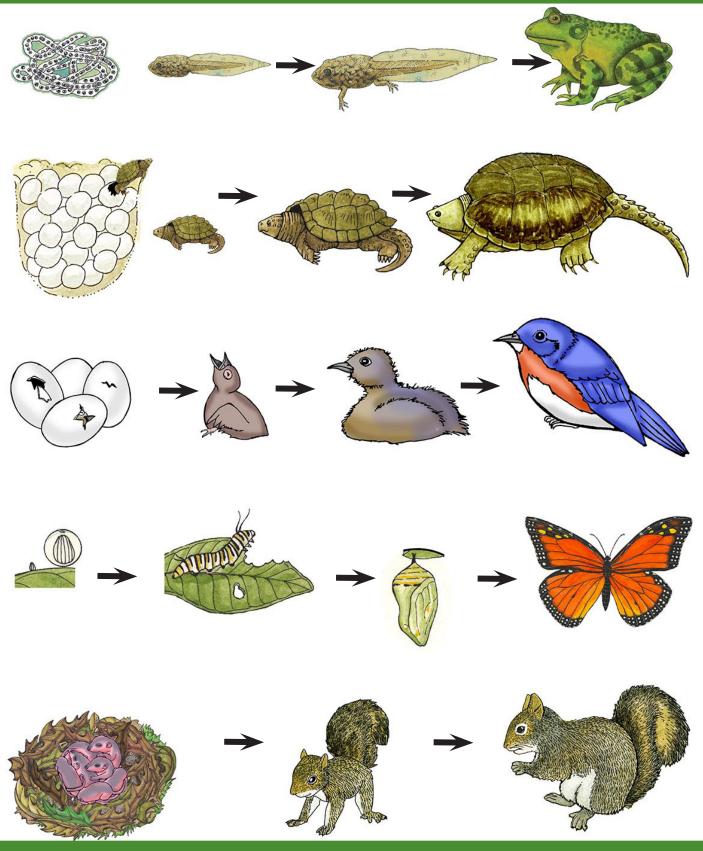
Bundle for the Grade 3 NGSS

Growth and Development of Organisms

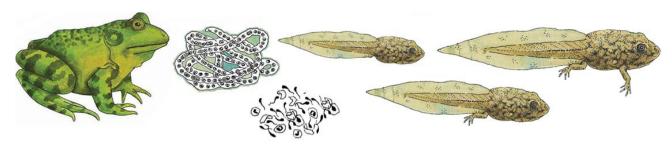


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LS1.B: Growth and Development of Organisms

Grade 3

From Molecules to Organisms: Structures and Processes



This bundle includes 22 age-appropriate resources about Growth and Development of Organisms including: Reading, Color Diagrams, Activities, Performance Tasks and Assessment (36 pages total). Copyright © 2019 Sheri Amsel • All rights reserved by author. Permission to copy for classroom use only. Electronic distribution limited to classroom use only.

Resources included in this Next Generation Science Standards Bundle include:

- Life Cycle Primer for Educators with with the specific Standards addressed (1 page)
- Rubric Building NGSS Resources (1 page)
- 1) Life Cycle Reading
- 2) Life Cycle Vocabulary Quiz and Answer Key (2 pages)
- 3) Life Cycles Authentic Performance
- 4) Animal Life Cycles Mini-Poster
- 5) Life Cycle of a Bluebird Color Diagram
- 6) Life Cycle of a Gray Squirrel Color Diagram
- 7) Life Cycle of a Bullfrog Color Diagram
- 8) Life Cycle of a Snapping Turtle Color Diagram
- 9) Life Cycle of a Monarch Butterfly Color Diagram (Complete Metamorphosis)
- 10) Life Cycle of a Grasshopper Color Diagram (Incomplete Metamorphosis)
- 11) Life Cycle of a Gray Squirrel Sequencing and Sorting Activity (2 pages color)
- 12) Life Cycle of a Bluebird Sequencing and Sorting Activity (2 pages color)
- 13) Life Cycle of a Bullfrog Sequencing and Sorting Activity (2 pages color)
- 14) Life Cycle of a Snapping Turtle Sequencing and Sorting Activity (2 pages color)
- 15) Life Cycle of a Monarch Butterfly Sequencing and Sorting Activity (2 pages color)
- 16) Life Cycle of a Grasshopper Sequencing and Sorting Activity (2 pages color)
- 17) How Do Animals Give Birth? Matching and Answer Key (2 pages color)
- 18) Comparing Life Cycles Short Answer Quiz and Mini-Poster and Answer Key (2 pages color)
- 19) Comparing Life Cycles Matching Quiz and Answer Key (2 pages color)
- 20) Animals and their Young Mini-Poster (Color)
- 21) Animals and their Young Coloring Page
- 22) Life Cycles Multiple Choice Test and Answer Sheet (2 pages)

Growth and Development of Organisms - Educator's Primer

The goal of the Life Cycle bundle is to address the NGSS for **Growth and Development of Organisms**. Through activities, investigations, model building and visual aids, students will demonstrate their understanding that "reproduction is essential to the continued existence of every kind of organism." They will develop models to show that "animals have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death."

Essential Questions:

- 1. What do all plants and animals (organisms) have in common in their life cycles?
- 2. What are some ways that different organisms life cycle differ?
- 3. What are some ways different organisms have assured successful reproduction in their life cycles?

Goals for Enduring Understanding:

- 1. All plants and animals reproduce.
- 2. Without reproduction, a species will die off.
- 3. All plants and animals have their own unique life cycles.
- 4. Life cycles have evolved to suit the survival of particular organisms.

NEXT GENERATION SCIENCE STANDARDS

Disciplinary Core Ideas

LS1.B: Growth and Development of Organisms

• Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

Science and Engineering Practices

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

• Develop models to describe phenomena. (3-LS1-1)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

• Science findings are based on recognizing patterns. (3-LS1-1)

Crosscutting Concepts

Patterns

• Patterns of change can be used to make predictions. (3-LS1-1)

Performance Expectations - Students who demonstrate understanding can:

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

Rubric Building Resource: *Observable features of student performance by the end of the grade:

LS1.B: Growth and Development of Organisms

Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

1. Components of the model

- a. Students develop models (e.g., conceptual, physical, drawing) to describe the phenomenon. In their models, students identify the relevant components of their models including:
 - i. Organisms (both plant and animal).
 - ii. Birth.
 - ii. Growth.
 - iv. Reproduction.
 - v Death

2. Relationships

- a. In the models, students describe*relationships between components, including:
 - i. Organisms are born, grow, and die in a pattern known as a life cycle.
 - ii. Different organisms' life cycles can look very different.
- iii. A causal direction of the cycle (e.g., without birth, there is no growth; without reproduction, there are no births)

2. Connections

- a. Students use the models to describe that although organisms can display life cycles that look different, they all follow the same pattern.
- b. Students use the models to make predictions related to the phenomenon, based on patterns identified among life cycles (e.g., prediction could include that if there are no births, deaths will continue and eventually there will be no more of that type of organism).

^{*}provided by the NGSS website

Animal Life Cycles Growth and Development of Organisms

All living things (organisms) have a **life cycle**. Different organisms may have very different kinds of life cycles, but they all have these in common: they are **born**, grow up, reproduce and die. They need to **reproduce** or they will go extinct. So, what kinds of things have organisms evolved in their life cycles to survive in their habitats?

Mammals are born singly or in a small group. They are small and helpless at birth, but they have a much higher survival rate than other groups of animals. How? Because their parents feed and protect them until they can survive on their own. Some mammals are born into a nest, den or burrow that is prepared and guarded by their parents. Other mammals are born into their mother's protective pouch (marsupials). Mammals often teach their young how to find food and escape predators before they grow up and go out on their own.

Birds share a similar start as mammals, except that they start as eggs and are kept warm and protected until they hatch. Hatchlings are small and helpless. Their parents will bring them food and keep them warm and safe. Bird parents will stay with their young until they can fly (or run), avoid predators, and find food on their own.

Amphibians and **reptiles** lay many eggs. Amphibians lay soft eggs in the water, while reptiles lay leathery eggs on land buried in sand, soil or plant debris. Both usually leave their young to fend for themselves when they hatch, though some species, like the American alligator, watch over young for a time. Only a few hatchlings survive.

Insects lay many, many eggs, but most of their young do not survive to be adults. Insects have two very different kinds of life cycles. Some undergo incomplete metamorphosis. This is when young insects hatch from eggs looking like miniature adults, called nymphs. As they grow, they shed their hard outer layer, called an exoskeleton. Each new size is called an instar. They have 5-6 instars before they reach their adult size. Insects that go through incomplete metamorphosis include: grasshoppers, crickets, preying mantises, and cockroaches. Many insects, however, go through a complete metamorphosis. This is when new hatchlings, called larvae, look completely different from adults. They feed and grow until they reach a certain size and then form a protective cocoon or chrysalis. Inside their chrysalis, they go through a process called pupation. During pupation, the body breaks down and changes into the adult form. Insects that go through complete metamorphosis include: moths, butterflies, ants, beetles, and bees.

Life Cycle Short Answer Quiz

Using the words in the vocabulary bank at bottom, fill in blanks below.

1) Living things need to	or they will go extinct.		
2) All organisms are, grov	, grow up, reproduce and die.		
3) are small a	are small and helpless at birth, but they have a much higher		
survival rate than other groups of animals.			
4) Marsupials are born into the mother's protective			
5) Birds start as ar	nd are kept warm and protected until they hatch.		
6) Amphibians and	lay many eggs. Both usually leave their		
young to fend for themselves when the	y hatch.		
7) Insects that undergo incomplete m	etamorphosis hatch from eggs looking like miniature		
adults, called			
8) As they grow, they shed their hard outer layer, called an			
9) Each new size is called an			
10) Insects that go through incomplete metamorphosis includes the			
11) Insects that go through a complete metamorphosis hatch out as called			
which look completely different from adults.			
12) They feed and grow until they reach a certain size and then form a protective cocoon or			
13) Once in the cocoon, insects go through a process called			
14) Insects that go through complete n	netamorphosis include		
Г			

Vocabulary Bank:

born grasshopper pouch
butterflies instar pupation
chrysalis larvae reproduction
eggs mammals reptiles
exoskeleton nymphs

Life Cycle Short Answer Quiz KEY

- 1) Living things need to **reproduce** or they will go extinct.
- 2) All organisms are **born**, grow up, reproduce and die.
- 3) <u>Mammals</u> are small and helpless at birth, but they have a much higher survival rate than other groups of animals.
- 4) Marsupials are born into the mother's protective **pouch**.
- 5) **Birds** start as **eggs** and are kept warm and protected until they hatch.
- 6) **Amphibians** and <u>reptiles</u> lay many eggs. Both usually leave their young to fend for themselves when they hatch.
- 7) Insects that undergo **incomplete metamorphosis** hatch from eggs looking like miniature adults, called **nymphs**.
- 8) As they grow, they shed their hard outer layer, called an **exoskeleton**.
- 9) Each new size is called an instar.
- 10) Insects that go through incomplete metamorphosis includes the grasshopper.
- 11) Insects that go through a **complete metamorphosis** hatch out as called <u>larvae</u>, which look completely different from adults.
- 12) They feed and grow until they reach a certain size and then form a protective **cocoon** or **chrysalis**.
- 13) Once in the cocoon, insects go through a process called pupation.
- 14) Insects that go through complete metamorphosis include **butterflies**.

Vocabulary Bank:			
born	grasshopper	pouch	
butterflies	instar	pupation	
chrysalis	larvae	reproduction	
eggs	mammals	reptiles	
exoskeleton	nymphs		

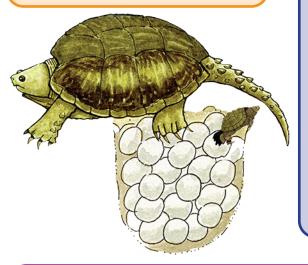
Animal Life Cycles

Amphibians lay many soft eggs in the water, leaving their young to fend for themselves when they hatch.

Only a few survive every year.



Reptiles lay many leathery eggs on land, buried in sand or soil. Most leave their young to fend for themselves after hatching, though some species, like the American alligator, watch over young for a time. Only a few hatchlings survive.



Insects lay many eggs, but most young do not survive to be adults. Insects have two kinds of life cycles. Incomplete metamorphosis is when young look like miniature adults (nymphs). As they grow, they shed their hard outer layer (exoskeleton) (e.g. grasshoppers). Complete metamorphosis is when new hatchlings (larvae) look different from adults. They feed and grow, then they form a cocoon or chrysalis in which

Birds start as eggs and are kept warm and protected by their parents until they hatch. Hatchlings are small and helpless. Their parents bring them food and keep them warm and safe. Bird parents will stay with their young until they can fly (or run) and find food on their own.

they change to

(e.g. butterflies).

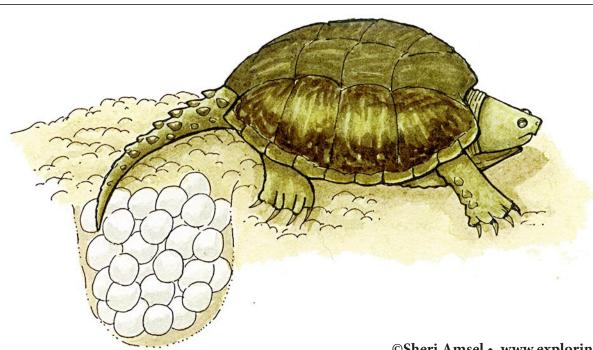
an adult form

Mammals are born singly or in a small group. They are small and helpless at birth. Their parents feed and protect them until they can survive on their own (find food, shelter, avoid predators).

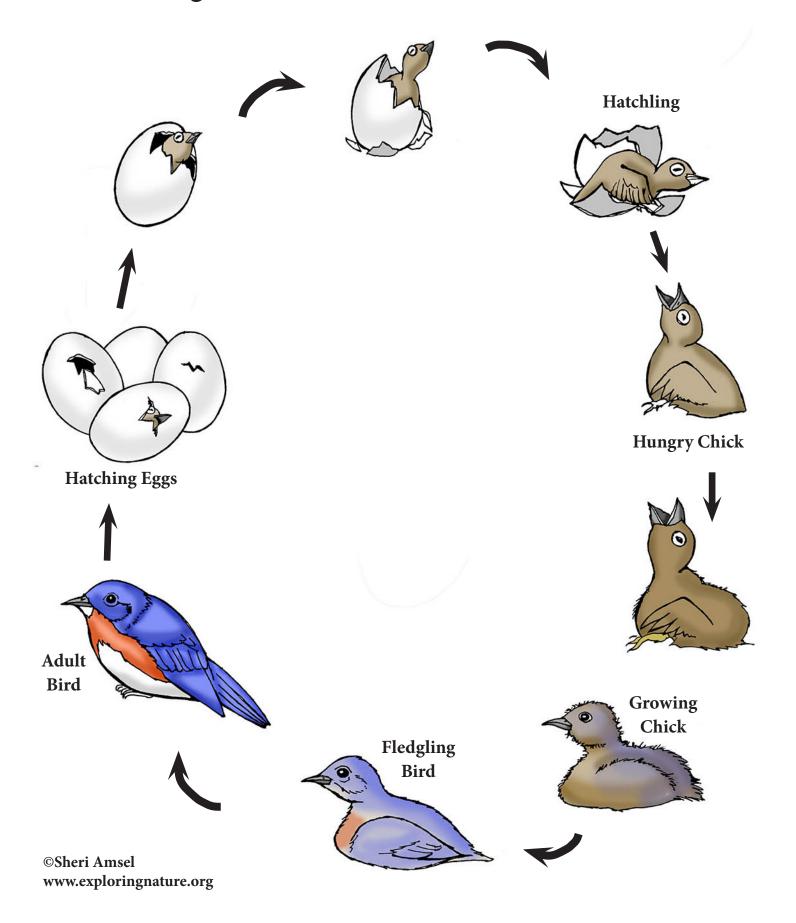


Life Cycles - Authentic Performance

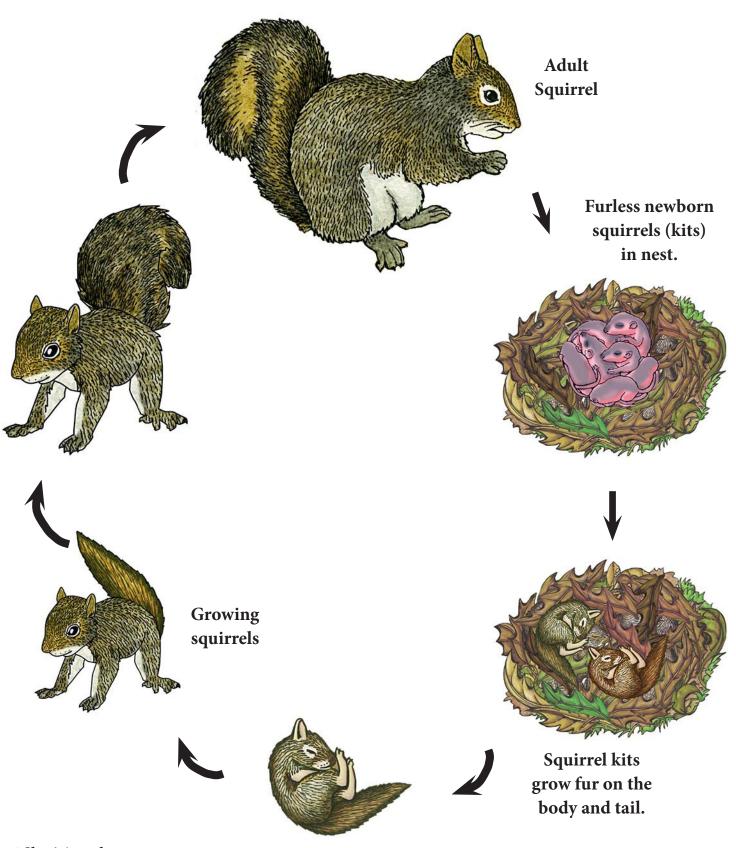
You are a zoologist who works for an animal park that features a large pond with turtles of all shapes and sizes. The landscaping department decides to replace the sandy banks around the pond with a decorative rock garden covered in a thick layer of pretty stones and sculptures. Using what you know about the life cycle of turtles, how would covering the sandy banks of the pond affect the turtles' life cycle ? If they decide to make the change, how
do you expect to see the population of turtles change over time?



Life Cycle of an Eastern Bluebird



Life Cycle of a Gray Squirrel (Mammal)



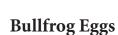
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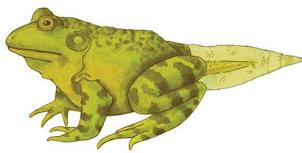
Life Cycle of a Bullfrog

(Amphibian)

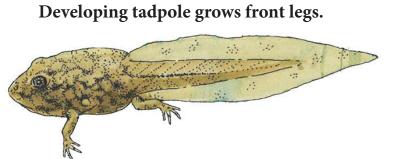








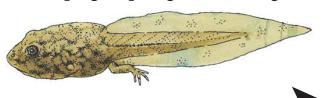
Eggs Hatching



Tadpoles



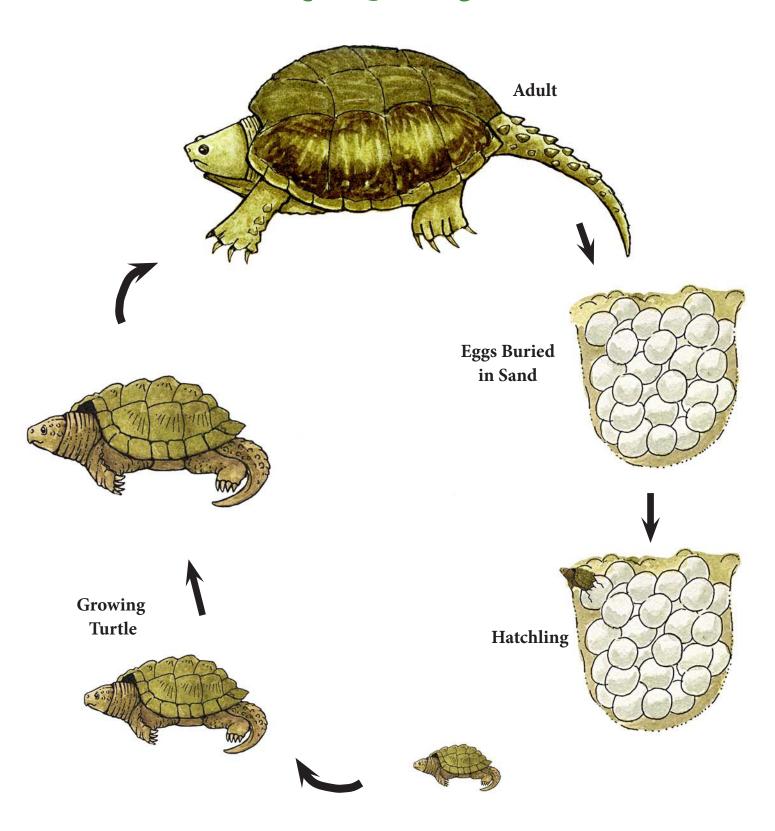
Developing tadpole grows back legs.



Growing Tadpole



Life Cycle of a Snapping Turtle (Reptile)

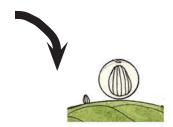


Life Cycle of a Monarch Butterfly

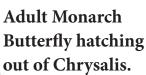
(Insect - Complete Metamorphosis)



Adult Monarch Butterfly



Butterfly Egg





Hatched Caterpillar



Adult Butterfly forming inside Chrysalis.



Growing Caterpillar (Larva)



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Chrysalis Stage (Caterpillar Pupating)

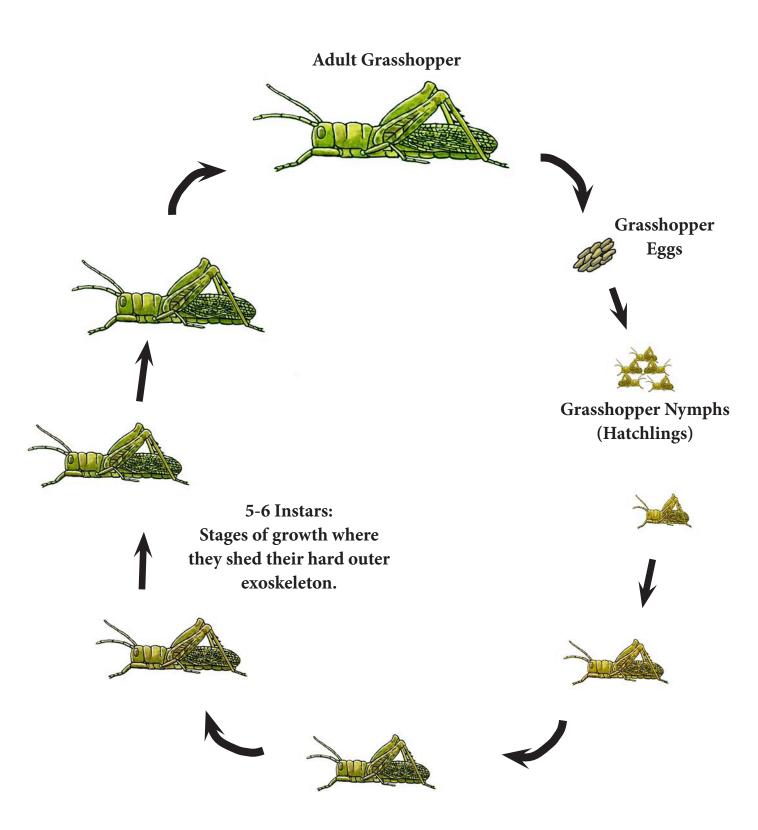




Caterpillar preparing to pupate.

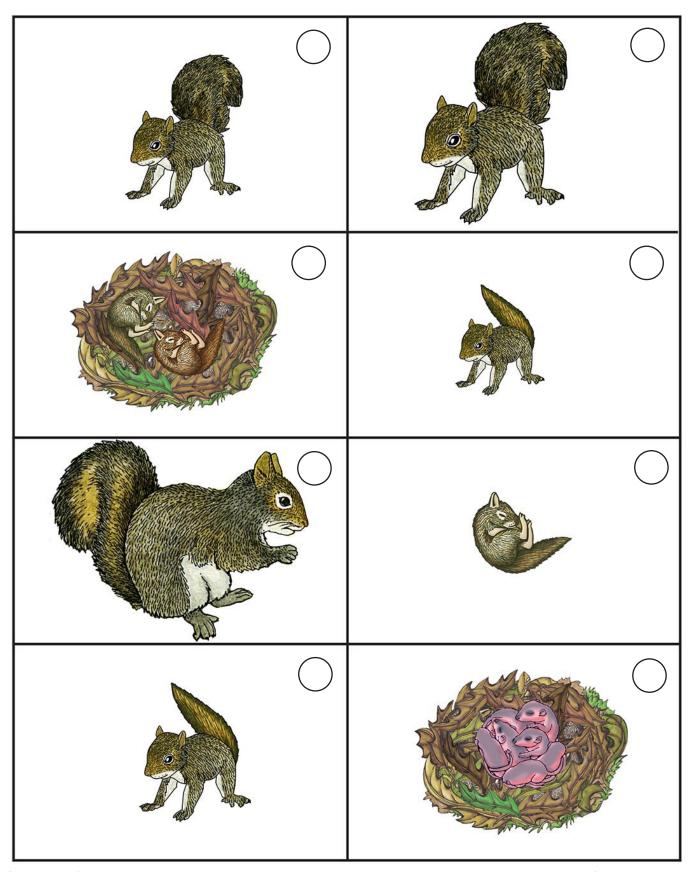
Life Cycle of a Grasshopper

(Insect - Incomplete Metamorphosis)



Life Cycle of a Gray Squirrel Activity

Number the stages of a squirrel's life cycle OR cut them out and glue them in the correct order in the *Gray Squirrel Life Cycle Story Board*.

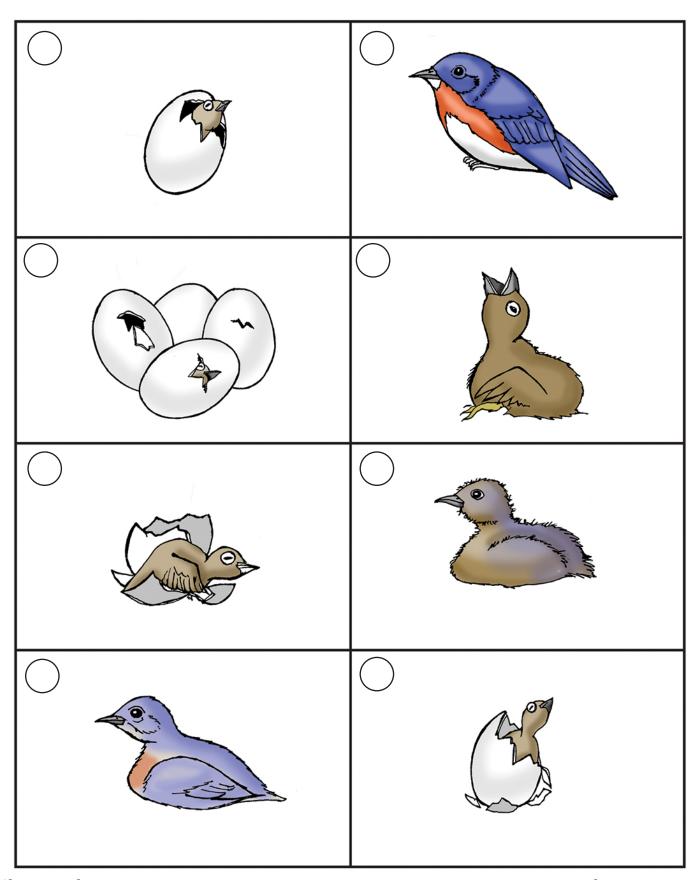


Life Cycle of a Gray Squirrel

(Mammal)

Life Cycle of a Bluebird Activity

Number the stages of a bluebird's life cycle OR cut them out and glue them in the correct order in the *Bluebird Life Cycle Story Board*.

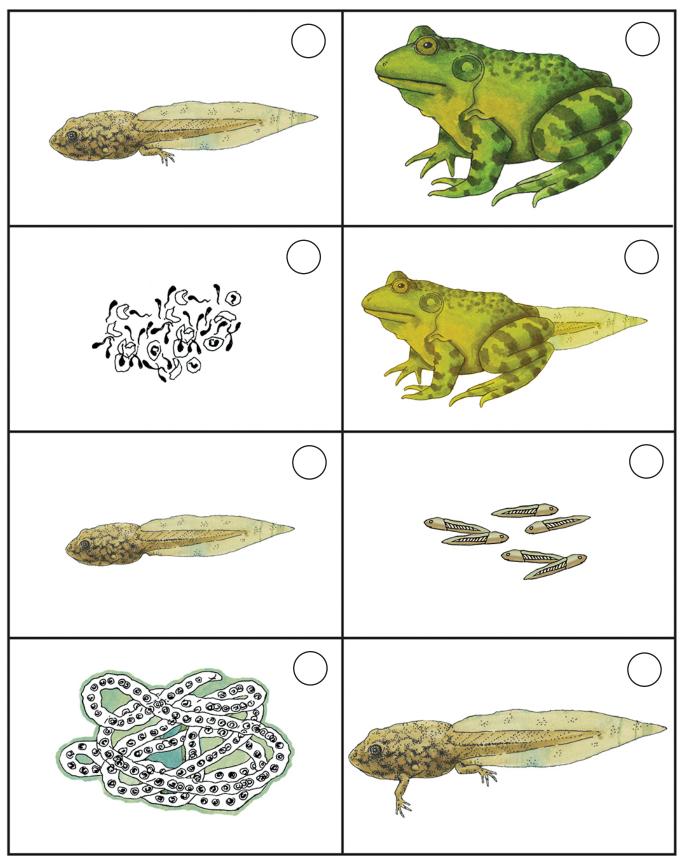


Bluebird Life Cycle

(Bird)

Life Cycle of a Bullfrog Activity

Number the stages of a bullfrog's life cycle OR cut them out and glue them in the correct order in the *Bullfrog Life Cycle Story Board*.



Life Cycle of a Bullfrog

(Amphibian)

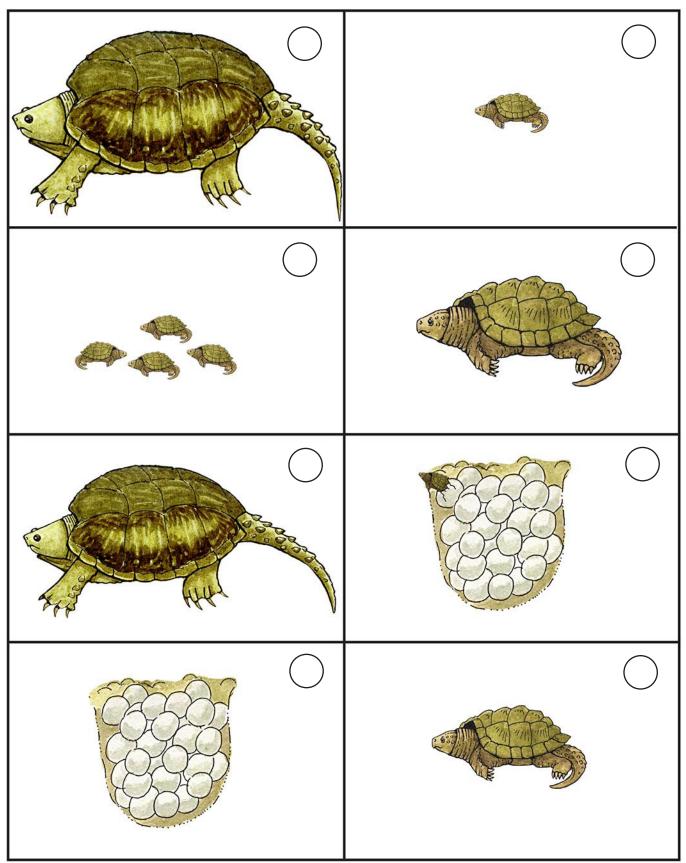
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Life Cycle of a Snapping Turtle Activity

Number the stages of a turtle's life cycle OR cut them out and glue them in the correct order in the *Snapping Turtle Life Cycle Story Board*.

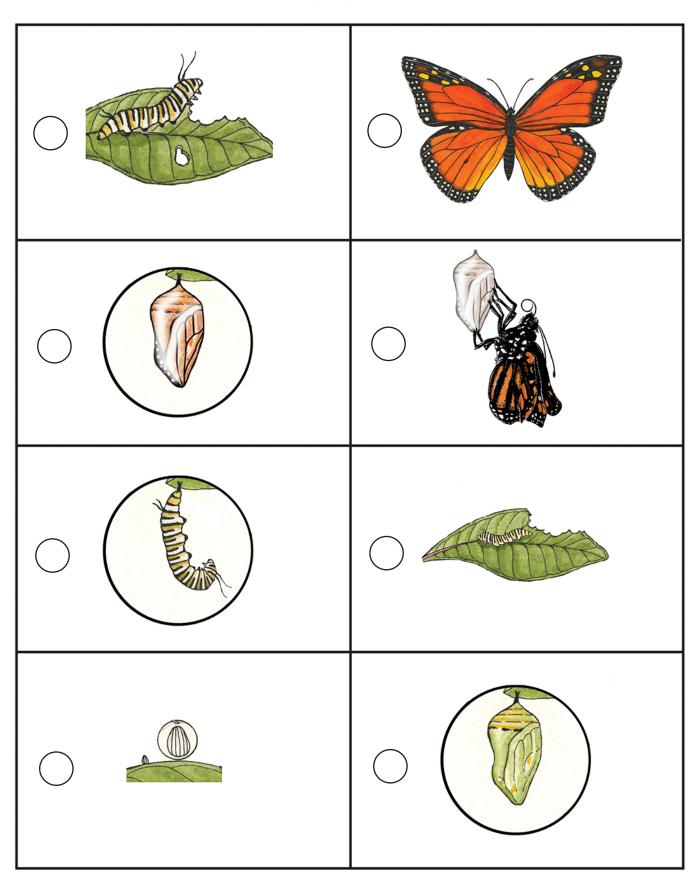


Life Cycle of a Snapping Turtle

(Reptile)

Life Cycle of a Monarch Butterfly Activity

Number the stages of a butterfly's life cycle OR cut them out and glue them in the correct order in the *Monarch Butterfly Life Cycle Story Board*.



Life Cycle of a Monarch Butterfly

(Insect - Complete Metamorphosis)

Life Cycle of a Grasshopper Activity

Number the stages of a grasshopper life cycle OR cut them out and glue them in the correct order in the *Grasshopper Life Cycle Story Board*.

Life Cycle of a Grasshopper

(Insect - In Complete Metamorphosis)

How Do Animals Give Birth? Matching

Match the animals to how they give birth.



Lays eggs on plants that the hatchling will eat.



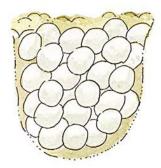
Lays eggs in the water.



Lays eggs in a nest.

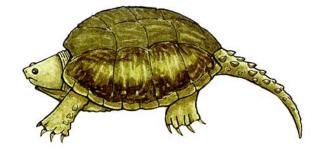


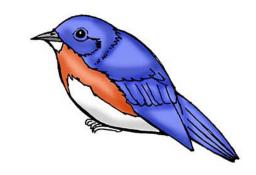
Has live young in protective place (nest, den, burrow)



Lays leathery eggs buried on land.







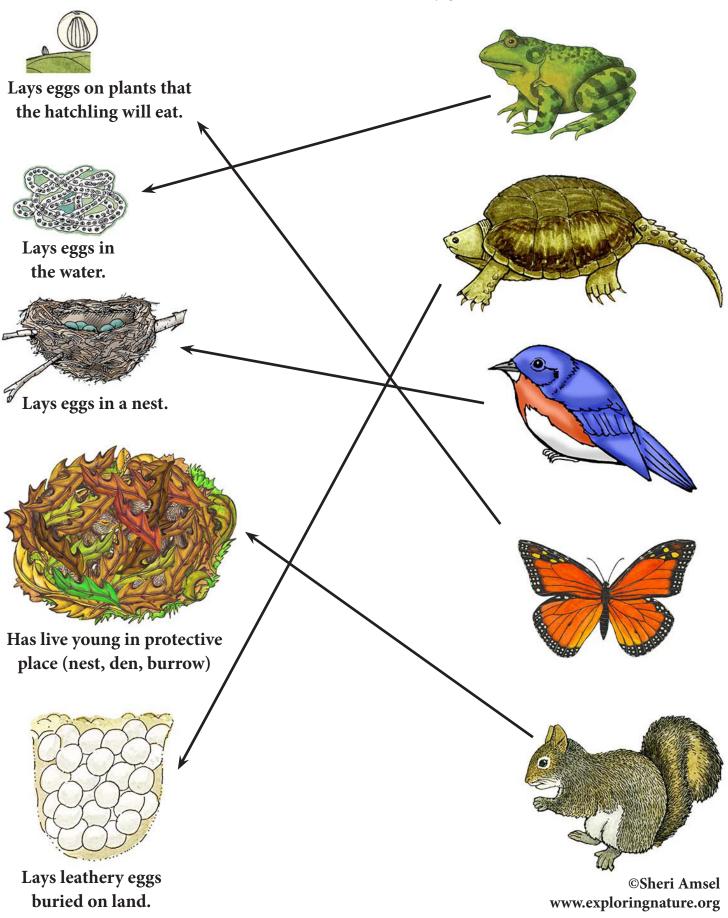




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How Do Animals Give Birth? Matching KEY

Match the animals to how they give birth.

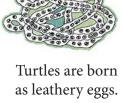


Adults look very **Comparing Life Cycles Quiz** different from Frogs are born as young. They grow and change soft (metamorphosis) into adults. hatch and feed. Turtles are born as leathery eggs. Hatchlings Adults are larger versions Turtle feeds and grows make their of young. on their own. way to Hatchlings grow, Hatchlings are helpless. Adults are larger, versions of Parents feed and protect Birds are born as young (with come in. hard-shelled eggs. them. feathers). Caterpillars, called Caterpillars form a Insects are born as chrysalis and change Adults look very different hatch and feed on their tiny, soft eggs. from young. own. into adults. Mammals are born live and helpless. Adults are larger, versions of Babies grow _ Mother young (with fur). and start to eat on their own. and protects them. ©Sheri Amsel www.exploringnature.org

Comparing Life Cycles

Frogs are born as soft eggs.





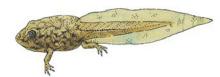
Hatchlings make their way to water.

Tadpoles hatch

and feed.



Tadpoles grow and change (metamorphosis) into adults.



Adults look very different from young.

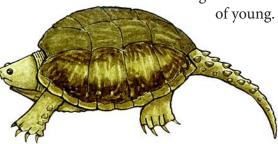




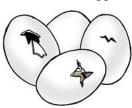
Turtle feeds and grows on their own.



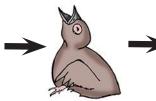
Adults are larger versions of young.



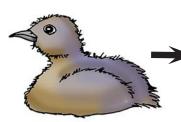
Birds are born as hard-shelled eggs.



Hatchlings are helpless. Parents feed and protect them.



Hatchlings grow, feathers come in.



Adults are larger, versions of



Insects are born as tiny, soft eggs.



Caterpillars, called larvae, hatch and feed on their



Caterpillars form a chrysalis and change (metamorphosis) into adults.



Adults look very different from young.



Mammals are born live and helpless. Mother nurses and protects them.



Babies grow fur and start to eat on their own.



Adults are larger, versions of young (with fur).

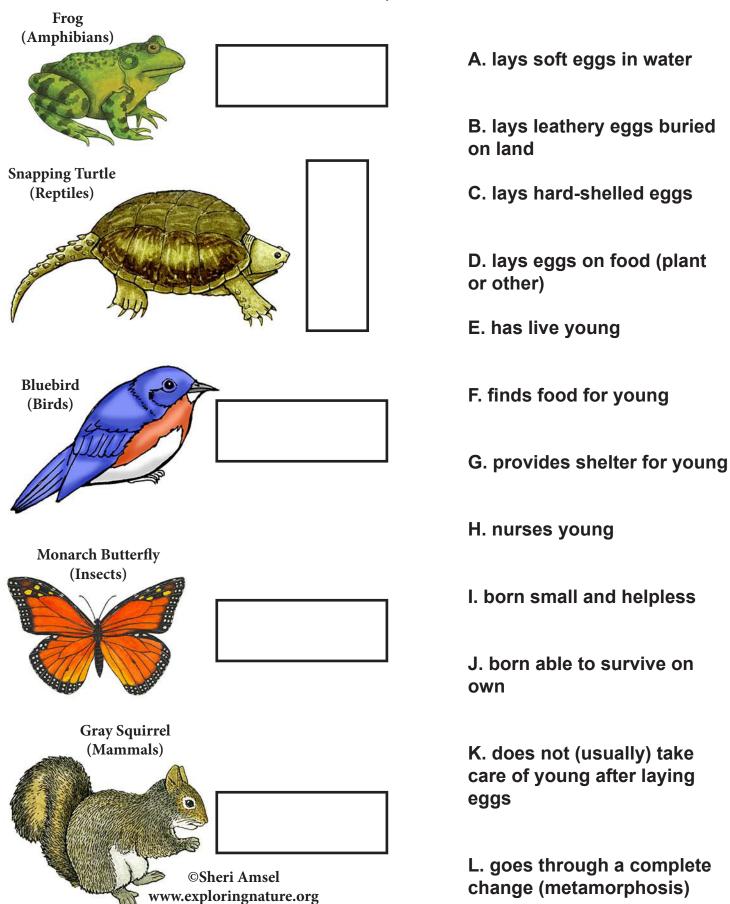


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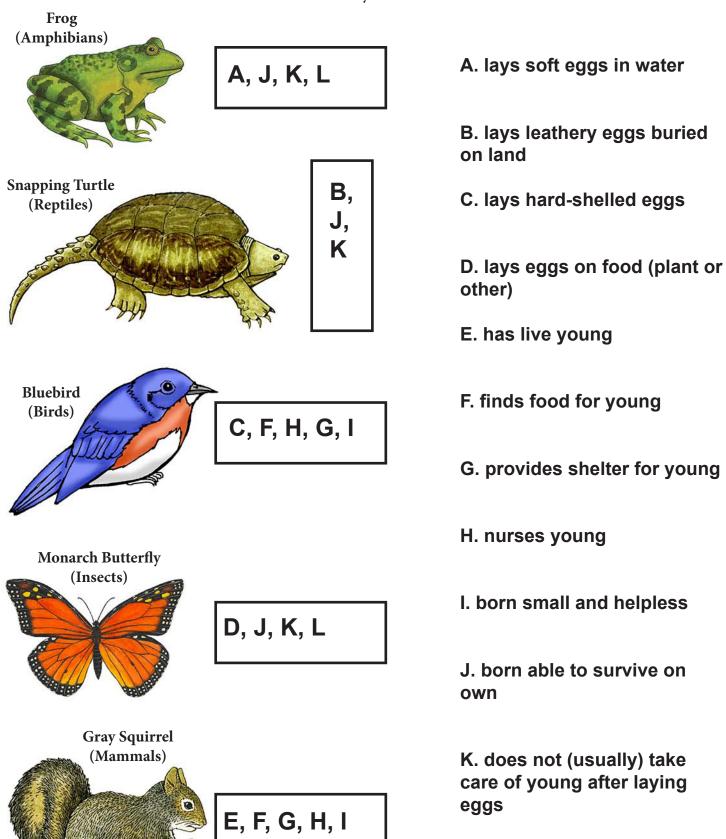
Comparing Life Cycles Quiz

Add the letters of all the life cycle traits of each animal.



Comparing Life Cycles Quiz KEY

Add the letters of all the life cycle traits that each animal has:



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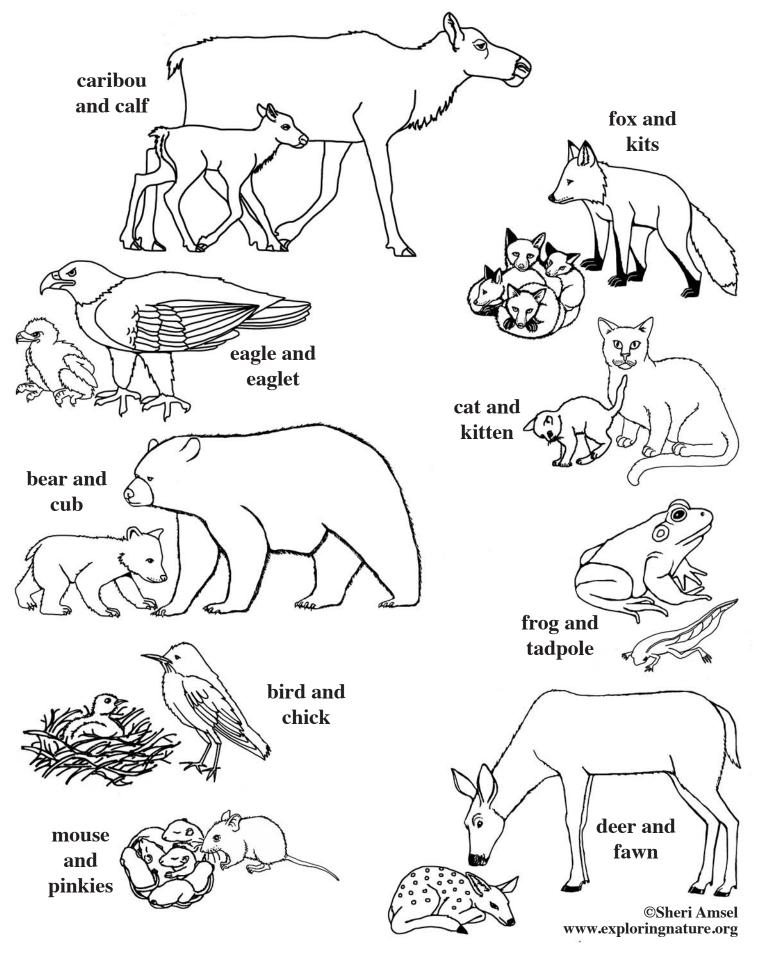
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L. goes through a complete change (metamorphosis)

Animals and Their Young



Color the Animals and Their Young



Animal Life Cycles - Multiple Choice Test

Na	ıme:		Class:
1	The life cycle of this animal includes laying eggs in the water:	6	The life cycle of this animal includes feeding new baby milk:
	A bird B reptile C amphibian D mammal E none of the above		A bird B reptile C amphibian D mammal E fish
2	The life cycle of this animal includes having live young:	7	The life cycle of these animals includes caring for babies until they survive on own:
	A bird B reptile C amphibian D mammal E insect		A bird and amphibian B reptile and amphibian C amphibian and mammal D mammal and bird E all of the above
3	The life cycle of these animals often includes a full metamorphosis:	8	The life cycle of this animal includes hatching from an egg:
	 A bird and mammal B reptile and bird C amphibian and insect D mammal and reptile E insect and reptile 		A bird B reptile C amphibian D insect E all of the above
4	The life cycle of this animal includes laying leathery eggs on land:	9	The life cycle of this animal may include changing shapes inside a chrysalis:
	A bird B reptile C amphibian D mammal E all of the above		A bird B reptile C amphibian D mammal E insect
5	The life cycle of this animal includes laying eggs on a plant the new baby will eat:	10	The life cycle of these animals includes feeding their newborn young.
	A bird B reptile C amphibian D mammal E insect		 A bird and amphibian B reptile and amphibian C amphibian and mammal D mammal and bird E all of the above

Animal Life Cycles - Multiple Choice Test KEY

Na	ıme:		Class:
1	The life cycle of this animal includes laying eggs in the water:	6	The life cycle of this animal includes feeding new baby milk:
	A bird B reptile Camphibian D mammal E none of the above		A bird B reptile C amphibian Dmammal E fish
2	The life cycle of this animal includes having live young:	7	The life cycle of these animals includes caring for babies until they survive on own:
	A bird B reptile C amphibian Dmammal E insect		A bird and amphibian B reptile and amphibian C amphibian and mammal Dmammal and bird E all of the above
3	The life cycle of these animals often includes a full metamorphosis:	8	The life cycle of this animal includes hatching from an egg:
	A bird and mammal B reptile and bird Camphibian and insect D mammal and reptile E insect and reptile		A bird B reptile C amphibian D insect Eall of the above
4	The life cycle of this animal includes laying and leathery eggs buried on land:	9	The life cycle of this animal may include changing shapes inside a chrysalis:
	A bird Breptile C amphibian D mammal E all of the above		A bird B reptile C amphibian D mammal Einsect
5	The life cycle of this animal may include laying eggs on plants that hatchling will eat:	10	The life cycle of these animals includes feeding their newborn young.
	A bird B reptile C amphibian D mammal Einsect		A bird and amphibian B reptile and amphibian C amphibian and mammal mammal and bird E all of the above