Theory support for the teacher

Biodiversity, or biological diversity, is a concept that refers to the diversity of life on Earth. This diversity may refer to ecosystems, species and even genetic information variability on the planet. As you probably know, when individuals reproduce, they transfer their genetic information, to their offspring. The offspring will then inherit a combination of traits that will make them unique. This uniqueness is what creates diversity.

Biodiversity is the key to sustain the web of life, where every agent has its own specific role, being directly or indirectly connected to others. It is this diversity that turns populations, communities, ecosystems, etc. resilient and thrive. Each element of this complex web is fundamental for its safety and success.

Human societies are deeply embedded in this cooperative system and are thus dependent on it for their functioning. This brings responsibility, as every human action has a consequence for other species and the environment, and therefore, for humans themselves. Species are naturally and reciprocally responsible for each other. If just one of them is taken out of the web of life, the entire system may collapse.

Bees are a pillar of life. There are more than 20 000 bees species in the world and they provide multiple ecosystem services, being one of the most important pollination agents in nature, and for that reason, numerous creatures rely of them for their existence. Just to give one example of the global importance of bees, the wildflowers they pollinate will eventually grow and soak up carbon dioxide from the atmosphere. A process called carbon sequestration, potentially offsetting human-caused emissions. Like this, many other examples can be observed in nature that demonstrate the fundamental importance of bees.

Bees are the most important pollinators of our vegetables, fruits and crops that feed our farm animals, as well as of plants like cotton that we use for our clothes. One third of the world's food crops is dependent on bee pollination.

But bees have very precise habitat requirements. If the habitat undergoes a change, their populations will respond quickly. In 2006 bees were reported to be dying in mass. Bees populations have been in decline since the World War II (WWII)

Bees are dying because of multiple interacting causes. Pesticides, diseases, parasites, habitat loss (flowerless landscape and monocultures) and a Dysfunctional food system. After WWII we have changed our farming practices, and we have been systematically eliminating flowering plants that bees need for their survival. We stopped planting cover crops and natural fertilizers like clover and alfalfa which fix nitrogen in the soil. Clover and alfalfa are highly nutritious food plants for bees. We also started using synthetic fertilizers and herbicides to kill off the weeds in our farms. Many of these weeds are flowering plants that bees require for their survival. We started growing larger monocultures. Pesticides were necessary because monocultures put out a feast for crop pests. Every batch of pollen collected by a honeybee may contain residues of 6 detectable pesticides in it, including insecticides, herbicides, fungicides. Bees have been dying over the last 50 years and we are planting more crops that need them (worldwide 300% increase in production requiring bee pollination).

For more information you can visit the following:

https://www.ted.com/talks/marla_spivak_why_bees_are_disappearing

https://en.wikipedia.org/wiki/Colony_collapse_disorder

http://sos-bees.org/wp-content/uploads/2014/04/BeesInDecline.pdf

https://theconversation.com/ten-years-after-the-crisis-what-is-happening-to-the-worlds-bees-77164