

# Discover: Biological Lenses

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The "Biological Lenses" described below offer perspectives for thinking about the different ways we can search for biological strategies and assess their usefulness as inspiration for a design solution. As you observe nature firsthand or scan research results, keep these lenses top of mind to guide your search and selection process.



## FUNCTION LENS

This is the most commonly used lens. Searching by function can lead to relevant strategies across a diversity of species and habitats.

- Examples include "filter water," "create color," and "break down cellulose."

## OPERATING CONDITIONS LENS

This lens focuses on the particular conditions that a design must accommodate or manage. Ask which organisms might have to deal with similar environmental conditions and which ecosystems have those characteristics.

- Examples include intense solar radiation, saline water, exposure to fire, and intense atmospheric pressures.

## LOCAL LENS

Use the local lens when your design is going to remain in one geographic location (e.g. a building). Identify how local, native organisms meet their needs and respond to the biotic and abiotic pressures on that site. Pay attention to patterns and trends as they can point to effective strategies for the region.

## ECOLOGICAL LENS

Ecology is the branch of biology that deals with the relations of organisms to one another and to their physical surroundings. Using the ecological lens to identify relevant biological strategies is useful when designing a system with many relationships or interactions. Design concepts emerging from these strategies often apply the biology in a metaphorical way.

- Examples include ecological succession, reproductive strategies, food webs, and niche specialization.

## NATURALIST LENS

A naturalist is a person who studies nature, principally through observation. Using the "naturalist lens" means focusing on beautiful or peculiar natural phenomena simply because they catch your eye or imagination. Such discoveries can sometimes spark a new idea for applying the underlying strategy in a "biology to design" process.