



The Life Cycle of a Butterfly

Owl - John Sweeney: Preschool 1 Room

Background

On September 16 2019, Preschool 1 started a project on the life cycle of a butterfly. The educators in this classroom are Emily Rattray, RECE, Simone Haughton, RECE, Alanna Henderson, RECE and Gary Rice, RECE (our enhanced staff). Our classroom consists of 27 children between the ages of 2.5-3.5 years old. The project came to an end on the 6th of December, 2019.

Phase 1: Beginning the Project

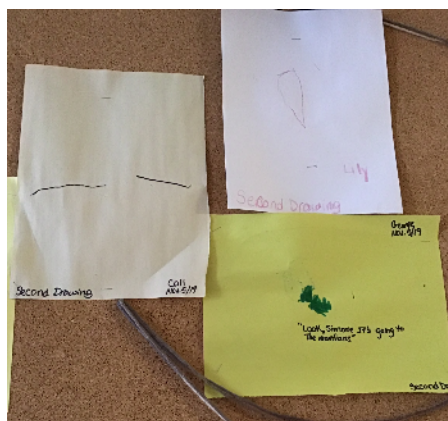
In early September, on one of our weekly walks, we observed a few butterflies fluttering near the sidewalk. "A butterfly!" Ryker called out to his peers and educators. The children watched closely as the butterflies fluttered around. In mid-September, the children discovered a caterpillar near our garden. They were very respectful to not touch and only look at the caterpillar. "The caterpillar is hungry," Evangeline said as she, Emma, Lilly, Cali and Ariya went to gather food for the caterpillar. The girls placed twigs, grass and leaves around where the caterpillar was. They observed the caterpillar to see if it would eat anything, but it seemed to be sleeping. A few days later the children went to look for the caterpillar, but it wasn't there. "It's gone," Hudson said sadly. We observed a small dark item in the crease of the garden bed. We talked about what it could be and came to the conclusion that the caterpillar was inside of a chrysalis. The children had a lot of questions regarding the caterpillar, chrysalis and the butterfly, so we decided to begin a project of the life cycle of a butterfly in order to answer all of their questions. Below is a list of our pre-known knowledge, our questions and the resources we have to learn more.

What Do We Know?	What Do We Want To Know?	Who Can We Ask?
"Butterfly got wings"- Ryker	"The biggest butterfly?"- Cali	"George"- Hudson
"Butterflies are blue"-George	"Do butterflies go to the Forest?"-Emma	"Ask the teacher to read a book!" - Ryker
"A caterpillars turns into a butterfly"- Evangeline	"Blue, white and green butterflies?"- Charles	"The people at the butterfly conservatory"- Ryker, Hudson, George, Cali
"I saw a green butterfly"- Emma	"Big butterfly?"- Milana	"iPad"- Evangeline
"I have a butterfly"- Cali	"Do butterflies turn back into caterpillars?" - Ryker	
"Caterpillars eat leaves"- Hudson	"Blue butterfly fast like cat boy?"- George	
"Butterflies go, and then they come" "They live in their cocoon and eat eggs" - Sierra	"Are there grandma butterflies?" "They make sounds?" - Sierra	

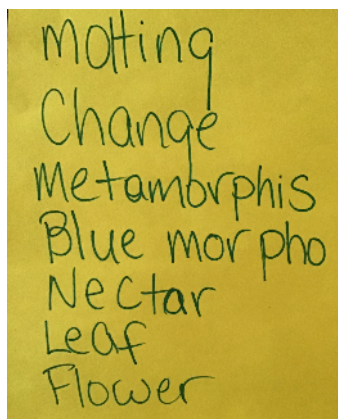
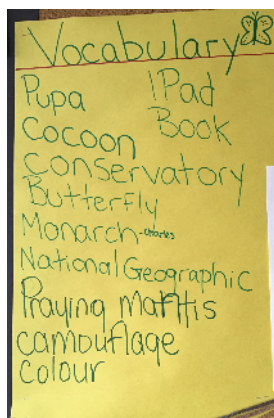
Phase 2: Developing the Project



We were amazed by the differences between the first and second drawings. For the first drawing, the children sat at the same table and completed the drawing at the same time. These drawings seemed rushed, busy and unspecific. For the second drawing, we called each friend over at a different time. We asked them to remember the life cycle of the butterfly and the things that they have learned. We then asked them to draw us a picture representing what they could remember. Cali drew what looked like the wing span. Throughout the project, Cali always wanted to know the sizes of the butterflies. Lilly drew a chrysalis. She would talk to her peers about the pupa stages and would use all of the correct terminology regarding the life cycle. George drew a butterfly. He was very proud that he was able to remember the 2 wings and the body. Throughout this project, George has expressed his love for learning.



When we asked the question *who can we ask?* Evangeline suggested the iPad. We did a little research and found a very educational video called “Life Cycle of a Butterfly.” There, we learned that the caterpillar goes through a variety of pupa stages throughout its life cycle. A moth creates a cocoon whereas a butterfly creates a chrysalis. Butterflies use a variety of flowers for pollination, depending on the type of butterfly and they can lay up to 500 eggs on a flower at one time! Then we decided to read a book called *National Geographic – Butterflies*. The children were able to digest the information easier when Simone read the book. She would stop and ask questions ensuring the children were understanding what was being read. She asked the children, “What comes first the egg or the Chrysalis?” “The Egg!” Hudson would shout, as his friends’ responses followed.



Definitions

We asked the children to tell us their definition of “The life cycle of a butterfly.”

“From egg to a Butterfly” - Evangeline

LIFE CYCLE OF A BUTTERFLY:

Any of numerous diurnal insects of the order Lepidoptera, characterized by clubbed antennae, a slender body, and large, broad, often conspicuously marked wings. – Dictionary.com

Our Field Study



We still hadn't answered all of our questions, so we booked a field trip to the Butterfly Conservatory. The children were very excited to attend. When we arrived, the children went into the museum part of the building. There we were able to ask our guide Sarah all of our questions! Cali started by asking Sarah what the biggest butterfly was. Sarah told us that some moths can become very big, but the Blue Morpho was the biggest butterfly they had at the conservatory. “Blue butterfly fast like cat boy?” asked George. “The bigger the butterfly the slower it will fly. So this blue butterfly is not as fast as Cat Boy, but the smaller butterflies can fly very fast,” Sarah said, answering George's question.

We were able to observe the butterflies fluttering around inside of the conservatory's tropical room. One even landed on a parent volunteer! Emma then asked Sarah if Butterflies go to the forest. “Yes they can,” Sarah said, “Especially the monarch, they go to a special forest in Mexico. Trees in the forest make it easy for the butterflies to be protected. It takes 2 months for them to fly to Mexico.”



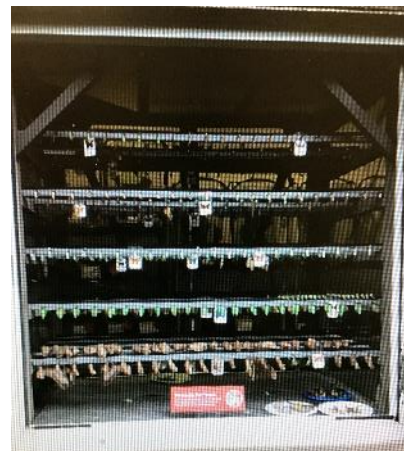
Sierra then had a turn to ask her question. “They make sound?” she asked Sarah. Sarah replied, “They make a little bit of noise when they fly or eat but some moths don’t even have a mouth.” Ryker was excited to ask his question next. “Do butterflies turn back into caterpillars?” Sarah smiled and said, “Sorry, but they can’t turn back into caterpillars, but their babies turn into caterpillars when they hatch out of their egg.” Sierra asked, “Are there grandma butterflies?” “Of course!” Sarah replied, “but only monarch butterflies are grandparents. A butterfly has a life span of 2-3 weeks where as a monarch has a lifespan of 6-8 months.”



We then moved over to the classroom of the conservatory. Sarah brought out a big book about Butterflies and asked the children to re-enact each page. The first page contained several eggs on a leaf. The children rolled up into a ball and laid on the carpet. The egg takes 6 days to hatch and the butterflies have to eat their way out. “Now that you’re out, you are a caterpillar on a leaf. Now the caterpillar starts to eat the leaf. When the caterpillar gets full, the caterpillar sheds its skin to grow. Pretend to shed your skin. Wiggle, wiggle. This continues over and over: eat, shed, eat, shed,” Sarah explained as she read the story. The caterpillar begins to spin a little bit of silk, then they jump and grab onto the silk and pull their skin over top of their body. “Okay, jump and pull on your silk as you pull your skin over your head!” The children all jumped and grabbed at the air above their head and wiggled their bodies with their hands remaining over their heads. “The caterpillar is now a chrysalis for 10 days. They wiggle out of their chrysalis as butterflies. Wiggle your bodies

out of your chrysalis,” Sarah said. The children all did a silly wiggle as they pretended to come out of their chrysalis. “The butterfly will now stomp their feet on the flower and that’s how they taste for food. They also have a long curved tongue and that is how they drink.” The children stomped their feet as they stuck out their tongues and flapped their arms like a butterfly.

We then headed to the butterfly room where all of the butterflies live. We observed the butterflies in their habitat, as they ate, slept and fluttered around. Some butterflies landed on us, while others flew fast past us. We had a few children who did not want the butterflies to come near them, but enjoyed observing from a distance. There was a special area in the conservatory where they have several chrysalides hanging. It was very educational to observe where all of the butterflies hatched and to see the chrysalides up close. We learned so much about the life cycle of a butterfly during this field study.



Camouflage

Later in the project we found an episode of the magic school bus called “Butterfly and the Bog Beast”. We were taught that the praying mantis likes to eat butterflies. We also learned that butterflies are able to camouflage when they feel threatened. We then took out the iPad and researched how butterflies camouflage. We learned that they can slowly change their colours to match tree bark, leaves and flowers, but that most butterflies are poisonous to their pray so they don’t need to camouflage. For example, a monarch butterfly will eat poisonous milkweed (a plant) as a caterpillar, so as an adult butterfly, the poison is inside of them. Therefore, most predators do not risk eating them.

Creative Experiences



Emily started an activity by cutting out butterfly silhouettes from black paper. We provided bright coloured shapes such as squares, triangles, rectangles and circles. We placed the materials onto the craft table beside glue sticks. Gwen, Sierra, Felix, Ayman, Emma, Elena and Milana swarmed the table eager to create a butterfly. During this activity, we discussed the shapes and colours that the children were pasting onto their butterflies. Emily informed the children that butterfly wings are symmetrical, meaning they have the exact same pattern on both wings. Sierra and Gwen thought this was a very interesting fact and began grabbing 2 of every shape. They pasted one of each shape on both wings. “Look! It’s symmetrical” Sierra said proudly. Gwen smiled as she looked at the circles she had

placed on her butterfly. Hudson came over to the table and looked at the butterflies. “Can I make a caterpillar?” he asked. Emily said, “Of course, but how do we make a caterpillar?” “You cut out a big worm!” Hudson said smiling as he used his hands to show Emily how big he wanted his caterpillar to be. Emily then began cutting out caterpillar silhouettes. Raven made her way over to the table and joined Hudson, Milana and Sierra as they created their caterpillars.



While exploring the shapes and colours, we reviewed the interesting facts that we learned about caterpillars, from hatching out of an egg to eating lots of leaves and then finally turning into a chrysalis. “Ooh I want to make a chrysalis,” Chelsea said excitedly. “Me too!” Emma added. “What shape is a chrysalis?” Emily asked the children. “It’s a hangy shape,” Chelsea said. Emily tried to cut out a chrysalis but it wasn’t quite right as it resembled a pear. Alanna came over and helped cut one out. The children started to decorate the chrysalis using the bright colourful shapes. “My butterfly is this inside,” Chelsea said as she pointed to her purple circles that she had just pasted. We reviewed the life cycle of a butterfly when all of the stages were complete. We did not create any eggs, as the children did not request them. However, we did not leave them out of the conversations we were engaged in throughout this activity.

Learning a New Word



We wanted to try and teach the word *metamorphosis* to the children as a word that means change. Simone asked the children first, “What happens to a butterfly?” Ryker, Evangeline, and Hudson yelled “Egg.” I then asked, “What happens next?” and they yelled, “Caterpillar.” Simone said, “see how it is changing? Another word for change is metamorphosis. The butterfly is the metamorphosis from an egg to a caterpillar to a chrysalis to a butterfly. What happens next in metamorphosis?” and the children yelled, “Pupa.” “And then it metamorphosis into a...?” and there was another yell of, “Butterfly.” We then moved on to practicing the word. Sierra worked really hard to say it so we slowed down and broke it up into met-a-mor-phi-sis. We tried that as a group a couple of times. The whole class was very enthusiastic about trying to pronounce it. Then Simone continued to give them repetition of, “Metamorphosis is the butterfly changing. So metamorphosis means changing.” This prompted Lily when she was leaving about 15 minutes later to say, “Bye Alanna metamorphosis.” We took that to mean that since she is leaving and changing from the classroom to go home that it’s a metamorphosis.

Butterfly measurements

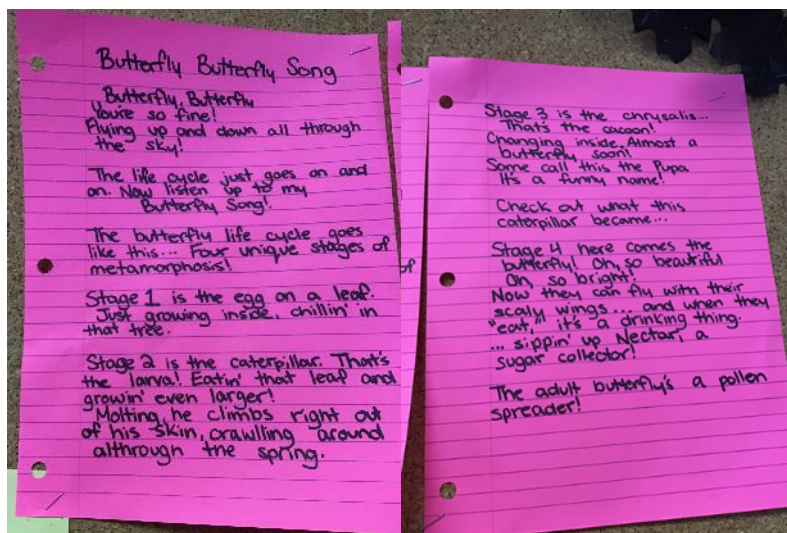


Recently our friends have shown interest in numbers and counting. They have used blocks and other loose parts to measure hands and feet. On November 19, 2019 three different sized butterflies were selected: Blue Morpho, Rice Paper and the Painted Lady. All of these butterflies were at the Butterfly Conservatory during our trip. We researched the exact size of the butterflies. We then created life sized butterfly cutouts that were spread across table with rulers. Alanna introduced the ruler to friends, asking if they knew what it was. She explained it was for measuring length and width. Alanna pointed out that there was more than one type of measurement: millimeters, centimeters and decimeters. We decided to use centimeters to measure our butterflies. Hudson helped count how many cm long the ruler was; we counted all the way to 30! Next, we selected a butterfly to measure. We started with the second largest, the Rice

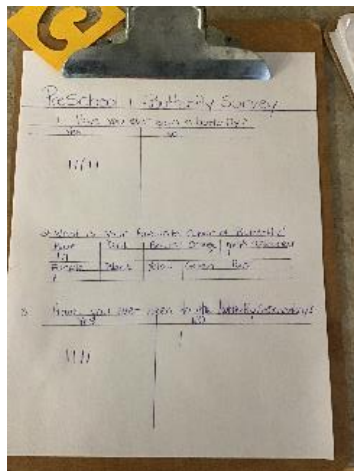
Paper butterfly. Alanna reminded friends to start at the end of the ruler, the number 0. We discussed how the butterfly was this big in real life. The width of the butterfly was referred to as its wingspan. Using their pointer finger, the child counted how many centimeters the wingspan of the butterfly was. Hudson was excited to see how big the Blue Morpho butterfly was, as it was the largest of all three butterflies. It is also known to be one of the biggest butterflies, reaching up to a 20 cm wing span. Hudson was proud when he correctly measured the butterfly.

Butterfly Song

One afternoon, we were reviewing the life cycle of the butterfly. It was hard to remember all 4 stages of the butterfly's life and what each looked like, so we researched butterfly songs on the iPad. That's how we came across the Butterfly Song. After listening to this song several times, we noticed a few words we were unsure of. Alanna asked the children if they understood the words molting, nectar, and metamorphosis. Most were unsure of these words. Once we went through the song, George asked to play it again. "Do you want to sing it?" he was asked by an educator. George answered "Yeah," pausing a moment before singing the song. "Butterfly, butterfly you're so fine... all through the sky." Great singing George! The more we listened to the song, the more we were reminded of the four stages of the butterfly. We learned that metamorphosis means change. We also found out that butterflies enjoy drinking nectar from flowers. Finally, we discovered that molting is when the caterpillar gets too big for his skin and has to take it off, because it can be uncomfortable being too small. Our song provided us with helpful reminders of each stage. It taught us interesting facts on the development of the butterfly and the correct terms of the cycle all while having a catchy tune to follow along to!



Surveys Says...



Chelsea and Emily went around to the different classrooms in the centre and asked questions to the staff about butterflies. Chelsea was very enthusiastic about asking the questions as well as writing down the ticks in each category. We created three specific questions to ask during our Survey.

1. Have you ever seen a butterfly?
2. What is your favourite color of butterfly? (With a variety of colour options)
3. Have you ever been to the Butterfly Conservatory?



Phase 3: Concluding the Project



On October 29, 2019 we incorporated our project into our pumpkin carving. First we did sensory exploration through emptying out the inside of the pumpkin. Some children enjoyed the texture while others immediately washed their hands. We then discussed the 4 stages of a butterfly. Emily drew each stage as it was described onto the pumpkin. We then took turns holding the knife (with Emily's hand over top) and carved out each picture. The children were very safe as they carved the pumpkin. They also practiced patience as they waited for their turn!

At our Halloween social, the preschool parents looked at our project board and observed the pumpkin carving of the life cycle of a butterfly. The children were able to explain the different stages of life, as well as use the new vocabulary they have learned. Dominic's dad took a copy of the song home so they could go over it at home. He was very enthused about what Dominic was learning.





Lily's mom let us know that Lily would come home every night and talked about what she had learned that day about butterflies. Chelsea and her mom made a 3-D representation of a caterpillar that she brought into class, which sparked conversations with her peers and educators.

The project ended on December 6, 2019 because Christmas became a larger part of the classroom. As discussions became more about winter, the topic of butterflies started to dwindle which resulted in educators putting out less provocations regarding butterflies.

Teacher Reflections

Emily Rattray, RECE

I loved being a part of the learning during this project! I observed the children as they discovered new facts; they became excited every time they learned something new about butterflies. During the activity where we used colourful shapes and silhouettes of butterflies, I learned that most of the children could label the shape and corresponding colour. When discussing that butterflies have symmetrical wings, some of the children tried really hard to reflect that on their butterfly. They were proud of the design they had made and looked to me for confirmation that they did a good job. The children were able to learn many multi-syllable words and use them in the correct context. I observed the older children in the class teaching the younger children facts that they had learned from this project. I knew a few facts about butterflies prior to starting the project however, I learned that a cocoon is actually what a moth creates, where butterflies create a chrysalis. When observing the children gaining new knowledge on the subject, I became more enthusiastic about learning as well. I always thought caterpillars just ate until they were full and then would build their chrysalis. I was unaware that caterpillars shed their skin as they grow. I also learned that the term for shedding their skin is called molting. When asking the questions of what we want to know, several questions arose that I did not know the answer to and was curious to learn. For instance, the biggest butterfly at the conservatory is called the Blue Morpho, and only Monarch butterflies live longer than a few weeks and will migrate all the way to Mexico! I hope the children enjoyed learning about "The Life cycle of a Butterfly" as much as I did.

Simone Haughton, RECE

I found the butterfly project very cool; I learned so many different things. The one thing that I found the most interesting was the difference in cocoon and chrysalis. Whoever knew that a butterfly comes out of a chrysalis and not a cocoon? Cocoons are for moths. The children's second drawing was so fascinating to me to! They each had a part of the project that they really focused on. It was great



doing the research and I learned so much from the Butterfly Conservatory, even though I've been there at least four times. I also enjoyed seeing what my fellow coworkers focused on and brought to the children.

Alanna Henderson, RECE

This being my first project, I was looking forward to the process and the learning that was yet to come. I enjoyed sharing this experience with the children as we discovered butterflies together. We worked a lot on vocabulary and the different words that related to a butterfly like molting, pupa, nectar and metamorphosis. Some of these words were quite large and took a while to introduce to the class. However, once they picked it up, the children had no trouble pronouncing and describing "Metamorphous means change." The children were curious to know the connection each word had to the insect. I shared this same interest, not knowing that pupa is actually a stage in the butterfly's life cycle. By researching songs, the children were able to use a catchy tune as it describes the four stages of the butterfly and what each stage represents. It shared familiar vocabulary we had learned and discussed as a class. Children were able to recognize and point out these words as they were sung. As an educator, it was a very rewarding moment when the children would bring butterfly talk and play into their own day to day play and routines. While playing with playdough, children could be seen incorporating caterpillars and chrysalis or introducing butterflies into their art. Our project has provided me with knowledge of a butterfly I didn't know I was missing. The experiences, research and knowledge collected I will proudly share as I know the children and staff will too!