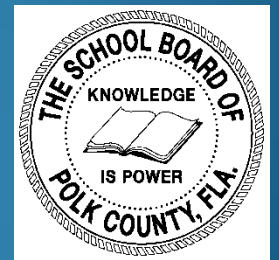


Elementary Science



Science Focus Lesson SC4.L.16.4 Life Cycles of Florida Life

Polk County Public Schools



SC4.L.16.4

Benchmark: Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.

Essential Question:

What similarities and differences exist in the life cycles of Florida plants and animals?

Vocabulary:

metamorphosis

organism

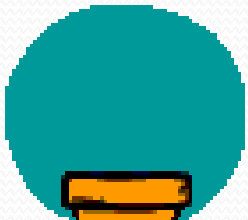
Life Cycles



All living things grow and change in predictable patterns called life cycles. A life cycle is defined as the complete succession of changes undergone by an organism during its life. A new cycle occurs when an identical set of changes is begun.



Metamorphosis refers to the way that insects develop, grow, and change form. Metamorphosis actually means "change". There are two types of metamorphosis, complete and incomplete.

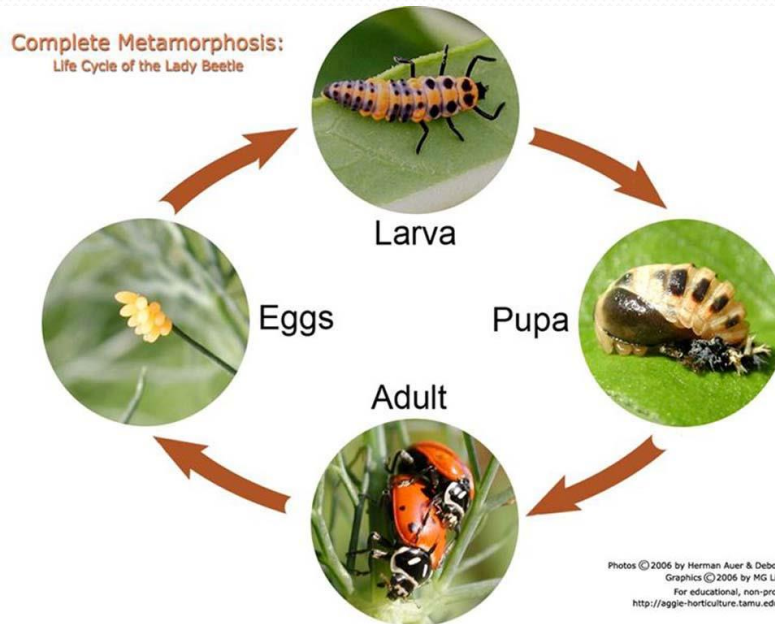


Complete Metamorphosis

Most insects go through a life cycle called complete metamorphosis which has 4 stages.

A Lady Bug has a 4 stage life cycle.

2. Larva - Larvae hatch from the eggs. They do not look like adult insects. They usually have a worm-like shape. Caterpillars, maggots, and grubs are all just the larval stages of insects. Larvae molt their skin several times and they grow slightly larger.



1. Egg - A female insects lays eggs

3. Pupa - Larvae make cocoons around themselves. Larvae don't eat while they're inside their cocoons. Their bodies develop into an adult shape with wings, legs, internal organs, etc. This change takes anywhere from 4 days to many months.

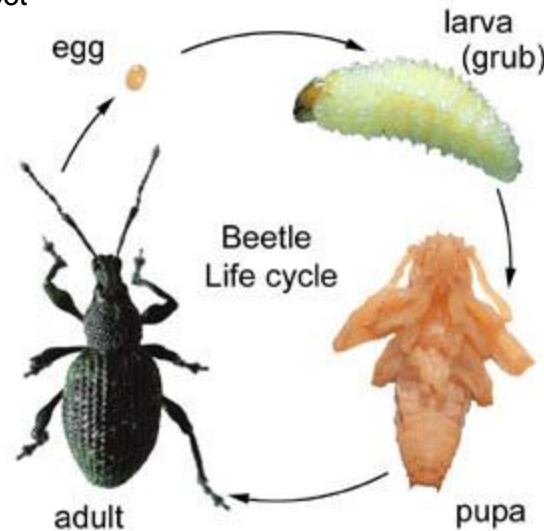
4. Adult - Inside the cocoon, the larvae change into adults. After a period of time, the adult breaks out of the cocoon.

Complete Metamorphosis

A beetle has a 4 stage life cycle

1. Egg - A female insect lays eggs

2. Larva - Larvae hatch from the eggs. They do not look like adult insects. They usually have a worm-like shape. Caterpillars, maggots, and grubs are all just the larval stages of insects. Larvae molt their skin several times and they grow slightly larger.



4. Adult - Inside the cocoon, the larvae change into adults. After a period of time, the adult breaks out of the cocoon.

3. Pupa - Larvae make cocoons around themselves. Larvae don't eat while they're inside their cocoons. Their bodies develop into an adult shape with wings, legs, internal organs, etc. This change takes anywhere from 4 days to many months.

Complete Metamorphosis

A butterfly has a 4 stage life cycle

1. Egg - A female insects lays eggs



2. Larva - Larvae hatch from the eggs. They do not look like adult insects. They usually have a worm-like shape. Caterpillars, maggots, and grubs are all just the larval stages of insects. Larvae molt their skin several times and they grow slightly larger.

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3. Pupa - Larvae make cocoons around themselves. Larvae don't eat while they're inside their cocoons. Their bodies develop into an adult shape with wings, legs, internal organs, etc. This change takes anywhere from 4 days to many months.

Incomplete Metamorphosis

Some insects go through incomplete (simple) metamorphosis which only has 3 stages.

A leaf-footed bug has a 3 stage life cycle.

1. Egg - A female insect lays eggs. These eggs are often covered by an egg case which protects the eggs and holds them together.



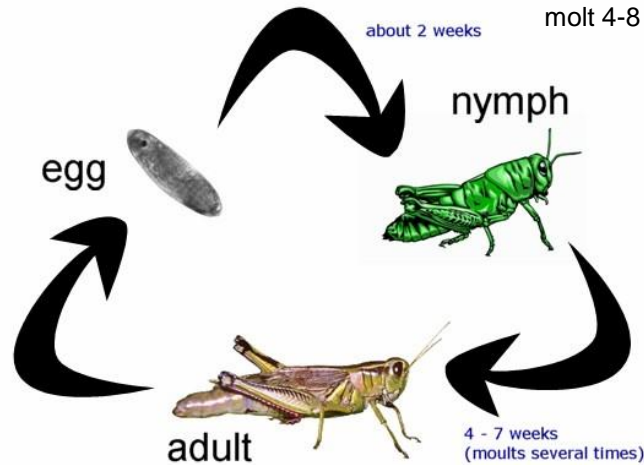
2. Nymph - The eggs hatch into nymphs. Nymphs look like small adults, but usually don't have wings. Insect nymphs eat the same food that the adult insect eats. Nymphs shed or molt their exoskeletons (outer casings made up of a hard substance called chitin) and replace them with larger ones several times as they grow. Most nymphs molt 4-8 times.

3. Adult - The insects stop molting when they reach their adult size. By this time, they have also grown wings.

Incomplete Metamorphosis

A grasshopper has a 3 stage life cycle.

1. Egg - A female insect lays eggs. These eggs are often covered by an egg case which protects the eggs and holds them together.



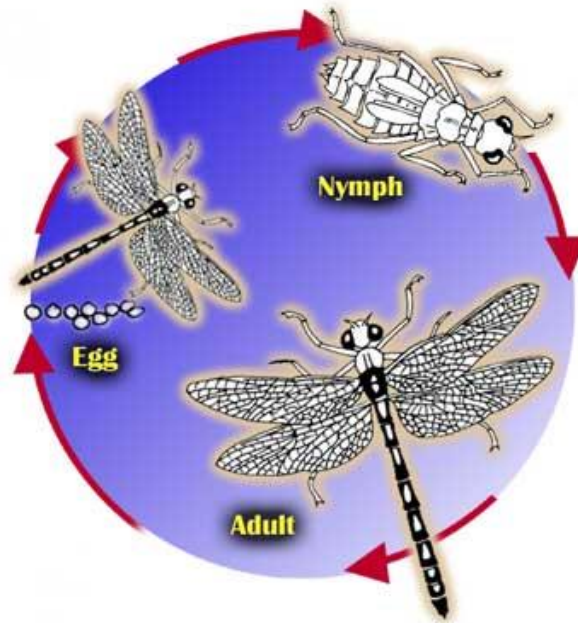
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3. Adult - The insects stop molting when they reach their adult size. By this time, they have also grown wings.

Incomplete Metamorphosis

A dragonfly has a 3 stage life cycle.

1. Egg - A female insect lays eggs. These eggs are often covered by an egg case which protects the eggs and holds them together.



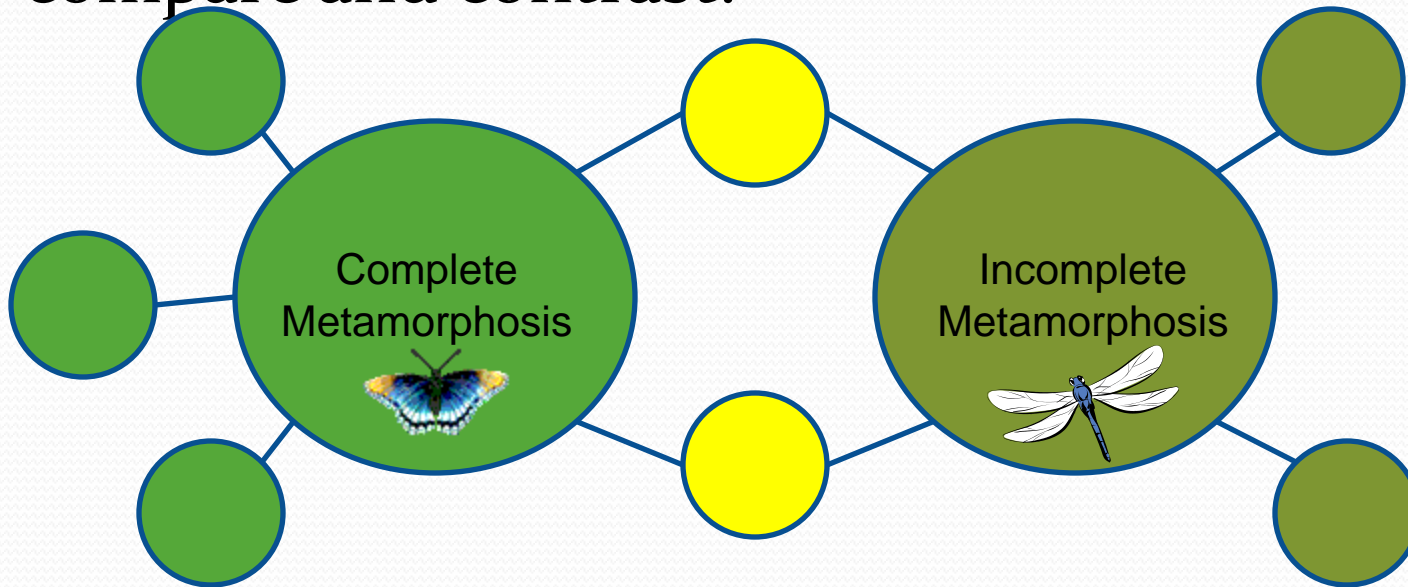
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3. Adult - The insects stop molting when they reach their adult size. By this time, they have also grown wings.



Summarizing

Fill in the words on the graphic organizer to show how Complete and Incomplete Metamorphosis compare and contrast.



Word Bank: adult, larvae, pupa, 4 stage cycle, nymph, 3 stage cycle, egg

Life Cycle of Animals

Most living creatures go through a similar life cycle.
Follow the life cycle of a chicken.

1. Egg- an egg is produced by a female.



2. Embryo- the new living thing is an embryo from the time it is in the egg until it is born or hatched.



3. Infant –an infant is a new born or newly hatched creature

4. Adolescent – a living creature is an adolescent as it grows up to be an adult



5. Adult – an adult is a fully mature living organism



Life Cycle of Animals

Follow the life cycle of a swan.



1. Egg- an egg is produced by a female.



2. Embryo- the new living thing is an embryo from the time it is in the egg until it is born or hatched.



3. Infant –an infant is a new born or newly hatched creature

4. Adolescent – a living creature is an adolescent as it grows up to be an adult



5. Adult – an adult is a fully mature living organism

Life Cycle of Animals

Follow the life cycle of an eagle.



1. Egg- an egg is produced by a female.



2. Embryo- the new living thing is an embryo from the time it is in the egg until it is born or hatched.



3. Infant –an infant is a new born or newly hatched creature



4. Adolescent – a living creature is an adolescent as it grows up to be an adult



5. Adult – an adult is a fully mature living organism



Life Cycle of Plants

Most plants go through a similar life cycle.
Follow the life cycle of a lima bean plant.



1. Seed-

a seed contains a tiny undeveloped plant and a supply of food for the plant.



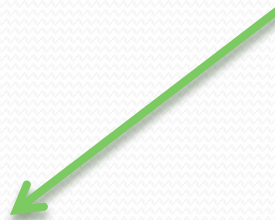
2. Seedling-

a young plant developing out of a plant embryo from a seed.



3. Plant

A living organism in the plant kingdom



Life Cycle of Plants

Most plants go through a similar life cycle.
Follow the life cycle of a lemon tree.



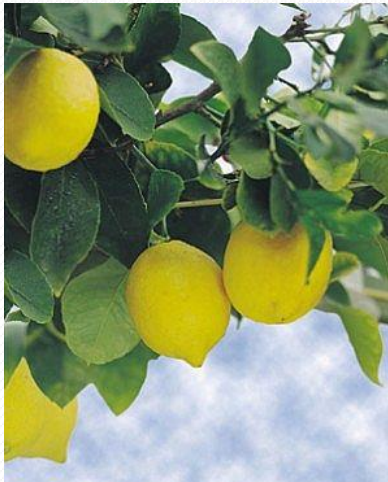
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a seed contains a tiny undeveloped plant and a supply of food for the plant.



2. Seedling-

a young plant developing out of a plant embryo from a seed.



3. Plant

A living organism in the plant kingdom

Life Cycle of Plants

Most plants go through a similar life cycle.
Follow the life cycle of lettuce.



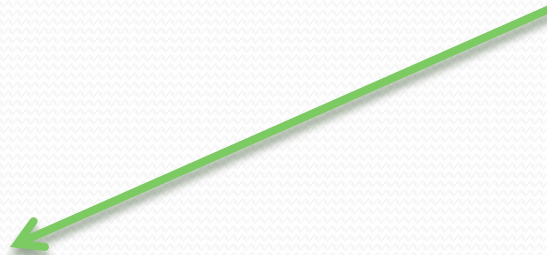
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a seed contains a tiny undeveloped plant and a supply of food for the plant.



2. Seedling-

a young plant developing out of a plant embryo from a seed.



3. Plant

A living organism in the plant kingdom

Summarizing

Partner A: Talk to Partner B

Describe the life cycle of most animals

Partner B: Talk to Partner A

Describe the life cycle of
most plants

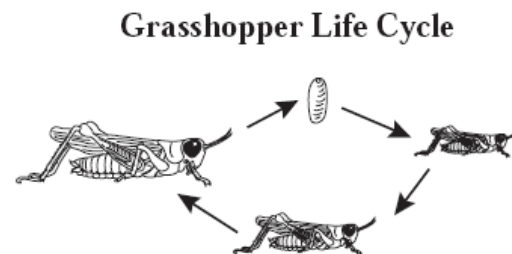
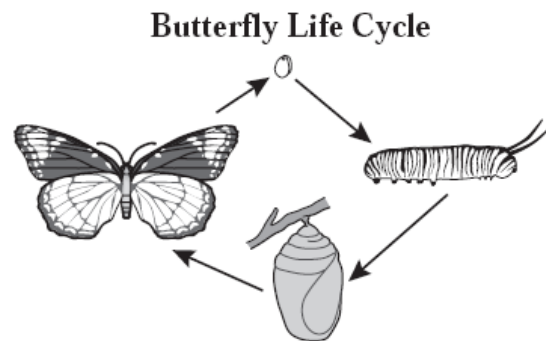


Guided Instruction:

Talk to your shoulder partner about the answer to each question. Check your work.

The life cycle of both butterflies and grasshoppers starts at the same stage. The pictures below show the life cycle of both organisms. Which of the following is the beginning stage of the life cycle for both the butterfly and the grasshopper?

- a. egg
- b. larva
- c. nymph
- d. pupa



The answer is...

A

All insect life cycles start with an egg!



Guided Instruction:

Look at the photograph showing a stage in the life cycle of a Sunflower. Which word best describes this stage of development?

- a. plant
- b. seed
- c. egg
- d. seedling



The answer is

D

When plants first sprout from a seed they are called seedlings



Tomato



Chili Peppers



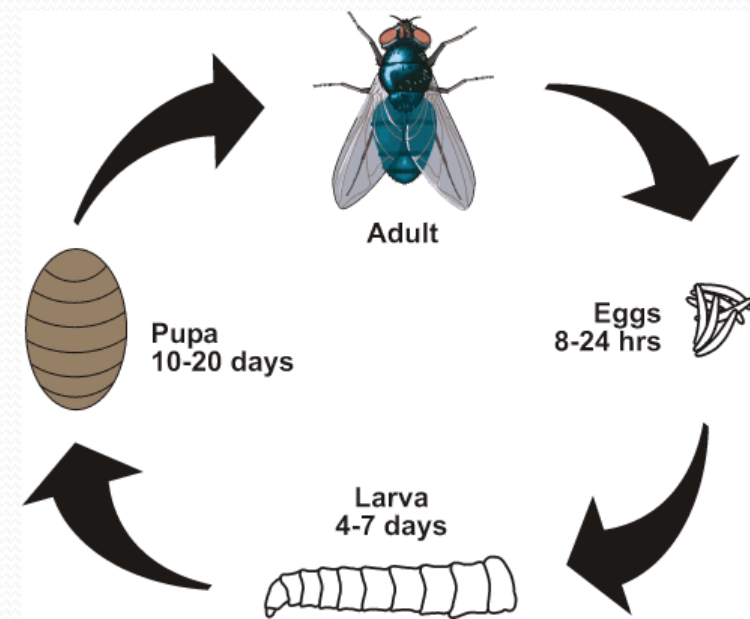
Onion



Pine

Guided Instruction:

Compare the diagram of the stages in the life cycle of a fly to other life cycle diagrams you have seen. Which organism has a similar life cycle?



- a) swan
- b) butterfly
- c) citrus tree
- d) grasshopper

The answer is...

B



A fly, like most insects, has a 4 stage life cycle. This is called complete metamorphosis.

Other examples are a lady bug, a butterfly and a beetle.



Summarizing

Think about the life cycles of ALL organisms. Identify ways that they are alike. Use talking chips and work with your table group to identify similarities.

Essential Question:
What do **all** life cycles have in common?



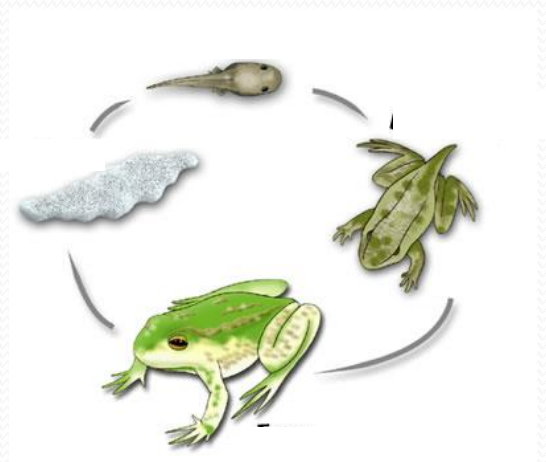
Check Your Understanding

Write your answer for each question.

Self-Check at the end!

1. When a frog emerges from the egg it is called a tadpole. What stage of the animal life cycle is a tadpole?

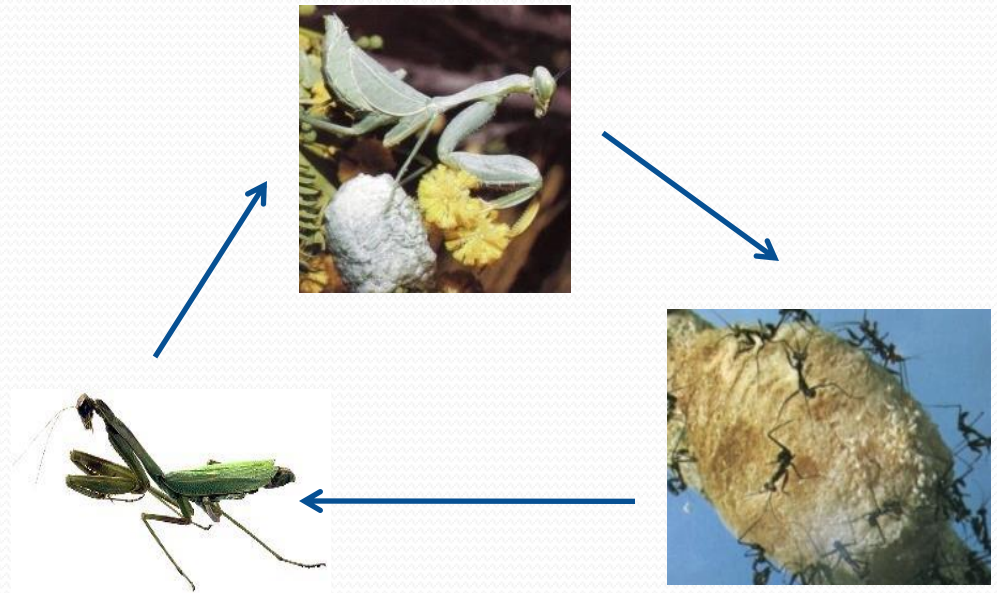
- a. adult
- b. embryo
- c. infant
- d. adolescent



Check Your Understanding

2. A young Praying Mantis comes out of the egg case ready to eat and grow. What is this stage of incomplete metamorphosis called?

- a. pupa
- b. adult
- c. egg
- d. nymph



Check Your Understanding

3. When moths and butterflies emerge from their eggs they are called caterpillars. Newly emerged flies are called maggots. Newly emerged beetles are called grubs. What stage of *complete metamorphosis* are caterpillars, grubs and maggots?

- a. adult
- b. pupa
- c. larva
- d. egg



Beetle Grub



Fly Maggots



Monarch
Caterpillar



Gypsy Moth Caterpillar



Check Your Answers

1. C-a tadpole is an “infant” frog. An infant is newly born or newly hatched
2. D-the stage between egg and adult in *incomplete metamorphosis* is called a nymph. A nymph is much like an adult but is smaller and has no wings.
3. C-newly emerged insects which undergo complete metamorphosis are called larva. Larva have a worm like shape and do not look like adults.

Summary Question

Choose one organism that lives in Florida. Diagram and describe its life cycle. Share with your group.

