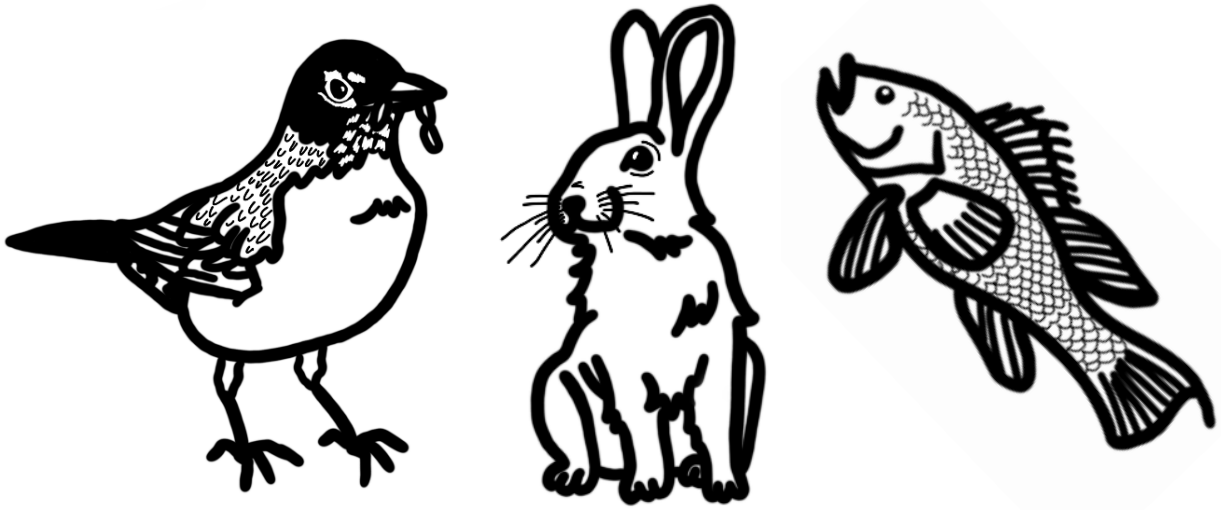
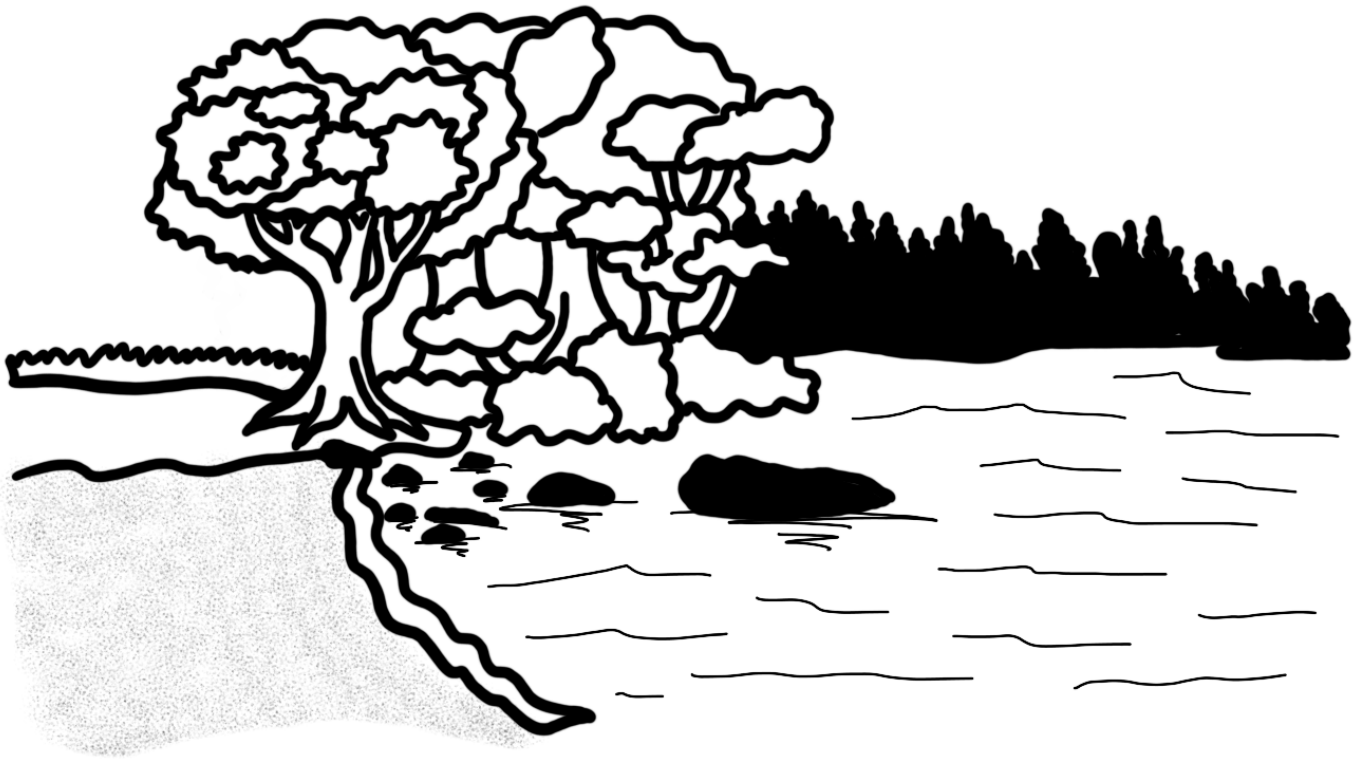


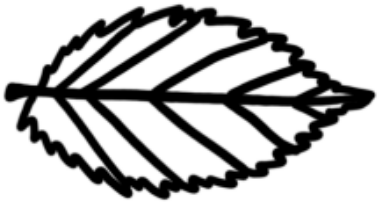
ECOLOGY EXPLORERS



Ecology is the science of how organisms interact with each other and the world around them. Draw a picture of your favorite place in nature!

Every **environment** is full of **biotic** and **abiotic** factors. Biotic factors are living things, like **plants** and **animals**. Abiotic factors are nonliving parts of the environment, like water or the weather.
Can you find the biotic and abiotic factors in your drawing?

Plants are an important **biotic factor**. Tree leaves come in many different shapes and sizes. Unscramble the words below to label each type of leaf shape.



ebldo sohmto eedlne roabedfal

lpmsei udlbonue teoothd omncuodp

Animals can be grouped into six groups based on their **traits**. For each animal group, list some of the unique traits that make that group special.

FISH

AMPHIBIANS

REPTILES

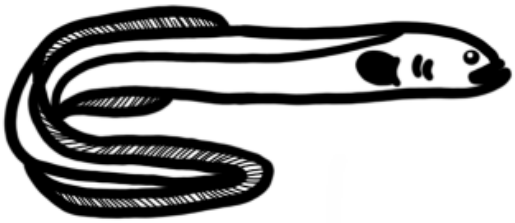
BIRDS

MAMMALS

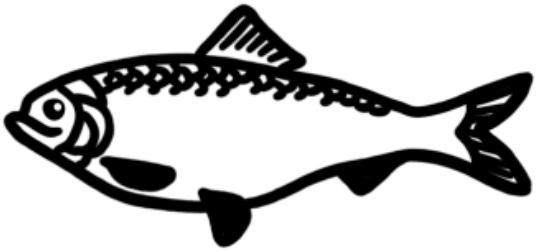
INVERTEBRATES

An organism's **habitat** is the environment where they live. Fish can either live in **freshwater** or **saltwater** habitats.

FRESHWATER FISH



AMERICAN EEL



ALEWIFE

SALTWATER FISH

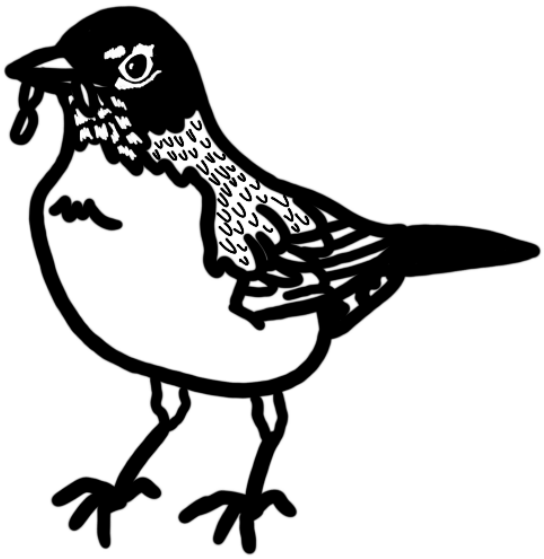
ATLANTIC COD

BLACKFISH

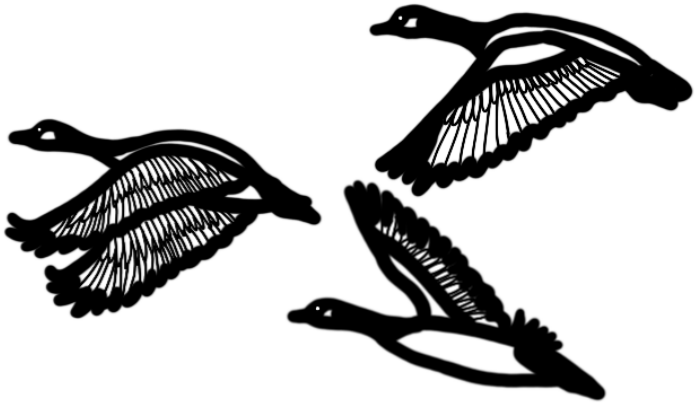
Organisms have special **adaptations**, or traits that help them thrive in their habitat. One adaptation fish have is to have a streamlined body that helps them swim fast. Can you think of other adaptations fish have?

Birds show many different types of **behaviors**, which are the ways that organisms interact with each other and their environment. Can you identify which species is doing each behavior?

This woodpecker is drumming.



This robin is foraging.



These geese are flying.

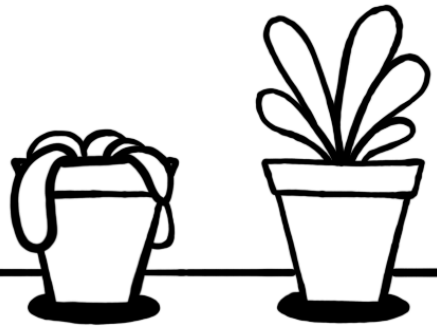
An **ethogram** is a way that scientists can track animal **behavior**. Find an animal and observe them over time, keeping notes in your ethogram about what you see.

Species:	**Date:**

Behavior	**Type**	**Count**	**Description**
Flash Tail	Territory Defense		Bird raises and shakes tail feathers, usually directed at another bird, sometimes includes a call

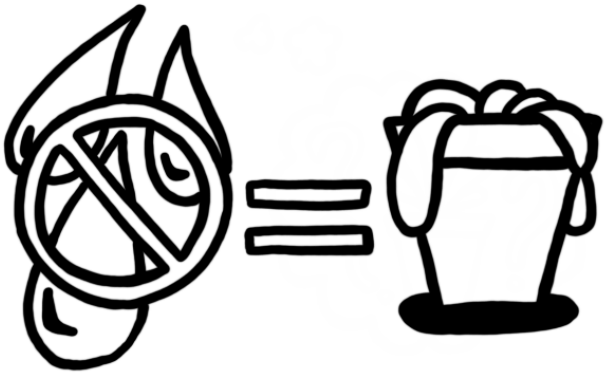
The Scientific Method is the way that scientists study the world around them and learn things.

1.OBSERVE



2.QUESTION

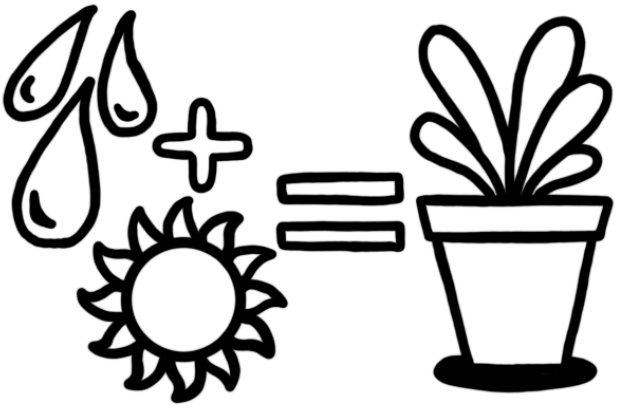
3.HYPOTHESIZE



4.EXPERIMENT

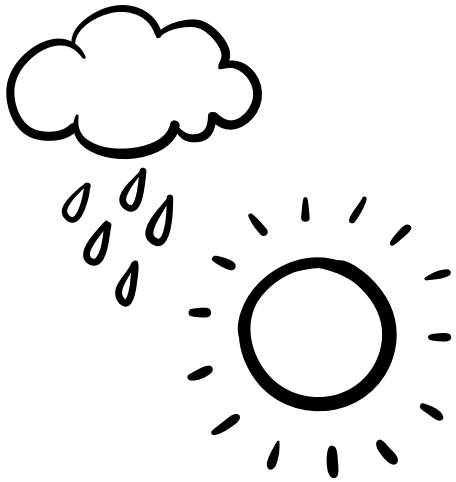
5.ANALYZE

6.CONCLUDE



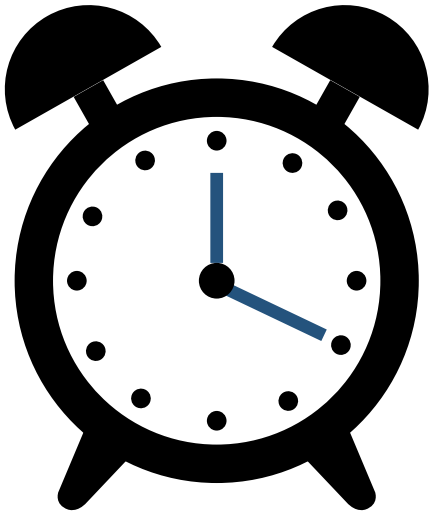
A good ecology question is made up of three parts, or **variables**:

An **independent variable** is the thing that is changing or being manipulated. In ecology, independent variables are often changes in nature, like if the weather is sunny or rainy.

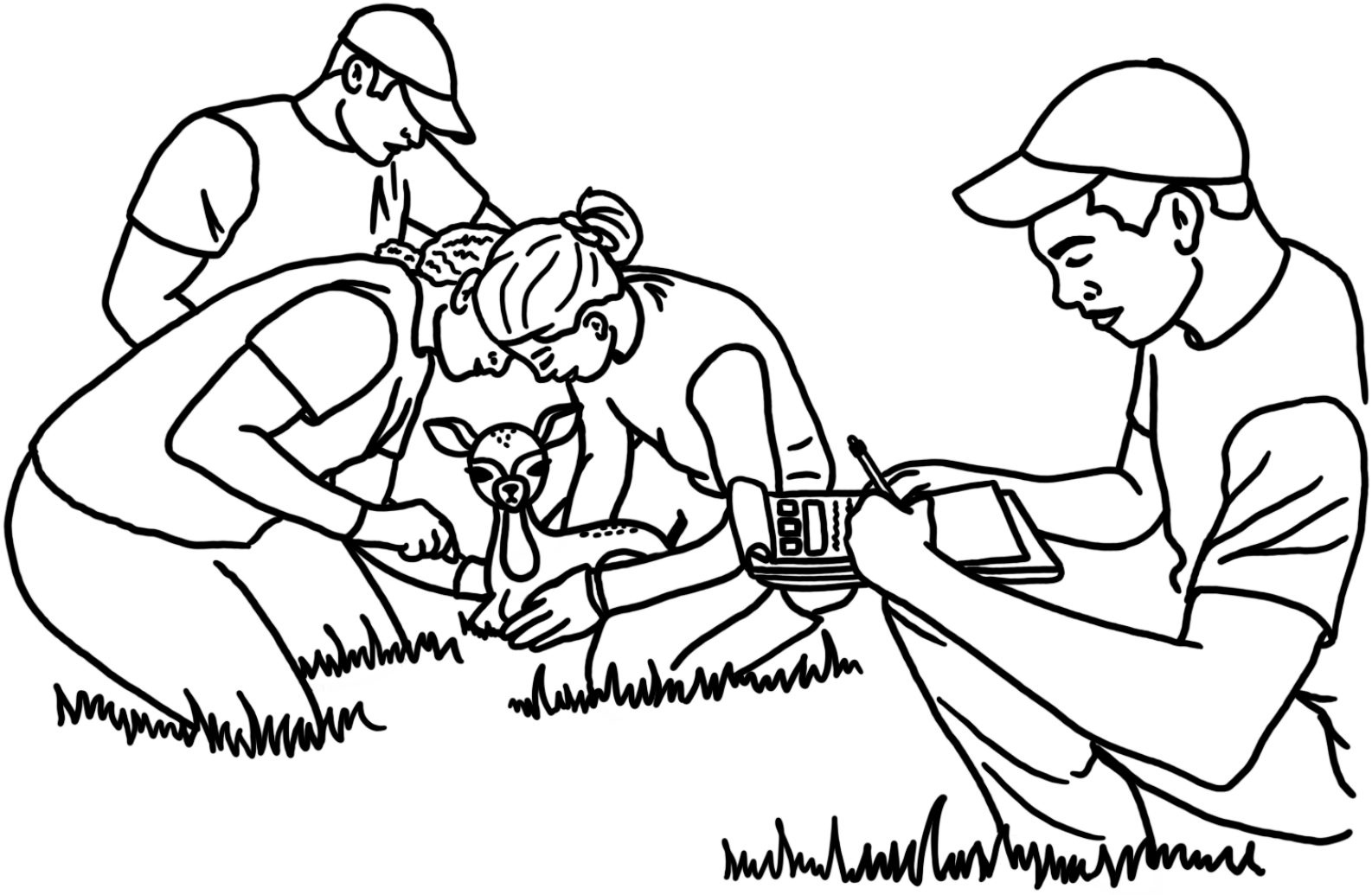


A **dependent variable** is what changes as a result of the independent variable. A good example could be how many elk you can see in one hour.

Controlled variables are variables that you try to keep the same. If you have too many independent variables, you won't know what is causing changes you see! It's important to keep other variables, like time of day or location, the same.



Ecologists use **Field Experiments** to answer their ecology questions. Ecologists go out into nature and take notes in their **Field Notebook** about everything they see or hear.



Now it's your turn to be an Ecology Explorer by asking your own **question**, designing a field **experiment**, and taking notes in your Field Notebook!

FIELD NOTEBOOK

This Field Book is the Property Of:

Pertinent Locations:

If Found, Please Contact:

Start Date:
____ / ____ / _____

End Date:
____ / ____ / _____

FIELD NOTES

What **question** would you like to ask? What are your **independent, dependent,** and **controlled variables**?

What is your **hypothesis**?

How will you **experiment**? It's a good idea to go outside with a trusted adult for about an hour every week to take notes.

Date:	Time:	Location:

Weather:

Date:	Time:	Location:

Weather:

Date:	Time:	Location:

Weather:

Date:	Time:	Location:

Weather:

Date:	Time:	Location:

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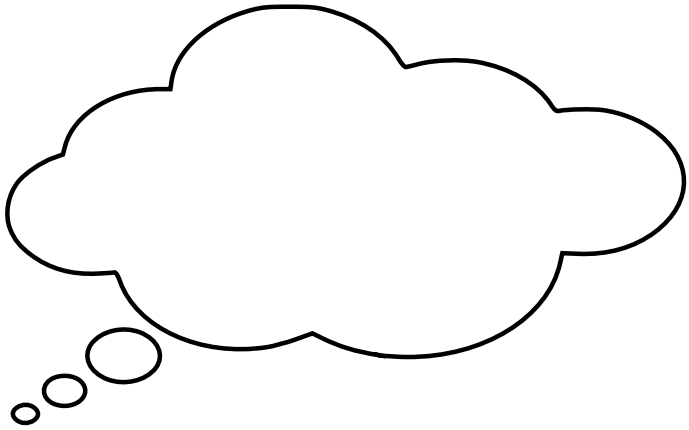
FIELD NOTES

What patterns did you notice over the course of your fieldwork? What are your **results**?

What can you **conclude** based on your results?

What can you do next to explore ecology in your own backyard or neighborhood? Write a new **question**!

Congratulations, you're now an ecology explorer!
Draw yourself as a ecologist.



What kind of organisms will you study as an ecologist? Draw them in your thought bubble!

This coloring book was developed for use in the classroom with national science and reading standards in mind. This book meets the following standards:

Next Generation Science Standards:

3LS1.1: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
3LS4.3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
3ESS2.2: Obtain and combine information to describe climates in different regions of the world.
4ESS3.1: Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
5LS1.1: Support an argument that plants get the materials they need for growth chiefly from air and water.
MSLS1.4: Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
MSLS1.5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
MSLS1.6: Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
MSLS2.1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
MSLS2.2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

English Language Arts Common Core Standards:

5.2: Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
5.3: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
5.4: Determine the meaning of general academic and domain-specific words and phrases in a relevant text.
5.7: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
3.10: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts.
3.7: Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).