

Middle School Science Learning Plans

These plans are also available on our website:

www.accomack.k12.va.us

Please note: The online portion of these plans is optional.

Middle School Learning Plans



7th Grade Life Science

Ecosystem Map

Offline Options (Online Options embedded):

1. Take a walk to sketch out a small map of your neighborhood including street names and major landmarks Examples: Biotic: tree, grasshopper, squirrel, bird, human; Abiotic: stream (or ditch filled with water), house, street, power line, car 2. **Citizenship** - Bring a plastic bag with you to collect trash along your route Record observations of living and non living things on your map- include at least 5 living (biotic) things and 5 nonliving (abiotic) things a. Online Option: With your parent's permission, take digital pictures of your organisms along your route to input into iNaturalist to identify the scientific name and learn more about your organisms. b. Draw the map on a poster board or piece of computer paper, use color! c. Label all of the streets and all living and nonliving things - use symbols if necessary and a key to show what the symbols mean. Online Option - Use Google Maps or Google Earth for reference to help you sketch the map and label street names. Use a drawing app or program such as https://sketch.io/sketchpad/ 3. Collaborate - Share your finished map with a friend (snap a picture of it to text to a friend) or family member. If it is a classmate, have them share their map with you and make comments on their map and give them constructive feedback. With a family member, have them walk through the neighborhood using your map and check the accuracy of your map. 4. <u>Map Description</u>: Write a 2 paragraph (at least 10 complete sentences in two paragraphs) description of your map. (*Online option* - Type in Google Docs). Include the following: 1. What are your living and nonliving ecosystem features? a. List all living and nonliving things b. Online option - with your parent's permission use iNaturalist (website or app) to accurately identify the scientific name for each of the organisms. c. List if your animals are invertebrates or vertebrates. 2. How do the living things depend on the nonliving things? 3. What are the niches (jobs or roles) of each living thing? 4. How do the living things get their energy? Are they autotrophs or heterotrophs? 5. What would happen to your ecosystem if all of the plants died? 6. What kind of pollution (trash, spills) did you see in your ecosystem? 7. How do you think the pollution is affecting your ecosystem?

Online Resources

- 1. Videos:
 - a. Ecosystems https://www.youtube.com/watch?v=P1X-WpfUvm4;
 - b. Autotrophs vs Heterotrophs https://www.youtube.com/watch?v=f8G7IulYxiA
 - c. Niche: https://www.youtube.com/watch?v=xIVixvcR4Jc&t=20s
 - d. Brainpop videos login: hombrain password: hompop https://www.brainpop.com/science/ecologyandbehavior/ecosystems/ https://www.brainpop.com/science/ecologyandbehavior/foodchains/s/

Offline Resources: Science Explorer Life Science textbook pages 688-710

Autotrophs and Heterotrophs in your Environment

Offline Options:

Take a walk around your yard and/or neighborhood. Notice the diversity of organisms that live near your home. Remember to use your sense of sound as well as sight; during the Spring season many organisms are calling out to one another. Of the many organisms you observe, choose one **autotroph** (organism that can make its own food) and one **heterotroph** (organism that cannot make its own food). Focus on both as you complete these tasks.

- 1. Divide a piece of paper in half, and use one half for each organism.
- 2. Identify each organism by name. (What is it?)
- 3. Illustrate each organism's appearance. (Draw and color a picture of each.)
- 4. Describe chemical processes that are essential for survival.
 - a. If it is an autotroph, what two chemical processes happen within its cells? In which organelles?
 - b. If it is a heterotroph, which chemical process happens within its cells? In which organelle?
- 5. How do they ingest/take in what they need? (How do nutrients enter their bodies?)
- 6. Estimate the size of the population in your yard/surrounding area.
- 7. What role (producer, consumer, decomposer) might this organism play within a food chain? Create a simple food chain to include the organism and at least two other organisms.
- 8. On the back of the paper create a large food web (made of many overlapping food chains) that includes both of your chosen organisms. Draw, color, and label each organism you include in this food web. Identify the ecosystem as either terrestrial, aquatic, or both.

Online Options/Extension:

Take **digital pictures** of the organisms you chose for this activity. With your parent's permission, use <u>iNaturalist</u> (website or app) to accurately **identify** the autotroph and heterotroph you have selected for this activity. What is the **binomial**, or **scientific name**, for each of the organisms?