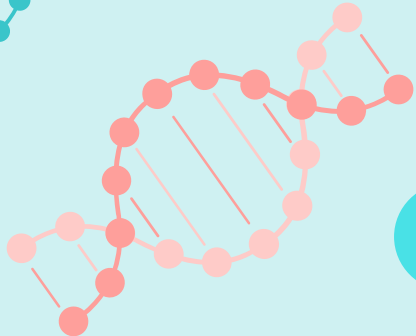
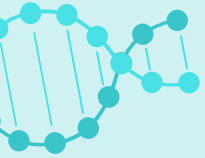


Friends or enemies: How organisms coexist through symbiotic relationships

Maya Powell & Stephanie Peak

What is symbiosis?

A symbiosis or symbiotic relationship occurs when two organisms of different species live in close association with each other for a long period of time.



Types of symbiosis

Mutualism (+/+): A species interaction in which both species benefit from the interaction

Commensalism (+/0): A species interaction in which one species benefits from the interaction, and the other is not affected by the interaction

Parasitism (+/-): A species interaction in which one species benefits from the interaction, and the other is negatively affected by the interaction

In your notebooks draw a picture to represent each of these definitions

Jigsaw Activity

Find a group of 3, get a stack of symbiotic relationship cards, and match each card to a label: MUTUALISM, COMMENSALISM, or PARASITISM. Think carefully about how and why these organisms are interacting.

Once you have matched all your cards, have one person from each group take one type of symbiotic relationship (eg. parasitism), and form a group with all the other people with that symbiotic relationship (eg. all students with the parasitism cards are now in one group)

Jigsaw Activity

In each large group, discuss how these organisms are interacting, and make a hypothesis about why their relationship is mutualistic, commensalistic, or parasitic.

In your reasoning, make sure to include:

How each organism specifically benefits, is not affected, or is harmed by the interaction

After 5 mins you may use your computers to confirm and/or alter your hypotheses

Jigsaw Activity

Come back together with your original groups of 3, and explain your new expertise in mutualism, commensalism, or parasitism using at least one concrete example

How are symbioses affected by global change?

Corals and Algae



- Mutualism
- Humans are causing global temperatures to increase, which stresses coral out, causing them to expel their symbiotic algae.
- Coral reefs are home to 25% of all marine life in the ocean, so if corals die, these organisms die too.

Sharks and Remora



- Commensalism
- Humans kill ~100 million sharks/year through illegal fishing, longlines, and shark finning.
- Without sharks, remora will not be able to survive either.
- Sharks are also important apex predators

Humans and Mosquitoes



- Parasitism
- Humans are causing global temperatures to increase
- Increased temperatures allow mosquitos to live for longer during the year
- This also leads to increased transmission of mosquito-borne disease, and wider geographic range of mosquitoes.

Let's create our own symbioses

Write down an example of a symbiosis that we didn't discuss today.

- Make sure to include the type of symbiosis, what organisms it is between, and how each organism is affected by this relationship.

Now create your own example of symbiosis using your imagination and two fictional organisms.

- Make sure to include the type of symbiosis, what fictional organisms it is between, and how each organism is affected by this relationship.

Exit ticket

Fill out the Symbiosis Worksheet, and place it in the bin up front before you leave

