

Desert Stories 3rd Grade
Remote Lesson
Video 2: Life Cycles
English Transcript

Brought to you by the Asombro Institute for Science Education.

Mr. Ryan: Welcome back everybody! In the last video we listened to a fascinating desert story about the mutualistic relationship between the yucca and the yucca moth. Today we're going to use details from that story to investigate just how important these two organisms are to each other's life cycle. Let's get started!

When the video pauses, you'll need to grab these supplies: you'll need the yucca moth sticker strip, the yucca moth life cycle diagram, and your science journal from the Asombro science kit. You'll also need a pencil or something to write with.

A life cycle is a series of changes that happens to all living things during their life. All plants and animals go through a birth, growth, reproduction, and death stages in their life cycles. You may already know about the life cycle of butterflies. Moths are very similar to butterflies, so they have a very similar life cycle.

Using the knowledge you have of butterflies and the book we read in video one, we want you to hypothesize what the yucca moth life cycle might look like. Turn to page four in your science journal.

When the video pauses, label the pictures from one to five, in the order you think they go, representing birth through death. Remember, this is just a guess, so it's okay if you aren't 100% sure. Just do your best. Here's a hint to get you started.

If butterflies are eggs during their birth stage, what do moths look like during their birth stage? baby? eggs? joey? or seeds?

Did you guess eggs? That's right! They start as eggs. The female moth lays her eggs in the yucca flower and packs the hole with pollen. This process pollinates the flower, turning it into a fruit full of seeds.

Grab your sticker strip. Can you find the sticker that represents yucca moths in the birth stage of their life cycle? Hmmm. Hmmm.

Ah! Find this sticker. The one with the eggs inside of the yucca fruit, and stick it down in the first box of the life cycle diagram that is labeled birth.

Starting with the yucca moth side of the life cycle diagram, make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

The next life cycle stage is called growth. Growth is the period of time immediately after birth, until the moth is a full-grown adult. This is the life cycle stage that you're in right now. The yucca moth has two distinct parts to its growth stage.

We can look back to the book, to recall the order of these phases. The moth's young eat some seeds, but hundreds more survive. In a month or two, full grown larva bore through their seed pod caves.

Which sticker do you think represents what is happening in this paragraph? Let's take a look.
hmm

You can see that on this sticker, there are yucca moth larva climbing their way out of the yucca fruit. Let's find this sticker and stick it down in the first growth box of the life cycle diagram.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

They lower themselves by a silk thread, and burrow into the ground to weave sticky cocoons that will harden like clumps of dirt.

Which sticker do you think represents what's happening in this paragraph?

You can see that in this sticker, there is a yucca moth larva in a cocoon surrounded by soil.

Find this sticker and stick it in the second growth box of the life cycle diagram.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

The next life cycle stage is called reproduction. Now if we break apart this word, we can figure out what it means. The prefix Re means again. Produce means to make something. So, reproduce means making something again.

In living organisms, the reproduction life stage means that two adults make more of their species. When two adult humans reproduce, you get babies. When two adult dogs reproduce, you get a litter of puppies. When two adult moths reproduce, you get eggs!

What sticker do you think represents this stage in a yucca moth life cycle? We need two adults to reproduce, so let's find the sticker with two moths and stick it in the reproduction box of the life cycle diagram.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

After the yucca moth has gone through all these life stages, there's only one left, death. The last sticker from your packet should be of a yucca moth with an x over its eyes. This is representing a dead moth, so let's stick this sticker in the death box of our life cycle diagram. Let's make sure to put it upside down so we know it's dead.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready!"

Okay, so we've reviewed the life cycle of the yucca moth. I would like to pause here and go back to thinking about the reproduction stage. It's important because it helps begin the life cycle of another organism, and ensures the continuation of a species.

Let's take a look at our diagram to see how we could represent this. So, when this adult yucca moth is in the reproduction stage of her life cycle, she can start a life cycle of another yucca moth, which is why there is an arrow pointing from this reproduction box to the first box of this life cycle diagram. I want you to write a letter B, to represent birth, in this first box.

En Español, un N por nacimiento.

What letters do you think we should write in the remaining boxes? Then select "I am ready!"

Do this with me to check your thinking. We should write a G for growth. En Español, un C por crecimiento. An R for reproduction. En Español, un R por reproducción. And D for death. En Español, un M por muerte.

Great job making that life cycle everybody! Now let's investigate the life cycle of the yucca plant. You will need the yucca plant sticker packet and the other side of your yucca moth life cycle diagram.

What does a plant look like during the birth stage of its life cycle? baby? egg? joey? or seeds?

If you answered seed, that was correct! You will find a yucca seed taped to the back of your yucca sticker packet. Carefully remove the tape and the seed from your sticker packet, and re-tape it in the birth box of your blank yucca life cycle diagram. If you have any trouble with this step, you can draw a picture of the yucca seed in this box instead.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

The next stage in the yucca life cycle is growth. Remember, growth is the period after birth until the organism is a full-grown adult, or can reproduce, and yuccas can't reproduce until they grow flowers. Let's spread out the stickers from our sticker packet and see what we've got.

What sticker do you think represents the growth stage of the yucca life cycle? Hmm, I think this one. It looks like a very small yucca, so let's go ahead and grab this sticker and stick it down in the growth box of the life cycle diagram.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

Now, unfortunately, for the yucca, they can't just walk over to another yucca and say hey, want to make some seeds with me? So, plant reproduction takes a few more steps than animal reproduction.

Because plants can't move, they rely on external forces to transfer pollen from one plant to another. One of these external forces is wind. Wind can carry pollen grains from one plant to another, or, pollen can get stuck to animals like on this bee, and is transferred to another flower that way.

These three stickers represent reproduction for yuccas, but in what order do they happen? Luckily, we've got the book to look for some clues to help figure this out.

The female moth mines the load of golden pollen from six stamens that circled the thick pistil in the center of the flower.

Dr. H.: Here is our first clue. The yucca moth is inside the flower, so the yucca needs to have flowers before pollination can take place.

Mr. Ryan: She visits hundreds of flowers and many plants, if no bat catches her.

Dr. H.: Aha another clue! The yucca moth needs to go to a different flower for pollination to occur.

Mr. Ryan: The moth's young eat some seeds, but hundreds more survive.

Dr. H.: Hmm We know there are seeds in those seed pods, but that doesn't look like the image on our sticker. Let's keep looking.

Mr. Ryan: Dry old pods hang on, ghosts of the last good year.

Dr. H.: Oh! Those seed pods open up when they are old and dry. That's how those seeds disperse.

Mr. Ryan: Now that we have looked through the book and what order do we need to put the reproduction stickers? Let's see how you did. First, the yucca needs to have flowers, so this sticker needs to be stuck down in the first reproduction box.

Then, the moth can collect the pollen from the flower and fly to another flower and pollinate it. So, take this sticker and stick it in the second reproduction box.

Then, the seeds resulting from the pollination, disperse when the seed pod breaks open. Find this sticker and put it in the last reproduction box.

Make your life cycle diagram look like Mr. Ryan's, then select the answer "I am ready for the next sticker!"

All we have left is putting in the sticker for the death stage, and what happens when this part of the reproduction stage occurs. In a moment the video will pause, when that happens, I want to challenge you to complete this diagram on your own. Once you're done, select the answer "I am done!" to check your answers and discuss what we're doing next.

Here's what your life cycle diagram should look like now.

Now that we've finished these life cycle diagrams, let's see what they can tell us about the relationship between the yucca and the yucca moth.

First, let's look at what the life cycles have in common. What do you notice is the same? One thing I noticed right away, is that both organisms have a birth, growth, reproduction, and death stage in their life cycles. What else do you notice is the same?

Now let's look for something that is different between the two life cycles. One thing I noticed right away is that the yucca has one part to its growth stage and the yucca moth has two parts. What else do you notice?

Turn to page five in your science journal and list two things you notice that are the same in both life cycles, and list two things that you noticed are different about the life cycles.

In the next video, we will take a closer look at the yucca seed pod. So, make sure all of your materials are stored safely inside your Asombro science kit until you're ready for the next video. See you soon! Bye, everybody!