

Growth and Development: Day 5

This week through Weekday Wonders, young scientists will learn about life cycles. The week starts with your scientist exploring how animals grow and develop. Then scientists will take a closer look at specific animal and plant life cycles. The week will finish by looking at how the environment might impact these life cycles.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the [Introduction to Weekday Wonders](#).



Question of the Day

How does the environment affect living things' life cycles?



Daily Nature Journal

Ask your young scientist to spend some time outside completing a daily nature journal entry. If you need more information about what should go into an entry, see the [Guide to Nature](#)

[Journaling](#).



Choose Your Habitat!

Remind your young scientist that many living things make their homes in our yards and outside areas. There are several other [Weekday Wonders](#) activities that explore this idea. Healthy habitats help living things grow up and have the things they need throughout their life cycles.

Tell your young scientist that s/he is going to have a chance to design a habitat for living things. Encourage him or her to venture outside and observe how living things interact with the environment around them.

Ask your young scientist to draw a picture of a habitat, thinking about one that would give an animal the things it needs. Then show him or her how to use the Healthy Habitat Score Card to determine how healthy the habitat is based on how well it provides for animals. To do this, look at each line and circle the number of points for that component.

Give your scientist a chance to add to or change the habitat if s/he would like to try to increase the number of animals that make a home there. Then allow him or her to score it again.



Amphibian Adventure!

In this activity, your young scientist will have a chance to learn more about amphibians, their life cycles, and the habitats that help support them. Print the game board and Story Cards and then cut them apart. If you do not have access to a printer, have your young scientist draw a game board like the one shown and make sure you can see the cards on the computer screen. Gather game pieces for each player, such as different coins, game pieces from a different game, or small pieces of paper. This game can be played as a single-player or multi-player game.

Tell your young scientist that as players progress through Amphibian Adventure, they will grow up through the different stages of an amphibian life cycle and take on some of the environmental challenges these animals face every day. Share the game's story and rules with your young scientist.

You are an amphibian who has just hatched from an egg in a small wetland. It is at the edge of a beautiful meadow. On the other side of the meadow is a healthy freshwater pond that is a great home for adult amphibians. You will need to make your way to the pond as you grow so that you can find all the food, water, shelter, and space you will need to survive. You will also find other amphibians that are the same kind as you.

Your wetland and meadow have been very quiet for most of your early life, but recently some humans moved in nearby and since then there have been some changes happening to your environment. Your goal is to see if you can make it safely from the wetland area to the pond on the other side while facing some of the changes that happen to you as you grow.

Rules:

- Shuffle the Story Cards and place them face down in a draw pile. If you are using the cards on the screen, make it so everyone can easily see the cards.
- Have the first player draw a card, read it aloud, and follow the instructions. He or she should then place the card in a discard pile. If you are playing with the cards on the screen, the player should cover his or her eyes and point to a card.
- If more than one person is playing, each player should take a turn in this manner.
- If any player draws a "move back" card on his or her first turn, keep drawing until the player gets a "move forward" card.
- If all the cards are used, shuffle the discard pile, then make it the draw pile.
- The first player to the Pond wins!

If your young scientist seems interested in learning more about amphibians, you might share some or all of the following information with him or her.

Amphibians are a group of animals including salamanders, toads, and frogs, that go through very special life cycles. They start as eggs, then hatch into a larval or juvenile stage during which they breathe through gills. Once they become adults, most of them breathe using lungs (axolotls are an exception).

Amphibians have moist skin that can easily absorb nutrients and pollutants from the soil and water around them. This makes them very sensitive to changes in their environment! Scientists often use amphibians as an indicator species, or an animal whose presence or lack of presence can show how healthy or unhealthy a habitat is.



Homemade Water Feature and Watering Jug

Clean water can make a huge difference to the living things around us because it is one of the basic needs for all plants and animals. In this activity, your young scientist will make a homemade water feature to provide clean water for the animals in your area and a watering jug to water the plants where you live.

Water Feature

Have your scientist create a shallow dish using several layers of aluminum foil. It should be shallow enough that any animals that choose to spend time in it can easily get back out. Typically, about 2 inches of water is all that is needed. If you have a deeper container that you would like to dedicate to making the water feature, have your scientist gather small rocks and sticks to add to it that would allow an animal to climb out.

Ask your scientist to look for a place to put it that animals would feel comfortable using it the water feature. Having some shelter and shade nearby will help the animal feel safe. Your scientist should place the water feature in the spot, then add some small stones, leaves, moss, twigs, and other items to make it feel more natural. These can be added both on the inside and outside of the feature to help animals get in and out.

Add some clean water to the feature to start, then check it often. Rain may fill it up, but if the weather has been dry for a while be sure to add more water regularly so animals learn it is a good source of water.

Watering Jug

Begin by having your young scientist decorate a clean, old milk jug or other container using markers or paint. Help your young scientist put holes in the lid using a drill with a small bit, a hammer and nails, small screws, or a heated needle.

Have your scientist fill the jug with lukewarm water from the sink. Allow him or her to check on the plants around the area and on the water feature he or she made. If any of them are dry, your scientist can use the watering jug to provide some water to the plants and animals. This will help them grow and continue their life cycles.



Life Cycles and the Environment

Have your young scientist take a walk or hike to try to find ways that the environment affects life cycles. For example, he or she might see a patch of ground where they might expect grass because the sun makes the area very hot. Or, your scientist might find a place where water collects during a rainstorm that has led to thicker, lusher grass compared to the rest of a lawn. Maybe a bird has chosen to make a nest in a place that is hidden away and shaded. Challenge your scientist to find as many different examples as he or she can.

Healthy Habitat Score Card

	1 point	2 points	3 points	4 points	5 points
Food: All living things need food to survive. Plants make their food from sun, water, and air, and animals need either plants or other animals in order to grow.	Your habitat has 1- 5 plants, such as flowers or berry bushes, which provide food for other living things.	Your habitat has 5- 10 plants, such as flowers or berry bushes, which provide food for other living things.	Your habitat has 10- 15 plants, such as flowers or berry bushes, which provide food for other living things. These also make homes for small animals that then serve as food for larger animals.	Your habitat has 15- 20 plants, such as flowers or berry bushes, which provide food for other living things. These also make homes for small animals that then serve as food for larger animals. It includes some small trees to provide shelter for even more animals!	Your habitat has 20- 25 plants, such as flowers or berry bushes, which provide food for other living things. These also make homes for small animals that then serve as food for larger animals. It includes some large trees to provide shelter for even more animals!
Water: Living things must have water in order to grow and thrive.	Your habitat includes a small area of water that may dry up over time.	Your habitat includes a small area of water that refills when it rains.	Your habitat includes a medium sized area of water that refills when it rains!	Your habitat includes a medium sized area of water that has a source of moving water, like a stream, and collects rainwater.	Your habitat includes a large area of water that has a source of moving water, like a stream, and collects rainwater.
Shelter: All living things need some form of shelter to protect them from the elements and potential predators. Shelter can range from a small rock that hides an ant, a large tree that provides shade to other living things.	Your habitat includes 1-5 small sheltered areas that will provide safe space to small plants or animals.	Your habitat includes 5-10 small sheltered areas that will provide safe space for small plants or animals.	Your habitat includes 10-15 small and medium sheltered areas that will provide safe space for an array of small and medium sized plants and animals.	Your habitat includes 15-20 small and medium sheltered areas that will provide safe space for an array of small and medium sized plants and animals.	Your habitat includes 20-25 small, medium, and large sheltered areas that will provide safe space for an array of many plants and animals in your area!

AMPHIBIAN ADVENTURE!

CAN YOU MAKE THE JOURNEY FROM EGG TO ADULT?

YOU DID IT!

HEAD LUNGS,
GOODBYE GILLS

LEVEL
UP!

LEVEL
UP
!!!

TIME TO
LEAVE THE
WATER

YOUR JOURNEY
STARTS NOW!
CONGRATS ON
LEAVING YOUR
EGG AND
GOOD LUCK

START
HERE

LEVEL
UP!

YOUR
PADDLE-LIKE
TAIL IS SHRINKING

LEVEL
UP!

You
have
back
Legs!

MOVE ALONG

LEVEL
UP!

TADPOLES 1st
INSECT SNACK!

WORK
ZONE

COOL OFF

Amphibian Adventure

<p>A large bird has been circling over the meadow looking for a meal. Your camouflage will help you hide, but a bush you passed recently will help too.</p> <p>Move back 1 space to stay safe and hidden!</p>	<p>Along your journey you find an ant hill with a bunch of yummy ants to eat! Your full belly and new energy help you get a little closer to your pond.</p> <p>Move forward 2 spaces!</p>	<p>A few days of hot sun have tired you out and slowed you down. You will need to slow down to recover and prepare for the rest of your journey.</p> <p>Move back 1 space.</p>	<p>A new house is being constructed nearby, because the trees that kept the soil in place were removed, the soil washes into the stream. All this extra erosion covers up the rocks where you found some of your favorite snacks and slows you down.</p> <p>Move back 1 space.</p>	<p>A neighbor has landscaped their lawn with many native plants! This boosts the biodiversity of the area and attracts some of your favorite insects to eat.</p> <p>Move ahead 4 spaces!</p>
<p>Your human neighbors have put in a driveway to get back and forth to the nearby road! The driveway is very hot from the sunshine, provides no shelter from predators, and cars don't always see amphibians well, so you will need to move quickly to get across it safely.</p> <p>Move ahead 2 spaces fast!</p>	<p>You finally meet your human neighbors face to face. They pick you up and take you back to their house! You are scared and confused, but thankfully after doing some research they realize that you are not meant to be a pet and place you back outside. Thanks to their smart decision, they place you back where they found you, and you can continue your journey.</p> <p>Move forward 2 spaces!</p>	<p>A light spring rain encourages some worms to come up out of the soil. Worms are a tasty snack for you and give you some extra energy to travel a little further, and grow!</p> <p>Move forward 3 spaces!</p>	<p>Storm water has overloaded the sewage system and is gushing out of a nearby storm drain. This water hasn't been filtered or cleaned. Your sensitive amphibian skin absorbs some of the water and you don't feel so great.</p> <p>Move back 1 space.</p>	<p>During your journey, you notice that you are being followed by a large frog! Thanks to your smaller size, you are able to dive into a small hole that the large frog can't fit into! After the frog moves away, you are able to be on your way!</p> <p>Move forward 2 spaces!</p>

<p>Unknown Enemy- An invasive species of snake was introduced to your area with an appetite for amphibians- you must hide out and not get gobbled up!</p> <p>Move back 2 spaces.</p>	<p>METAMORPHOSIS BONUS CARD!</p> <p>Move ahead to the next stage in your life cycle.</p> <p>CONGRATULATIONS!</p>	<p>Research Rescue! A hand looms down and you freeze. It's your lucky day- a team of field scientists are simply taking your picture for their amphibian census and allow you to stay in your home!</p> <p>Move ahead 1 space.</p> <p>BONUS! Their research helps protect amphibians in your region- move 2 additional spaces.</p>	<p>Your human neighbors decide to plant a garden but don't like the bugs that are munching on some of their plants. Unfortunately, they decide to use some harsh chemicals to get rid of the bugs, but the chemicals wash into the nearby puddles and soil during the next rain. These chemicals make you sick, and make it hard for you to grow up as quickly as you hoped.</p> <p>Move back 2 spaces.</p>	<p>SUPER GROWTH! You found a treasure trove of tasty insects to eat and have a growth spurt.</p> <p>Move ahead 3 spaces!</p>
<p>Your human neighbors have decided to use fresh compost to fertilize their yard rather than chemical fertilizers! The naturally composted nutrients help the grass grow quickly and draw in a lot of insects for you to eat! The extra food is helping you grow and providing you with energy for your journey to the pond.</p> <p>Move forward 3 spaces.</p>	<p>Hitch a ride! You found yourself in a fast-moving stream, and the riffle add a lot dissolved oxygen to the water, which is GREAT for amphibians. The speed of the stream and refreshing oxygen make your journey a bit quicker.</p> <p>Move ahead two spaces!</p>	<p>It's springtime, but suddenly there is a chilly day, much colder than usual! Because you rely on the heat from your environment to keep you warm, you must find a place to huddle and wait until the weather warms up again before you can continue growing or moving toward your pond!</p> <p>Move back 1 space.</p>		