

Nova's Habitat Design Challenge

Learning objective: To identify and illustrate the specific environmental features that allow organisms to thrive within their chosen habitats.

Use your scientific knowledge to design a balanced ecosystem. Ensure you include both biotic and abiotic factors that are essential for the survival of the animals and plants you choose to draw.

Draw: Create a detailed, scientific illustration of a habitat of your choice (e.g., a freshwater pond, a dense deciduous woodland, or a rocky hedgerow). Use a clean, observational style. Your drawing must clearly depict the layers of the habitat (e.g., canopy, shrub layer, ground layer) and include at least three different species interacting with their environment. Use arrows to show the direction of energy flow where appropriate.



Label words: Biotic factors · Abiotic factors · Producer · Consumer · Microhabitat · Adaptation · Environment · Interdependence

Steps:

1. Step 1: Sketch a woodland or pond habitat. Label one abiotic factor (e.g., sunlight or water temperature) that is essential for life in this area.
2. Step 2: Draw a producer and a consumer. Explain how the consumer depends on the producer for its survival.

3. Step 3: Choose one animal in your drawing and describe one structural adaptation it has that helps it survive in this specific habitat.
4. Explain why the removal of a producer from your ecosystem would have a negative impact on the consumers. Justify your answer using the term 'interdependence'.
5. Compare and contrast a desert habitat with your chosen habitat. What are the key abiotic differences?
6. What might happen if a new, invasive species was introduced to your habitat? Consider the competition for resources.