

Nature Study Journal : Your Own Ecosystem

As you continue your studies at home, you are presented with a wonderful opportunity. You have the chance to carefully observe the ecosystem which surrounds you every day. When we have observed factors of the ecosystems at the school (the untamed ecosystem of the ditch, or the carefully organized ecosystem which surrounds the school with its trees and grass) we have had the very limited time of a science class to take note of the extraordinary number of factors which they presented to us. Simply considering the biotic factors of the ditch and their relationships to each other could have taken several days, if we had had the time!

While you are home, you can take the time you need to observe all of the factors that are at play in your own backyard – literally! Find a place near your home, either in the backyard or the front yard, in a place that your parents approve of. Make sure you can notice several *biotic* and *abiotic* elements – it would be difficult (though not impossible) to give thorough observations of a patch of dirt, for example.

In your science journals, prepare a new page to begin recording your observations. For reference, look back in your journal to the first day that we made observations of the ditch ecosystem – lay out this new page in the same way. You will create a new page every day to record that day's observations.

Make sure that you record the little details of what you see. Remember: as we did our experiments over this past quarter, the smallest details could sometimes be the most important factor in explaining an unexpected result. As time goes on, you will begin to see connections between different factors of your ecosystem that you did not notice in the beginning. Having a careful account of each day's observations will be very useful in explaining why and how these things are related.

Make sure each page contains the following information:

- Your Name
- Date (you should make observations for at least a few minutes every day)
- Place (this should be the same every day)
- Time (it can be helpful to make observations at several times– sunrise, midday, sunset)
- Weather
- First Impressions
- Wind Direction
- Cloud Patterns and Cloud Cover

Once you have recorded this basic information, focus on using the same method of observation which we used in the ditch:

- **Begin by looking down.** Observe everything you see. This may include the plants nearest the ground, insects, and small animals. It may include evidence of activity: the seeds of plants which have fallen to the ground, or animal prints, or broken twigs. Make sure you record both your written observations, and sketches of what you see. Oftentimes the sketches can help you identify something you do not know the name of, when you get the chance to look it up later.

- **Eye-level observations should come next.** Now that you have taken careful note of what is beneath you, raise your eyes to look directly ahead of you. Observe what you see in every direction. This will probably involve taller plants, or perhaps the trunk of the tree rather than its roots. From this angle you might see larger animals, or animals that are farther away. If you are in your yard, you will probably notice changes to the ecosystem caused by humans. Make observations of everything that you see. (Remember, you have plenty of time; this does not need to be finished in a single day!) It may help to note the direction that you see something (for example, “our house is to the west; there is moss on the north side of the rocks; etc.)
- **Now you should look up.** Observe what parts of your ecosystem are above your head. This may include the crown of a tree, the newly-built nest of a bird, the edge of the roof that shades this particular section of the yard, etc. You should pay close attention to where the sun is while you are observing – is the area you are studying always in shade? Never in shade? Does it experience a large amount of wind? All of these things could have an effect on your ecosystem.
- **Now that you have observed the different sections of your ecosystem, consider the whole landscape together.** In your first several observations, you were focusing on a particular level of the area. Now, consider them as a united whole. For example, you may have observed the roots of a tree, then the trunk, and then the branches and leaves. Now consider the whole tree. Is there anything new that you notice when you look at the entire tree at once? This last step can be very useful; sometimes if we only focus on the little details, we lose track of how they fit together into the big picture.

While you are observing the ecosystem and making notes of your observations, keep in mind both the *biotic* and *abiotic* elements of the system. Plants and animals – *biotic* factors – tend to jump out at us right away. It can be easy to forget the *abiotic* factors of a system. Wind, sun, and water can affect an area more dramatically than we might expect, and keeping track of their activities will help you to understand *why* the *biotic* factors are behaving as they are.

As you are recording your impressions and observations, feel free to take samples of things that seem particularly interesting – an egg shell from a newly hatched bird, or a seed pod which has newly burst open. You might record the arrangement of the leaves or new buds on a tree – are they opposite or alternate? **Just keep in mind, as you take samples, that they should never cause damage to the ecosystem.** Never take an unhatched egg, or touch a bird’s nest, or pluck the newly forming buds off a tree. As a scientist, and especially as someone who is studying ecology, it is important to *observe* the environment as much as possible, and attempt not to *change* it. You will undoubtedly record many noticeable changes to the environment; try not to create new ones.

Do not be afraid to draw what you see – the most important thing is that you make a record of your observations. Take care to examine the details, and catalog anything that seems important. You will be graded based on the content of your observations, and the connections you make between the factors of your ecosystem, not on your artistic ability or having a way with words. Be attentive. Be thorough. Be curious about what you see. Investigate connections. These are the qualities of a true scientist.