

Observing Relationships at Different Scales



Field Based
Investigations

Use this tool if you are interested in asking investigation questions like:

1. How species are related to each other in a place.
2. How organisms interact with their physical environment in a place.
3. How we can notice different types of relationships by observing them at different scales (i.e. zooming and and zooming out)

We will gather data about:

1. Relationships between species and their surroundings at different scales.
2. How relationship interactions differ at scale.

Why is observing relationships at different scales important to socio-ecological systems?: Plants, animals and humans are all part of a complex system of interconnected relationships, which are made up of many smaller subsystems. When we make observations in places, we often notice relationships between the most visible species (such as trees and birds or fish and bait). However, when we intentionally zoom in and zoom out as we make our observations we can begin to see a complex web of interconnected relationships and behaviors. For example, birds nest in trees, but trees depend on earthworms and other invertebrates to make soil, which are also eaten by birds, and many birds migrate long distances throughout their life cycle. *Scientists use detailed drawings of observations in the field to help them see patterns and understand relationships better.*

Why does observing relationships at different scales matter to my neighborhood--connecting to our “Should We” questions: Observing places at different scales surfaces the many ways we are connected to species and each other and it shows how the decisions we make in our own neighborhoods can have far-reaching effects. For example, pesticides and herbicides can move through a food web in ways that are harmful to larger predators. “Should we” questions such as “Should we wash off sunscreen or insect repellent before swimming” or “Should we put salt on icy sidewalks and streets” or “Should we use rat poison around our apartment complex” all relate to observing relationships at scale.



The investigation question we are asking is:

The “Should We” question we are exploring is:

Materials needed:	Directions:
<ul style="list-style-type: none"><input type="checkbox"/> pencil<input type="checkbox"/> this sheet or blank paper<input type="checkbox"/> optional: magnifying glass<input type="checkbox"/> optional: binocular<input type="checkbox"/> optional: local field guide	<p>Identify three different locations that you would like to observe.</p> <p>At each location observe how plants, animals, and humans interact with each other as well as the physical environment (weather, rocks, etc.)</p> <ul style="list-style-type: none">❖ Draw a “zoomed out” picture of an interaction you observe between your relations. Include what is above, around, and below.❖ Draw a “zoomed in” picture of the same interaction you observe between your relations. Include what is above, around, and below.” <p>Consider how the “zoomed out” and “zoomed in” relationships are connected to each other as part of a larger, interconnected system.</p>



Drawings of Relationships

Location 1 ----- Temperature_____	Location 2 ----- Temperature _____	Location 3 ----- Temperature _____
Draw a “zoomed out” picture 	Draw a “zoomed out” picture 	Draw a “zoomed out” picture
Draw a “zoomed in” picture 	Draw a “zoomed in” picture 	Draw a “zoomed in” picture