education session

Ecosystems - Everything's Connected

How is everything on our planet connected together

Year 10-11

Learning Outcomes:

At the end of the session:

- ✓ **All pupils** will understand that producers (plants), consumers (animals) and decomposers are linked together – these links can be shown in many ways including food webs and pyramids
- ✓ **Most pupils** will understand that ecosystems links are complex and changes to one component can have unexpected consequences to other components
- ✓ **Some pupils** will start to recognise how seemingly simple problems – like ocean plastic – are very complex at an ecosystem level, but even so, humans can help solve these problems

Session Outline:

The session begins by defining ecosystems and different levels of environmental organization (biosphere, organism, etc.). We will explore the roles of consumers and producers, allowing students to create their own food webs that include various organisms. Next, we will discuss alternative ways to show connections between organisms, such as food, energy, and biomass pyramids. Students will then play "ecosystem tag" to demonstrate energy and nutrient cycling, highlighting the importance of decomposers and the impact of toxins on higher-level animals. We will define bioaccumulation and biomagnification, using examples like historical DDT use in ospreys and current issues with POPs, microplastics, and ocean waste. The session concludes with positive actions students can take to help address these problems.

Curriculum Links

Biology AQA:
4.6.3.6; 4.7.1 1, 3; 4.7.2.1-2; 4.7.3.1-2, 6; 4.7.4.1-3

Biology OCR:
Topic B4.1: b, e, f, h, I; Topic B6: b, c.

Biology Edexcel:
Topic 6: 6.1; Topic 9: 9.1, 9.2, 9.3, 9.7B, 9.9, 9.10

COLCHESTER ZOOLOGICAL SOCIETY

Please note, no live animals are used in this session.