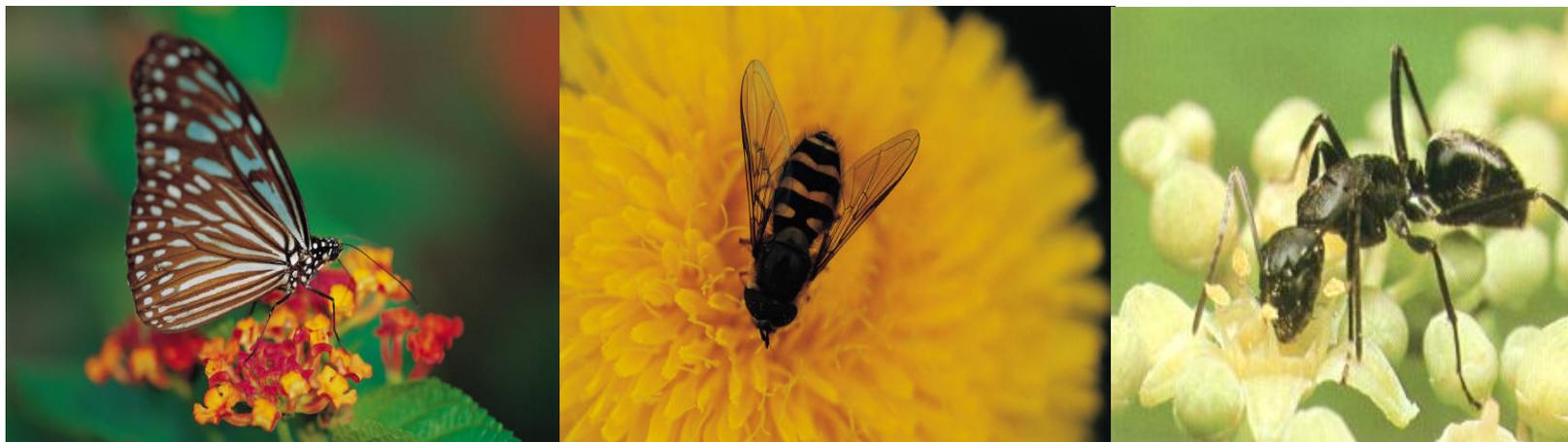


#10394 INSECT METAMORPHOSIS

RAINBOW EDUCATIONAL MEDIA, 2001

Grade Level: 4-8

22 Minutes



CAPTIONED MEDIA PROGRAM RELATED RESOURCES

[#3050 INSECT METAMORPHOSIS](#)

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INTRODUCTION

This video is designed to introduce students to one of nature's most amazing events: metamorphosis, the process during which organisms experience dramatic changes in form as they grow. Many students are aware of metamorphosis in other animals, such as amphibians, where a tadpole will grow arms and legs and change into a frog. In insects, this process is every bit as dramatic, if not more so.

There are two basic types of metamorphosis in insects: incomplete, or simple, metamorphosis, and complete metamorphosis.

There are three stages in incomplete metamorphosis: the egg, nymph, and adult. The nymph, which hatches from the egg, is virtually a miniature version of the adult and, in a few weeks, will grow to full adult size. In between, it will undergo as many as eight or more molts where it sheds its outer covering. After their last molt, most insects will develop a set of wings, usually two pairs. Insects which undergo incomplete metamorphosis include primitive forms of insects such as roaches, aphids, katydids, and many others.

There are four stages in complete metamorphosis: the egg, larva, pupa, and adult. Larvae come in a variety of forms and are referred to as caterpillars, grubs, mealworms and maggots. The video follows a monarch butterfly caterpillar on its way to becoming an adult. The larva stage is followed by the pupa stage, during which the insect appears to be inactive, but is actually undergoing dramatic changes within an enclosure. The butterfly pupa is referred to as a chrysalis. A fully grown adult will emerge from the pupa. Most of the world's insects, including beetles, bees, ants, flies, wasps, and countless others, undergo complete metamorphosis.

OBJECTIVES

After viewing this video, students should know:

- what metamorphosis is
- the two main types of insect metamorphosis
- the three stages in incomplete metamorphosis
- the four stages in complete metamorphosis
- that nymphs are miniature versions of adults
- that the primary jobs of nymphs are to eat and grow
- how insects molt in order to grow
- the names of a few of the insects which undergo incomplete metamorphosis
- how insect eggs come in a variety of forms
- what galls are
- that aquatic insects deposit their eggs under water
- that larvae come in a variety of forms and are referred to as caterpillars, grubs, mealworms and maggots
- that moth and butterfly larvae are referred to as caterpillars
- the butterfly pupa is referred to as a chrysalis

SUMMARY

The video opens with a fast-paced sequence featuring the metamorphosis of a monarch butterfly. The narrator then states how some organisms undergo a process, during which they experience dramatic changes in form as they grow, called metamorphosis. Many students may already be familiar with metamorphosis in other animals such as amphibians so the video quickly highlights the life cycle of a frog as it transforms itself from a tiny tadpole. Insects undergo the same type of dramatic changes as they grow.

The narrator explains that there are two basic types of metamorphosis in insects: incomplete, or simple, metamorphosis, and complete metamorphosis.

There are three stages in incomplete metamorphosis: the egg, nymph, and adult. Some insects, such as the praying mantis, deposit their eggs in masses. A single mantis egg mass might contain more than a hundred eggs. When they hatch, tiny versions of adult praying mantises, called nymphs, emerge. Nymphs will grow into adults in a matter of weeks, but in between, they will undergo a series of molts during which they shed their outer covering. Many insects will undergo as many as eight or more molts before they reach full adult size. After their last molt, most insects will develop a set of wings, usually two pairs.

The video explains that the primary job of nymphs is to find food. We see that mantis nymphs have specially adapted front legs with sharp spines that are well suited for the purpose of catching prey.

The third and final stage of incomplete metamorphosis is the adult stage. Insects will grow no more and most will have fully developed wings.

Insects which undergo incomplete metamorphosis include mantises, walkingsticks, roaches, aphids, damselflies, grasshoppers, katydids, backswimmers, water bugs, and many others.

Since nymphs are miniature versions of adults, the narrator asks why do you never see miniature versions of honeybees, ants and butterflies? They are always the same size. The answer is because these insects, and countless others, undergo an entirely different type of metamorphosis called complete metamorphosis.

There are four stages during complete metamorphosis: the egg, larva, pupa, and adult. The video then features this process by following the metamorphosis of the monarch butterfly. It begins with a monarch butterfly extending its abdomen to deposit an egg on a milkweed plant. A few days later, a butterfly larva will eat its way out of the egg. The larva starts out with a white body but, once it molts, it will take on black, yellow, and white stripes, colors that warn its predators that it is not good to eat. The larvae of butterflies, as well as moths, are called caterpillars, and the video features other species of caterpillars as well as other forms of larvae, including those of bees, flies, and beetles.

The primary job of all larvae is to eat as much as they can as quickly as they can and the video features monarch larvae devouring a milkweed plant. After about a week of gorging itself, the monarch caterpillar is ready to enter the next stage of complete metamorphosis and is shown spinning a silk thread from a gland to produce a sticky glob, called a button, on the underside of a leaf. The monarch attaches its rear prolegs to the button and then drops, hanging in a position referred to as the "j shape" because of the way it resembles the letter "j". We next see a split developing along the back side of the caterpillar as it begins to shed its old skin. As it does so, an entirely new form

called the pupa begins to emerge. The pupa is shown struggling as it attempts to rid itself of its old skin. If it doesn't, the skin will interfere with the cremaster, an organ that is used by the pupa to secure itself to the button. If the old skin got in the way, the pupa would eventually lose its grip, fall to the ground, and then die.

We then see the pupa's new skin turn a light green as it hardens. It eventually becomes waxy and the color of precious jade. The pupa is now referred to as a chrysalis. Interesting features of the chrysalis are the gold spots which are thought to control the color of the butterfly's developing wings.

In one or two weeks the chrysalis becomes transparent and you can see the entire butterfly within it. The butterfly is then seen tearing the chrysalis open as it struggles to emerge. After several attempts, the butterfly, its abdomen swollen and wings crumpled, is shown dropping out of the chrysalis. It then pumps blood from its abdomen to its wings. When its wings are fully expanded, the butterfly discharges several drops of fluid from its abdomen. The butterfly then climbs to the top of the plants and flies off, joining others of its kind.

The narrator explains that most of the world's insects, including beetles, wasps, flies, ants, bees, and countless others, undergo complete metamorphosis. Yet few of them make quite the same dramatic entrance into the world as does the monarch butterfly. We then see the rather ordinary pupas of an ant, fly, and bee.

The video concludes with the narrator's stating that metamorphosis is one of the most amazing processes in all of nature, and nowhere is it more amazing than in the world of insects.

REVIEW QUESTIONS

1. **What is the name of the process during which an organism experiences dramatic changes in form as it grows?**

Metamorphosis.

2. **What are the two major types of metamorphosis which insects undergo?**

Incomplete and complete metamorphosis.

3. **What are the three stages of incomplete metamorphosis?**

The egg, nymph, and adult.

4. **How do mantises deposit their eggs?**

In a mass.

5. **What does the nymph resemble?**

A miniature version of an adult.

6. **What are the primary jobs of all nymphs?**

To eat and grow.

7. **What must nymphs do in order to grow?**

Molt.

8. **How many molts do most insects undergo?**

As many as eight or more.

9. When do insects undergoing incomplete metamorphosis develop wings?

After their last molt.

10. What are some of the insects which undergo incomplete metamorphosis?

They include mantises, walkingsticks, roaches, aphids, damselflies, grasshoppers, katydids, backswimmers, water bugs, and many others.

11. What are the four stages of complete metamorphosis?

The egg, larva, pupa, and adult.

12. What are other names for some insects' larvae?

Some are called caterpillars, grubs, maggots, and mealworms.

13. Caterpillars are the larvae of what insects?

Moths and butterflies.

14. What is the purpose of the bold colors of the monarch caterpillar?

To warn predators that it tastes bad.

15. How do other caterpillars protect themselves?

Some protect themselves with sharp bristles, and others build silk enclosures called tents.

16. What are the primary jobs of larvae?

To eat and grow.

17. Where do monarch butterfly larvae usually attach themselves before they pupate?

On the leaves and stems of the milkweed plant.

18. What is the name of the silk wad to which a monarch butterfly attaches its prolegs?

A button.

19. What is the name of the position in which a monarch larva hangs before pupating?

The "j shape".

20. What must a monarch larva get rid of before pupating?

Its old skin.

21. What is another name for a monarch pupa?

A chrysalis.

22. When a monarch butterfly emerges from its chrysalis what must it first do?

Pump blood from its abdomen to its wings.

23. What are some of the insects that undergo complete metamorphosis?

Most insects, including moths, butterflies, beetles, wasps, flies, ants, bees, and countless others, undergo complete metamorphosis.

DISCUSSION QUESTIONS

1. **The video discusses metamorphosis of insects and frogs.**

What other animals undergo metamorphosis?

Metamorphosis also occurs in starfish, crabs, lobsters, snails, clams, mollusks and many others. All animals, including humans, undergo dramatic changes in form as they grow within eggs and embryos, but these processes are not referred to as metamorphosis.

2. **The video features the two major types of insect metamorphosis, incomplete and complete metamorphosis.**

What is the chief advantage to complete metamorphosis?

Perhaps the most important advantage is that most larvae do not compete directly with adults for the same food. For example, the monarch larva feeds only on milkweed leaves, while the adult feeds on nectar from a wide variety of flowers.

Are there any nymphs which do not compete with adults for food?

Very few, but a couple of noteworthy examples are damselflies and dragonflies whose nymphs spend most of their time under water.

3. **The video gives examples of insects which undergo incomplete and complete metamorphosis.**

What other insects undergo incomplete and complete metamorphosis?

Students should be encouraged to try to remember if they've seen miniature versions of any insects? If they have, then chances are that those insects undergo incomplete metamorphosis.

4. **The video mentions that the monarch larva is bad to eat.**

What might be the source for this larva's bad taste?

The thoughtful student might accurately guess the milkweed plant, since this is the only food eaten by this larva. The "milk" of the milkweed is quite bitter. Incidentally, adult monarchs are also distasteful to predators as they maintain residual amounts of milkweed in their bodies, which they obtain through the larva.

5. **The video mentions how the gold spots on the monarch's chrysalis are thought to control the color of the monarch's wings.**

How might a scientist have arrived at this conclusion?

This was done in an experiment during which the gold spots were removed. The colors of the monarch's wings were muted.

ACTIVITIES

These activities are designed to encourage students to learn more about some of the things covered in the video.

- 1. The video features a variety of interesting looking nymphs, larvae, and pupae.**

Activity: Have students draw and then color a nymph, larvae, or pupae of their choosing.

- 2. The video features the incomplete metamorphosis of the praying mantis and the complete metamorphosis of the monarch butterfly.**

Activity: Have students research and report on the metamorphosis of another insect of their choosing.

- 3. Depicted in the video is the beautiful jade green chrysalis of the monarch.**

Activity: Have students search fields near their homes to see if they can find the pupae of any local insects.

- 4. The metamorphosis of the monarch is beautifully captured on this video.**

Activity: Order a monarch chrysalis from a biological supply company to observe this process directly.

- 5. The metamorphosis of the praying mantis is fully documented on this video.**

Activity: Order a mantis egg mass from a biological supply company to observe this process directly.

- 6. While many insects are featured in the video, most insects are indigenous to only certain areas of the country.**

Activity: Have students draw a map of the U.S. showing the range of chosen insects.

GLOSSARY

abdomen: the rear part of an insect's body, which contains its reproductive organs

ant: a small insect that lives in large groups called colonies

aphid: a tiny green or brownish insect that feeds on the juices of plants

aquatic: living in or near the water

backswimmer: an aquatic insect that swims on its back using legs that resemble oars

bee: a winged insect with a hairy body

beetle: a usually oval-shaped insect with biting mouthparts and usually two pairs of wings

butterfly: a usually brightly-colored insect with a slender body and four broad wings

button: the sticky glob of silk spun by a monarch larva

caterpillar: the larva of a moth or butterfly

chrysalis: the pupa of a moth or butterfly

complete metamorphosis: a four-stage process of metamorphosis consisting of the egg, larva, pupa, and adult

cremaster: the holdfast appendage of a monarch pupa

cricket: a leaping insect, with a long pair of antennae, that is related to the grasshopper

damselfly: a usually brightly-colored insect with a long slender body and long wings

filaments: antennae-like appendages on some caterpillars, the purpose of which is unknown

fly: a small insect with a single pair of wings

gall: a plant growth that covers insect eggs

gold spots: the tiny golden spots on a monarch chrysalis believed to be responsible for controlling the color of a monarch's wings

grasshopper: a green or brownish insect with powerful hind legs adapted for jumping

hissing roach: a large cockroach which hisses when alarmed

hive: a place where bees live

honeybee: a bee that lives in a hive with other bees and which makes honey

honeycomb: a structure of six-sided cells made from beeswax by honeybees to hold honey and larvae

incomplete metamorphosis: a three-stage process of metamorphosis consisting of the egg, nymph, and adult

insect: a tiny animal with three major body parts, six legs, and usually two pairs of wings

j shape: the position a monarch larva takes prior to pupating

katydid: a green insect related to grasshoppers that produces a high-pitched sound by rubbing its wings together

larva: the wormlike second stage of most insects' lives

maggot: the sightless, legless larva of a fly

mate: to join as a pair to produce offspring

mealworm: the larva of some beetles which resemble worms and which infest flour and other meal

metamorphosis: a dramatic change in form as an animal grows

milkweed: a plant with a bitter milky juice and food source for the monarch larva

molt: the process during which some insects shed their outer covering

monarch butterfly: a large butterfly with orange and black wings

nectar: a sweet liquid secreted by flowers

nymph: the second stage during incomplete metamorphosis which usually resembles a miniature version of an adult

offspring: the descendants of a person or animal

praying mantis: a green or brownish insect that eats other insects and which holds its front pair of legs as if it were praying

predator: an animal that lives by hunting and eating other animals

pupa: the third stage in complete metamorphosis during which an insect transforms itself into an adult within an enclosure

queen: a large female ant, bee, or termite responsible for egg laying

reproductive organs: those body parts which are used during mating

roach: an oval, flat-bodied insect

sperm: the male cell that fertilizes the egg of the female during reproduction

thorax: the second or middle part of an insect's body to which its legs and wings are attached

walkingstick: an insect that resembles a stick

water bug: an aquatic insect

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SCRIPT

Some organisms undergo a process during which they experience dramatic changes in form as they grow. This process is called metamorphosis, and nowhere is it more dramatic than in the world of insects. Let's find out more about insect metamorphosis.

We're all familiar with how a tadpole starts life looking like a small fish. It even has gills. But it will soon undergo a series of dramatic changes.

First, it begins to grow legs.

Then, it grows arms.

It ends up as a frog, a remarkably different-looking animal from the way it began.

This dramatic change of form is called metamorphosis. It is one of the most amazing processes in all of nature.

Insects undergo two major types of metamorphosis. Incomplete, or simple metamorphosis, and complete metamorphosis. Before we learn more about both types, let's find out a little more about insects.

Insects are the most fascinating creatures on earth. There are nearly one million different kinds of insects and they can be found just about everywhere.

Insects can be identified in a number of different ways. First, insects, like this walkingstick, are invertebrates. That means they don't have a backbone as you and I do. Next, all insects, have six jointed legs. Look at the joints in this walkingstick's legs. And, finally, all insects, like this hissing roach, have a hard outer covering. The reason an insect's body is hard is because

its outer covering is actually its skeleton. That's right. The insect's skeleton is on the outside of its body, not on the inside, like it is with you and me.

Insects can be identified in a number of other ways as well. Let's examine one in closer detail.

Insect bodies consist of three major parts. The head. The thorax. And the abdomen. It is on the insect's abdomen where you find its reproductive organs.

When you come upon insects, you will sometimes find them connected at the abdomen. This is how most insects mate.

The male usually rides on top and the couple, in this case a pair of praying mantises, may remain in this position for several hours.

During this time, the male injects the female with sperm to fertilize the eggs which she carries in her abdomen. You can see how much larger the female's abdomen is in this view. It is filled with as many as a hundred or more eggs which she will deposit later. Mantises undergo incomplete metamorphosis, during which there are three stages.

The first stage is the egg stage. This is followed by the nymph stage. The last stage is the adult.

Some insects deposit their eggs in a mass, as they have been here. This mass contains more than a hundred praying mantis eggs.

When they hatch, tiny versions of adult praying mantises will emerge. These newly born mantises are called nymphs and represent the second stage in incomplete metamorphosis.

Nymphs resemble adults in almost every way, and in a

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When they hatch, tiny versions of adult praying mantises will emerge. These newly born mantises are called nymphs and represent the second stage in incomplete metamorphosis.

Nymphs resemble adults in almost every way, and in a

few weeks will grow to full adult size.

But, in between, they will undergo a series of molts during which they shed their outer covering. This is the outer covering of a month-old mantis. Not too far away is the mantis itself, now a little larger than it was before the molt. Many insects will undergo as many as eight or more molts before they reach full adult size.

After their last molt, most insects will develop a set of wings, usually two pairs.

The primary job of every nymph is to find food. The mantis has specially adapted front legs with sharp spines that are perfect for this task. Mantises, even young ones, are very effective predators.

The third and final stage of incomplete metamorphosis is the adult stage. Insects will grow no more and most will have fully developed wings.

Another insect that undergoes incomplete metamorphosis is the walkingstick. Its young resemble adults in nearly every way.

Roaches undergo incomplete metamorphosis as well. Here you see roaches of varying sizes, but otherwise identical, except for the wings on the adults.

The same is true for aphids. They undergo incomplete metamorphosis, and they all look pretty much the same, except for size and color.

Damselflies undergo incomplete metamorphosis, but unlike the adults, its young spend most of their time under water. They use gills to breathe. Before they become adults, they will climb to the surface, shed their outer skin and develop wings, never to return to the water again. The damselfly is one of the few insects that undergo incomplete metamorphosis, whose

adults only vaguely resemble their young.

Other insects which undergo incomplete metamorphosis include grasshoppers, katydids, backswimmers, water bugs, and many others.

We have seen how the nymphs of most insects which undergo incomplete metamorphosis resemble adults in almost every way. The young walkingstick is nearly identical to its parent. The newly hatched mantis is a tiny version of an adult. And the same is true for the newly hatched cricket. It, too, is a tiny version of an adult.

But have you every wondered why you've never seen miniature honeybees? The same types of honeybees are always the same size.

And so it is with ants. Ants of the same type are always the same size.

The same is true for butterflies. That's because these insects, and countless others, undergo an entirely different type of metamorphosis. One that is so dramatic, it is difficult to tell which offspring belong to which parents.

This type of metamorphosis is called complete metamorphosis, during which there are four stages.

The first stage is the egg stage. This is followed by the larva stage. The third stage is the pupa stage. The last stage is the adult.

The monarch butterfly provides us with an excellent example of complete metamorphosis.

It begins with the laying of an egg. Here a monarch extends its abdomen to deposit an egg on a milkweed plant. A single monarch might deposit hundreds of

eggs, and in the spring and summer, milkweed plants are dotted with them. Milkweed is chosen because that's the plant young monarchs need to eat after they hatch.

Insect eggs vary in appearance and where they are deposited.

Ant eggs are deposited by a queen, usually in an underground colony.

Aquatic insects deposit their eggs on plant stems under water. When the eggs hatch, the newborn will be near their food source.

Some insects will hatch from galls. These aren't eggs. They're actually plant growths that cover and protect the eggs. At least one insect, and sometimes dozens will emerge from a single gall.

A few days after the monarch has deposited its egg, a dark shape can be seen moving within it.

A few days after that, a form can be seen eating its way out of the egg.

It'll take several minutes of nearly constant wiggling before the form is free of the egg.

This is the second stage in the butterfly's metamorphosis. This is called a larva. When there's more than one larva, they are called larvae.

The first thing a monarch larva will do will be to eat its own egg shell. It will need all the nourishment it can get. Monarch larvae start out with a black head and white body, but once it molts, it will take on black, yellow and white stripes, colors that warn its predators that it is not good to eat.

One of the first things you notice when observing a monarch larva is the pair of filaments behind its head. They may be used to sense the world around them, but no one knows for sure.

It appears that some larvae have more than six legs, but only the first six are real legs. The others are called prolegs and have limited use.

The primary job of all larvae is to eat as much as they can as quickly as they can. Larvae are nearly nonstop eating machines. No part of the milkweed plant is left uneaten.

The larvae of butterflies and moths are called caterpillars, and each type has its own shape and colors. Some have bold colors. Sometimes these are meant to frighten predators or to warn them that the caterpillar tastes bad.

Other caterpillars protect themselves with sharp bristles.

And a few build silk enclosures, called tents, coming out only when it is safe.

Honeybee larvae -- they're the white forms in the bottoms of the cells in this hive -- don't need warning colors or legs. They are tended to constantly by adult workers and will never leave the hive until they become adults themselves.

You will often see an adult reaching deep into a cell to feed a larva.

Other larvae with which you might be familiar, are those of flies. You frequently find them in garbage, because that's where flies like to lay their eggs.

They are called maggots, and like bee larvae, have no

legs. They move by wriggling their bodies. While they don't have eyes, they are able to sense light and dark, and will try to squirm their way to dark areas whenever they are exposed.

The larvae of many beetles resemble worms, and some are called mealworms, as they are frequently found in flour and other meal.

After about a week of gorging itself, the monarch caterpillar is ready to enter the next stage of complete metamorphosis. Spinning a silk thread from a gland beneath its mouth, it builds up a small sticky glob, called a button, beneath an overhanging stem or leaf.

Once it is satisfied with the button it has made, the caterpillar will turn its body completely around so that it faces in the opposite direction.

It then slowly walks forward until its rear prolegs are aligned with the button.

It closes its prolegs on the button, digging in tiny spines.

Then, when it knows it's secure, it drops. Hanging entirely from its rear prolegs.

The position it is now in, is called the J shape, because it resembles the letter "j".

It will hang in this position for several hours undergoing a number of internal changes.

Then a split develops along the back side of the caterpillar, and it begins to shed its old skin.

As it does so, an entirely new form begins to emerge.

The skin gets peeled back farther and farther.

Finally, the skin gets scrunched into a tight wad near the button.

The new form, now called a pupa, is the third stage in complete metamorphosis. It appears to be struggling, and it is. It must free itself of the old skin. If it doesn't, it will die.

This one is successful, but some are not. The reason it is so important to get rid of the old skin, is so that this organ, called a cremaster is free to dig its hooks into the silk button. If the old skin got in the way, the pupa would eventually lose its grip, fall to the ground, and eventually die.

After a few more hours the pupa's skin begins to harden and turn a light green. Even at this point, the pupa shakes back and forth as dramatic changes continue to take place within it.

The shaking slows down, and the pupa's skin becomes smoother and darker green.

Eventually, the skin becomes waxy and the color of precious jade. The pupa is now referred to as a chrysalis. While seemingly inactive, dramatic changes are still going on inside.

Interesting features of the chrysalis are the gold spots. These are thought to control the color of the butterfly's wings.

In one or two weeks, the orange and black wings of a monarch butterfly can be seen within the chrysalis. This is one of the first indications that something important is about to happen.

Soon, the chrysalis becomes transparent like glass, and you can see the entire butterfly within it.

Then, the chrysalis is torn open and the butterfly struggles to emerge.

Finally, after several efforts, the butterfly drops out of the chrysalis. But there's still much to be done. Its abdomen is swollen with blood and its wings are crumpled. The butterfly will spend the next minutes pumping blood from its abdomen to its wings. When its wings are fully expanded, the butterfly discharges several drops of fluid from its abdomen. It then climbs to the top of the plant where it can open and close its wings, warming them in the sun. Only when it is finally ready, will it try to fly off.

The butterfly will now join others of its kind, flitting from plant to plant, feeding on nectar. In a few months, it may deposit its own eggs on the plants on which it feeds, renewing, yet again, this remarkable cycle of life.

Most of the world's insects undergo complete metamorphosis. Beetles. Wasps. Flies. Ants. Bees, and countless others. But few make quite the dramatic entrance into the world as does the monarch butterfly. And few have quite as beautiful an enclosure for its pupa.

An ant will emerge from an ordinary-looking white sac that resembles a grain of rice.

A fly emerges from a hard, brown case.

A bee emerges by eating its way out of a tiny honeycomb cell. While none of these insects have quite the splendid metamorphosis as the monarch, the process they go through is still every bit as amazing.

In this program we have seen how some organisms experience dramatic changes in form as they grow in a process called metamorphosis.

Insects undergo two major types of metamorphosis. Incomplete metamorphosis, and complete metamorphosis.

There are three stages in incomplete metamorphosis. The egg. The nymph. And the adult.

Sometimes eggs are deposited in a mass, as they are with mantises.

Some insect eggs will hatch from galls, a type of plant growth.

Nymphs grow by undergoing a series of molts during which they shed their outer covering.

Adults will grow no more and most will have two pairs of wings.

Most insects undergo complete metamorphosis, during which there are four stages. The egg. The larva. The pupa. And the adult.

Monarch butterfly eggs are deposited on milkweed plants.

Moth and butterfly larvae are called caterpillars.

The butterfly's pupa is also called a chrysalis.

The butterfly emerges from its chrysalis as a fully grown adult.

Metamorphosis is one of the most amazing processes in all of nature. Nowhere is it more amazing than in the world of insects.