Our City in a Garden

Theme: Butterfly Garden

Nursery 2 (3- 4 years old)

BY: PCF SPARKLETOTS PRESCHOOL @ QUEENSTOWN BLK 46 (CC)

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Description of the Project

The objective of this innovation grant project is to improve the learning environment for outdoor exploration and discovery where the young can develop love and care for our nature. And … what better place to start nurturing this than in our school garden!

Why school garden?
A school garden puts the natural world at children's fingertips. It provides our children with the opportunity to serve — to see something flourish because they care for it; to get their hands dirty from their own hard work; and to have a sense of pride and personal achievement that comes from nurturing a plant through every stage of development. It also engages the children by providing a dynamic environment in which to observe, discover, experiment, nurture, and learn. It is a living laboratory or outdoor classroom, where lessons are drawn from real-life experiences rather than 'books' and 'lecturing'.

With that in mind, our school garden has undergone a big revamp. There were 3 broad scopes to the revamp:

- Set up of a butterfly garden with host and nectar plant that breed and attract local butterfly species.
- Set up of an edible garden – the herb garden and vegetable patch
- Enhance outdoor aesthetics with ornamental plants.

Butterfly and Scented Plants

Rhapsody of Herb

Vegetable Patch

So we are all ready to get out there, get connected to the nature — plant it, nurture it, and watch it grow!

Learning Journey Tool Kit for Nursery
(HortPark Butterfly Garden)

Description of the Learning Resource

Butterflies are magical creatures to children and are the prettiest insects around! They share an intimate relationship with plants, and Singapore – the Garden City – is home to 295 species of butterfly. Yet, the limited exposure to the outdoors has discouraged the children from getting closer to them. Add to, butterfly populations have seriously declined, due mostly to destruction of habitat and use of toxic chemicals because many people simply do not tolerate the presence of caterpillars on their plants! By destroying habitat and using pesticides, humans put a stop to the 'butterfly's dance'.

As part of the school's Innovation Guided Project 2016 – Our City in a Garden, this learning journey tool kit aims to guide the children through a butterfly garden where they will learn to care for and protect this earth's creatures. It serves as a guide for teachers who wish to incorporate HortPark Butterfly Garden field trip into their classroom and curriculum. It is also an introduction to learning more about butterflies and is designed to be as fun as it is informative.

If a picture of a caterpillar or butterfly paints a thousand words, the number of words that come to mind when looking at and touching a real live caterpillar must be infinite. Thus I hope that these activities will help you learn more about butterflies and help guarantee the future survival of these "rare and gentle" things.

Try raising your own butterflies. You'll be surprised how easy it is. Good luck!

I would like to thank my colleagues for their contribution to this learning journey tool kit.

"A butterfly garden ...

intrigues children's curious minds and softens their hearts toward nature."
~Karen Stephens~

HortPark

HortPark, part of the Southern Ridges that comprises Mount Faber Park, Telok Blangah Hill Park, Kent Ridge Park and Labrador Nature Park, is a one-stop gardening resource centre. It combines gardening with recreation, education, research and retail. Open daily from 6am to 10pm, there is much to explore and discover amidst the flora and fauna. You will also find a Butterfly Garden where you can get up close to these amazing insects.

Opening Hours:
6am to10pm
Location:
33 Hyderabad Rd, Singapore 119578
Price Range:
Free
Contact:
Tel: 6471 5601 Fax: 6479 2019
Website: www.nparks.gov.sg
Email: NPARKS_HortPark@nparks.gov.sg

HortPark Butterfly Garden

A garden is never complete without the lively interaction between people and animals. Butterflies share an intimate relationship with plants, and Singapore – the Garden City – is home to 295 species of butterfly.

HortPark butterfly garden was opened in May 2009 by the National Parks Board in partnership with National Biodiversity Centre to allow visitors to learn about the different stages of metamorphosis from caterpillar into butterfly. At the same time, it serves as a butterfly breeding area and an experimental garden for research on suitable nectar (food) plants and host plants for breeding for a variety of butterfly species.

For more information of the butterfly species in the garden, visit this link:
https://lkcnhm.nus.edu.sg/nus/pdf/PUBLICATION/LKCNH%20Museum%20Books/LKCNHM%20Books/fauna_native_garden_hortpark.pdf

You can also visit www.butterflycircle.com for more information. For a comprehensive guide to Singapore's butterflies, check out the book "A Field Guide to the Butterflies of Singapore" by Khew Sin Khoon. (This book is available at National Library)

Educational Purpose

This little caterpillar inspired 'ooohs' of curiosity and also 'ahhhs' of fear in the children.

"I hear and I forget,
I see and I remember,
I do and I understand"

Objectives of this Learning Journey:

1. Children have the opportunity to see new things and learn about them in a more unstructured way. Therefore, learning is enriched and reinforced.
2. Children will have fun as they walk and appreciate and at the same time learn about nature.
3. Children will experience a more holistic, integrated picture of the information that, in the classroom, may have only been presented in a textual and abstract way.
4. Children will learn the wonder of butterfly and to respect and care for its habitat, which is the environment.

Planning your Trip

To get the most out of your trip, plan in advance how you want your class to spend their time at the Garden.

1. WHAT TO DO?

- **Be clear**
  about your learning objectives. The kit provided includes pre-visit, onsite, and post-visit activities and they are designed for use in the classroom. All of the activities are designed specifically for Nursery (4 years old). The major concepts children will encounter are as follows: Butterfly Anatomy, The butterfly life cycle and A Butterfly's Home. Also included is a list of references used in creating the activities which may also be helpful in the classroom.

- **Do's and Don'ts**
  Take the opportunity to brief the children on acceptable behaviour at the garden. Make sure the children dress appropriately for the weather. Comfortable closed-toe shoes are required.

  While at the Garden,

- Running is not permitted.
- All of the plants are protected and should not be touched or removed (unless a guide gives permission).
- Please use the trash and recycling receptacles. Do not litter.
- In an emergency, contact garden staff immediately.

- **Scheduling a Trip**
  HortPark Butterfly Garden offers free guided tours for preschoolers and if you wish to engage a guide, at least one month notice is required to make a reservation. If you have enquiries for the field trip, please contact Rachel TEO (NPARKS) @ Tel: 64715605 or Email: rachel_teo@nparks.gov.sg

  Duration: 1.0 hour
  Fee: Free
  Group Size: A minimum of 15 children

2. WHAT TO BRING?

- Water Bottle – because hydration is important while outdoors
- Raincoat (recommended) – in case of wet weather
- Insect repellent – to prevent mosquito bites

3. STILL HAVE QUESTIONS?
   If you have further queries, please contact the following:
   6471 5601 or **email** at NPARKS_HortPark@nparks.gov.sg.

4. SAMPLE ITINERARY

GUIDED TOUR

Time	Activity
9.40 a.m.	Reach the garden
9.40 a.m. – 10.00 a.m.	Toileting
10.00 a.m. – 11.00 a.m.	Guided tour
11.00 a.m. – 11.40 a.m.	Toileting/Break (snack)
11.40 a.m. – 12.40 a.m.	Carry out onsite activity (DIY tour)
12.40 p.m. – 1.00 p.m.	Toileting
1.00 p.m.	Board bus

DIY TOUR

Time	Activity
10.00 a.m.	Reach the garden
10.00 a.m. – 10.20 a.m.	Toileting
10.20 a.m. – 11.20 a.m.	Carry out onsite activity (DIY tour)
11.20 a.m. – 12.00p.m.	Toileting/ Picnic
12.00 p.m. – 12.20 p.m.	Toileting
12.20 p.m.	Board bus

This timetable gives an idea of the kinds of learning activities that take place at Butterfly Garden. The actual programme will, however, reflect the level and needs of your class.

Logistics Checklist

Field Trip Excursion to:

Teacher's Name:

Level:

Date of Field Trip:

Location of Field Trip:

Arrangements to be made:

- ☐ Principal permission
- ☐ Trip booked
- ☐ Time and place of departure
- ☐ Time and place of return to school
- ☐ Cost per children or adult – No cost required
- ☐ Other funding required
- ☐ Transportation – bus, public transport
- ☐ Cost of Transportation
- ☐ Method of payment
- ☐ Lunch arrangements
- ☐ Suggested clothing to wear
- ☐ List of children's medical information and special attention
- ☐ Permission form sent home to parents
- ☐ Others

Equipment and Materials to bring:

- ☐ Camera
- ☐ Copy of Scavenger Hunt page
- ☐ Blank drawing paper for sketching
- ☐ Writing and drawing tools
- ☐ Clipboard
- ☐ First Aid Kit
- ☐ Children's Contact list
- ☐ Others

Supervision:

- ☐ Teachers
- ☐ Volunteer Parents
- ☐ Others

Organization of groups:

- ☐ Number of children
- ☐ Number of groups required
- ☐ Number of adult leaders per group
- ☐ Others

Butterfly Education Activity Plan

Pre-Visit Activity 1

Lesson	Objectives/ Outline of Lesson	Duration	Resources
Lesson 1: What is a butterfly?			
Objectives: • To find out what children already know or think they know about butterfly • To identify the characteristics of butterfly • To create a collage			
Introduction	1. Ask the children: Have you ever noticed and admired flowers while you are out in the neighborhood? 2. Show children a poster featuring on the types of flower (A Pre-school Educational Resource Package on Singapore, a City in a Garden, and its Biodiversity'). 3. Encourage discussion regarding the poster by guiding them through the process of describing. Such as the colors and the shapes. Ask questions like "How are the colors different?" and "What do you notice about the shapes of the petals?" 4. Ask again: • Who likes flowers? • What other small creatures like flowers too?	10 minutes	 Pre-school Educational Resources on Singapore and its Biodiversity
Development	1. Ask: • Why do butterfly and bee like flowers? (food source) • How many of you have ever seen a butterfly? • Outside in the garden or park? How about inside? • What is a butterfly? • Does it have a head? What shape? • What does the body look like? • Does it have a tail? • Legs? How many? • Nose, ears, mouth, eyes? 2. Invite children call out ideas as to what a butterfly looks like. Draw this on the board as they name a characteristic, exaggerating features and	30 minutes	"Zoom in on butterflies" by Melissa Stewart. (available at National Library) Picture of a butterfly (refer to page 16)

	colors to make a point. 3. After the drawing is done, stand back and look at it. Ask: • Does it look like any butterfly you have ever seen? • What else do we know about butterflies? 4. Record their responses on the board on an idea web next to the drawing you have just made. 5. Inform children that they are going to learn about what a butterfly is. 6. Read a book on the title – "Zoom in on butterflies" by Melissa Stewart. 7. After reading, hold a class discussion about butterfly body parts and how they are used. The following questions may help children identify the parts and recognize how they are useful to the butterfly in the real world: • Say, Look at the butterfly's head (refer back to the book), what other body parts do you find on the head? • (*Eyes, antennae, and proboscis.)* • What do you think the butterfly uses these parts for? *(Eyes: to see color well, to find food, to find a mate. Antennae: for touch and smell. Proboscis: to reach nectar deep inside the flowers.)* • Count the wings. How many are there? *(Four.)* • What does a butterfly use its wings for? *(To fly to food and to the plants that it lays its eggs on; to fly away from predators; for camouflage.)* • How many legs are there? *(Six)* • What does a butterfly use its legs for? *(To walk and to taste.)* 8. Recap that butterflies are beautiful, flying insects with large scaly wings. Like all insects, they have six jointed legs, 3 body parts, a pair of antennae, compound eyes, and an exoskeleton. The three body parts are the head, thorax (the chest), and abdomen (the tail end). The butterfly's body is covered by tiny sensory hairs. The four wings and the six legs of the butterfly are attached to the thorax. The thorax contains the muscles that make the legs and wings move.		

Closure	Teach the song – The Butterfly Parts Song (Tune: Head, Shoulders Knees and Toes), with appropriate actions. *Head, thorax abdomen, abdomen* *Head, thorax abdomen, abdomen* *six legs, four wings, antennae two* *Head, thorax abdomen, abdomen*	5 minutes	
Follow-up Activity	Tell children they are going to make their own butterflies. • Have children cut out the three parts from colored construction paper. Review the concept of three; remind them about the head, thorax, and abdomen. Again, children will order head, thorax, and abdomen correctly on a piece of paper and paste them down. • Cut out four wings and tape two wings to each side of the body. • Invite children to add in other details and decorate the wings with markers.	15 minutes	

TEACHING RESOURCES:

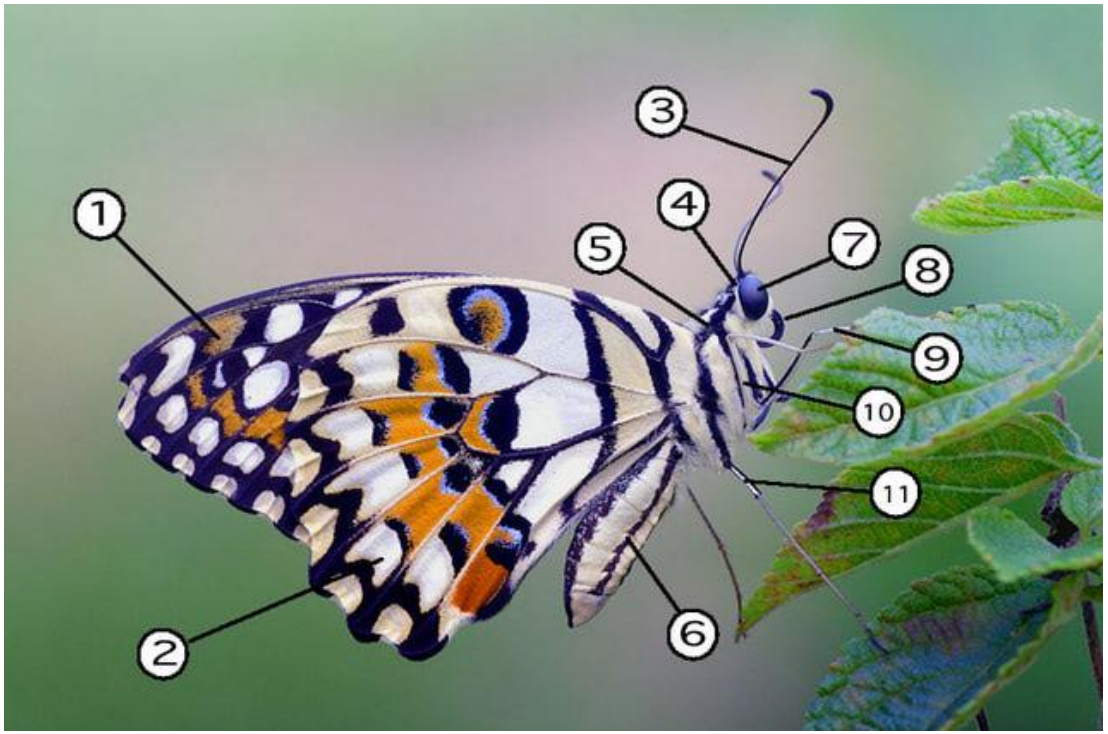
Recommended web resources

For more information of butterfly, visit these links:

1. Butterfly Facts for Kids (from the San Diego Zoo for Kids)
2. Critter Catalog: Butterflies and Moths (from BioKids: Kids' Inquiry of Diverse Species)
3. Lepidoptera: Butterflies and Moths (from EOL: Encyclopedia of Life)
4. http://www.enchantedlearning.com/subjects/butterfly/allabout/
5. https://florafaunaweb.nparks.gov.sg/Home.aspx

Picture of a Butterfly

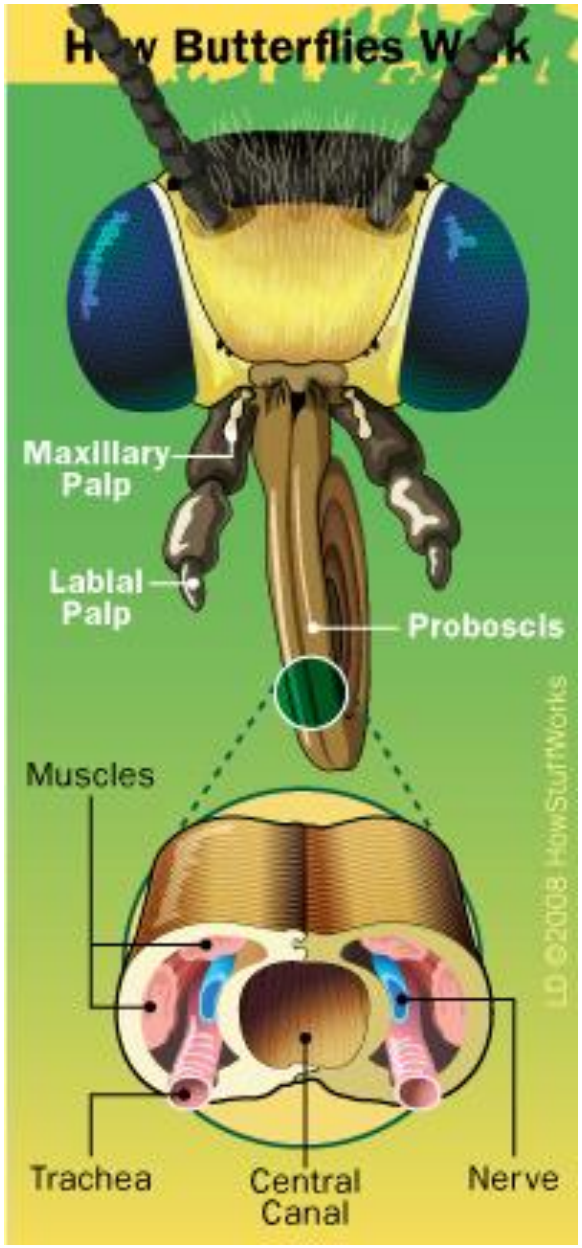
Information (Extracted from: http://insects.about.com/od/morphology/ss/butterfly-diagram.htm)



Whether large or small , butterflies share certain morphological features. This diagram highlights the basic common anatomy of an adult butterfly or moth.

1. **Fore wing -** the anterior wings, attached to the mesothorax (the middle segment of the thorax).
2. **Hind wing -** the posterior wings, attached to the metathorax (the last segment of the thorax).
3. **Antennae -** pair of sensory appendages, used primarily for chemoreception
4. **Head -** the first section of the butterfly or moth body. The head includes the eyes, the antennae, the palpi, and the proboscis.
5. **Thorax -** the second section of the butterfly or moth body. The thorax consists of three segments, fused together. Each segment has a pair of legs. Both pairs of wings also attach to the thorax.
6. **Abdomen -** the third section of the butterfly or moth body. The abdomen consists of 10 segments. The final 3-4 segments are modified to form the external genitalia.
7. **Compound eye -** large eye that senses light and images. The compound eye is a collection of thousands of ommatidia, each of which acts as a single lens of the eye.
8. **Proboscis -** mouthparts modified for drinking. The proboscis curls up when not in use, and extends like a drinking straw when the butterfly feeds.
9. **Fore leg -** first pair of legs, attached to the prothorax. In brush-footed butterflies, the fore legs are modified and not used for walking.
10. **Mid leg -** the middle pair of legs, attached to the mesothorax.
11. **Hind leg -** the last pair of legs, attached to the metathorax.

Information (Extracted from: animals.howstuffworks.com/insects/butterfly1.htm)



Not all of a butterfly's sensory organs are located on its head, though. At the end of each of its six legs, all of which attach to its thorax, are taste organs that the butterfly uses to find food. When a butterfly's leg touches a good food source, a reflex causes its proboscis to uncoil. This lets the butterfly retrieve and swallow the food, which is digested in organs in the butterfly's abdomen. A butterfly's reproductive organs are located in its abdomen as well.

A butterfly's most dramatic anatomical features are its wings. They're made of an extremely thin, transparent material called chitin stretched over a series of vein-like structures. The forewings are closer to the butterfly's head and are roughly triangular. The hindwings are closer to the tail and are shaped like fans or seashells.

The colors and patterns come from layers of tiny scales. It's easy to think of these as similar to fish scales, but they're structured more like short, tiny hairs. These scales protect the wings and provide insulation. Typically, the scales on the top of a butterfly's wings are brightly colored, while the scales and the underside are patterned for camouflage.

At first, the wings are wet and wrinkled. The butterfly has to expand and dry them as soon as it emerges from the chrysalis. To do this, it uses its body as a pump and forces fluid through a series of tube-like veins. It's a little like inflating a balloon -- as the veins fill with fluid, they slowly stretch the surface of the wings.

This is just one of the things a butterfly has to do as soon as it emerges to prepare for its life of flight. The butterfly also must also get rid of the waste produced during its transformation and the remains of its last meal as a caterpillar. This waste is known as meconium, and it has a bright red, often bloody appearance. Then, the butterfly has to thoroughly clean all its sensory organs so it can find food. Finally, it has to get its proboscis in working order. When the butterfly emerges, its proboscis is in two separate pieces that join together with tiny hooks and fringes. The butterfly has to curl and twist the two halves of its proboscis to create one drinking tube.

All this work takes place before the butterfly even takes flight.

Information (Extracted from: animals.howstuffworks.com/insects/butterfly1.htm)

Butterfly Kinesiology: Keeping Warm and Staying Aloft

The underside of this owl butterfly's wing blends in with woody textures and features a large eyespot to startle predators.

Whether a butterfly's body can function depends heavily on the weather. Strong winds and raindrops can damage butterflies' wings. Since butterflies have no way to repair wing damage, they usually find shelter when they sense changes in the weather that signal an oncoming storm. But temperature can be an even greater threat than rain or hail.

Butterflies' bodies work best at an internal temperature of about 82 degrees Fahrenheit (28 degrees Celsius). Butterflies can't move their wing muscles at all if they get too cold, which means they can't look for food or flee from predators. Many butterflies use the colors on their wings as a warning to predators -- they quickly flash bright colors or vivid, eye-like designs to startle a predator, and then they fly away. Butterflies can also show their colors to warn predators of their chemical defenses, such as toxins or foul-tasting compounds. In very cold weather, butterflies can't do any of this.

Unlike mammals, which can usually keep their temperature steady in all but extreme temperatures, butterflies have to use their surroundings to manage their body heat. And staying warm can be tricky. At night, butterflies roost, or take shelter, to protect themselves from the drop in temperature, but daytime is a different story.

Information (Extracted from: animals.howstuffworks.com/insects/butterfly1.htm)

On the island of Trinidad, a Julia butterfly rests with its wings spread open.

During the day, you may see butterflies basking with their wings open to catch the warmth from the sun. In chillier temperatures, butterflies can also use their wings as reflectors, opening them partially to focus the sunlight onto their thorax, where their wing muscles attach. Sometimes, butterflies will rest on warm rocks to soak up the heat from underneath. If the weather gets too warm, a butterfly may fold its wings flat and arrange itself so the sun hits the narrow edge of its wings rather than the broad side.

Sometimes, the sun doesn't provide enough warmth to get a butterfly moving. When this happens, the butterfly can move its wings in tiny increments in each direction, gradually warming the muscles. This movement is a lot like how your body shivers in cold weather to keep you warm. Eventually, the butterfly's muscles warm up, and it's able to fly.

A butterfly doesn't get to stop worrying about temperature once it's in the air. Butterflies' bodies get colder as cool breezes move over them, just like a hot spoonful of soup cools off if you blow over its surface. This is why butterflies often fly in short, rapid bursts on very cool days. A butterfly will warm itself until it's ready to fly, move quickly to the next flower or basking spot, and begin warming itself again.

Not all butterfly journeys involve short hops from flower to flower. More than 200 butterfly species migrate over long distances. The most famous is the monarch butterfly, which makes its journey to overwintering grounds in California and Mexico in several stages involving multiple generations of butterflies.

To make such a journey, butterflies have to eat lots of food and store lots of energy.

Butterfly Behavior: Eating and Puddling

A moth uses its proboscis to feed from an orange. Although they have some notable differences, moths and butterflies are quite similar.

Nectar is the staple of a butterfly's diet. In the plant world, nectar is a reward for animals that act as pollinators, including butterflies and bees. Flowering plants produce nectar that the insects want to eat, and in exchange the insects spread the flowers' pollen, allowing them to reproduce. While some insects, like bees, have lots of adaptations that allow them to carry lots of flowers, many butterflies don't. In fact, some butterflies don't spread pollen at all -- they take the nectar without helping the plant in exchange. In this sense, butterflies can be parasites.

It's easy to imagine butterflies as delicate insects flitting from flower to flower in search of nectar. Their long proboscis allows them to reach deep into flowers and retrieve the nectar found there. At first glance, the proboscis doesn't seem suited to consuming any other type of food. While it's true that sugary nectar is a primary source of energy for butterflies, they have lots of other dietary needs. Butterflies need nutrients and minerals to fly and reproduce, and many of these don't exist in the sweet liquids produced by flowers.

Information (Extracted from: animals.howstuffworks.com/insects/butterfly1.htm)

Swallowtail butterflies get nutrients from moist soil

Some butterflies also eat fruit. Some of these butterflies pierce the fruit's skin and drain the juices from inside. Others drink the juices from the surface of rotting fruit. Butterflies that prefer to drink from fresh fruit sometimes have a pointed proboscis, making it easier to puncture the fruit's skin.

Getting enough minerals and salt requires other food sources, including urine, dung and standing water. This is why you'll often see many butterflies drinking from very shallow, still water. This water has absorbed minerals from the soil underneath it, and the butterflies need these minerals to supplement their diet. This behavior is called puddling. Sometimes, butterflies will fly away from a puddle and return to it a few seconds later -- this may disturb the water, bringing more minerals to the surface. If there's no water around, a butterfly may regurgitate into the soil and then drink in the hope of retrieving minerals.

All of these behaviors lead up to the main purpose of a butterfly's life -- reproduction.

Pre-Visit Activity 2

Lesson	Objectives/ Outline of Lesson	Duration	Resources
Lesson 2: The Life Cycle of Butterfly			
Objectives: • To identify the stages in a butterfly's life cycle. • To arrange the order in sequence			
Introduction	1. Begin the lesson by saying to the children: "Let's describe a butterfly." 2. Sing the song – The Butterfly Parts Song (Tune: Head, Shoulders Knees and Toes), with appropriate actions. *Head, thorax abdomen, abdomen* *Head, thorax abdomen, abdomen* *six legs, four wings, antennae two* *Head, thorax abdomen, abdomen*	10 minutes	
Development	1. Hold up a picture of a caterpillar, and then a butterfly and get children to identify them. Ask: • What is a butterfly? *(Butterfly is a beautiful, flying insect with large scaly wings.)* • What is a caterpillar? *(A caterpillar is the larval stage of butterflies and moths.)* • Do you know how these two creatures are alike? 2. Tell children that they are actually the same creature, even though they look very different. This insect changes (metamorphoses) over its life cycle. 3. Ask again: What does that mean? 4. Inform children that today they are going to explore the life cycle of the butterfly. 5. Read "The Very Hungry Caterpillar" by Eric Carle to the class. As soon as the story is finished, look back through the book and ask children to think about how the caterpillar changes in the story. 6. After reading, ask: • What came out of the little egg? *(a tiny and very hungry caterpillar)* • Why did the caterpillar look for some food? (*He was hungry.*) • What did the caterpillar eat first? (*one apple*) • What made the caterpillar feel much better? (*one nice green leaf*)	30 minutes	"The Very Hungry Caterpillar" by Eric Carle (available at National Library) Picture of a caterpillar, (refer to page 26) Picture of a butterfly (refer to page 16) Chart of life cycle of a butterfly (refer to page 27)

	• What did the caterpillar build around himself? (*a small house, a cocoon*) • How did the caterpillar get out of the cocoon? (*nibbled a hole and pushed his way out)* • What did the caterpillar become? (*a beautiful butterfly*) • Can you identify some of the colours of the butterfly? 7. Explain that butterflies go through a growing process during which their appearance changes drastically. Show pictures of the stages and review each stage of a butterfly's life: egg, caterpillar, chrysalis, and butterfly. (*Egg: growing and developing, caterpillar: eating, chrysalis: changing form, butterfly: eating and reproducing.*)		
Closure	Teach the song - How a Butterfly Grows (To the Tune of: Farmer in the Dell), with appropriate actions. *The butterfly lays her eggs.* *The butterfly lays her eggs,* *Heigh ho the derry-o* *The butterfly lays her eggs* *Substitute with:* *The caterpillar hatches out.* *The caterpillar eats the leaves* *The caterpillar gets sleepy* *The caterpillar becomes a chrysalis* *The butterfly pops out.* *The butterfly flies away.*	5 minutes	
Follow-up Activity	Ask children to draw the Life Cycle of a Butterfly the ways in which the "very hungry caterpillar" changed during the course of the story. Or Have children cut out the pictures and arrange them in order.	15 minutes	Refer to page 33 and 34

TEACHING RESOURCES:

Recommended web resource

For more information, visit these links:

1. Metamorphosis Butterfly & Moth Life Cycles http://www.kidsbutterfly.org/lifecycle http://www.kidsbutterfly.org/links
2. http://shelledy.mesa.k12.co.us/staff/computerlab/Butterfly_Home.htm
3. http://www.youtube.com/watch? v=7AUeM8MbaIk
4. http://www.neok12.com/Metamorphosis.htm
5. https://www.youtube.com/watch?v=fUybrJmFv0c

Picture of a Caterpillar

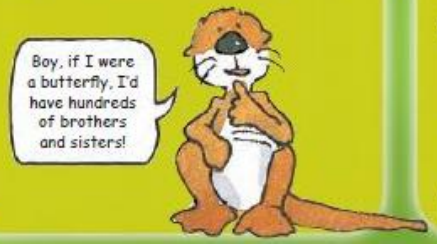
Life Cycle Chart

A Butterfly is Born

A baby butterfly goes through a lot of different stages before it's fully grown. This incredible change from tiny egg to fluttering butterfly is called **metamorphosis**.

Egg

A butterfly lays 200 to 500 eggs on a plant. Some butterflies lay eggs under leaves. Others lay them on top. Different butterflies lay eggs of different shapes.



Caterpillar

About 5 days later, tiny caterpillars hatch. Different butterflies have different kinds of caterpillars, but every caterpillar is an eating machine! First it eats its egg-shell, then it chomps on plants. It gets bigger, but its skin doesn't grow with it. So the caterpillar sheds its skin and grows a roomier one several times over the next few weeks.

Chrysalis

Finally, the caterpillar stops eating. Now it latches onto a plant. Its new skin hardens to form a tough covering called a chrysalis that keeps the caterpillar safe during the change to come. Inside, wings and antennae form. The caterpillar is turning into a . . .

Butterfly

In about 14 days, a butterfly breaks out of the chrysalis. It waits for its wet wings to dry and harden. Finally, it can fly!

Information

(Extracted from: http://www3.canisius.edu/~grandem/butterflylifecycle/The_Lifecycle_of_a_Butterfly_print.html)

Butterflies go through a life cycle. A butterfly has four stages in its life cycle. Each stage is different. Each stage also has a different goal. A butterfly becoming an adult is called metamorphosis. The life cycle process can take a month to year. It depends on the type of butterfly.

Stage 1: Eggs

In the first stage a girl butterfly lays eggs. A butterfly first starts out as an egg. A female butterfly lays the eggs on a leaf. She lays the eggs really close together. The eggs are really small and round. About five days after the eggs are laid. A tiny worm-like creature will hatch from the egg.

Information

(Extracted from: http://www3.canisius.edu/~grandem/butterflylifecycle/The_Lifecycle_of_a_Butterfly_print.html)

Stage 2: Caterpillar (Larve)

The second stage is the caterpillar. A caterpillar is sometimes called larve. A caterpillar is a long creature. It looks like a worm. Most caterpillars have a cool pattern. This pattern has stripes or patches. The caterpillar is hungry once it has hatched. It starts to eat leaves and flowers. It eats these all the time. It first eats the leaf that it was born on. This is the eating and growing stage.

A caterpillar grows really fast. This is because they eat a lot. A caterpillar is really small when it is born. It starts to grow fast. This is because it eats all the time. It grows so fast that it becomes too big for its skin. So the caterpillar has to shed its old skin. It then gets new skin. Caterpillars shed their skin four or more times while they are growing. A caterpillar shedding its outgrown skin is called molting.

Caterpillars do not stay in this stage very long. While they are in this stage, all they do is eat.

Information

(Extracted from: http://www3.canisius.edu/~grandem/butterflylifecycle/The_Lifecycle_of_a_Butterfly_print.html)

Stage 3: Chrysalis (Pupa)

Stage three is the chrysalis. This is when the caterpillar is done growing. The caterpillar makes a chrysalis. Another name for a chrysalis is a pupa. It is mostly brown or green. It is the same color as the things around it. Things like the trees, leaves, or branches. This is so that other animals cannot see it. This protects them. This keeps them from getting hurt.

This is the resting stage. It also is the changing stage. The caterpillar starts to changes. It starts to turn into a butterfly. It stops eating and crawls to the lid of the cup and spins a silk button on the lid. It hangs head down from the silk button in a characteristic J -shape. Its shape starts to change. It changes quickly. It then turns into a butterfly. All this happens in the chrysalis. This does not take a long time.

Information

(Extracted from: http://www3.canisius.edu/~grandem/butterflylifecycle/The_Lifecycle_of_a_Butterfly_print.html)

Stage 4: Butterfly (Adult) (Imago)

In stage four, the chrysalis opens. Soon a butterfly comes out. A butterfly is sometimes called an imago. It is also called an adult. Butterflies are very colorful. When the butterfly first comes out its wings are damp. The wings are also soft. The wings are folded against its body. The butterfly is also very tired. So the butterfly rests.

For the first day or two after emerging, the butterflies do not require food and probably won't accept any. You will notice a red liquid coming from the tail end of the butterfly. This is meconium, waste tissue, that is left over from metamorphosis.

Once the butterfly has rested, it will be ready to start flying. It will start to pump blood into its wings. This is to get them working and flapping. After it does this, it can now learn to fly. Butterflies cannot fly good at first. They need a lot of practice. It does not take long for them to learn. They learn fast. When it can fly, it will go look for food. The butterfly will also go look for a mate. It will soon find a mate. It will then lay eggs. The lifecycle will start all over again.

Information

(Extracted from: http://www3.canisius.edu/~grandem/butterflylifecycle/The_Lifecycle_of_a_Butterfly_print.html)

Summary

Butterflies go through a life cycle. There are four stages. The first stage is the eggs. This is where a girl butterfly lays eggs. She lays them on a leaf. The second stage is the caterpillar. This is where the eggs hatch. It takes about five days for the eggs to hatch. A caterpillar then comes out. At this stage, the caterpillar eats all the time. It also grows really fast. Once it is all the way grown, the third stage starts. This stage is the chrysalis. The caterpillar makes a chrysalis. The caterpillar is inside the chrysalis. Inside the chrysalis, it starts to change. It soon changes into a butterfly. Once the caterpillar has changed into a butterfly, the fourth stage starts. This is also that last stage in the life cycle. The fourth stage is the butterfly. A butterfly comes out of the chrysalis. It can now learn to fly. It can also find a mate. When it finds a mate, it lays eggs. Then the lifecycle process starts all over again.

Life Cycle of a Butterfly (worksheet 1)

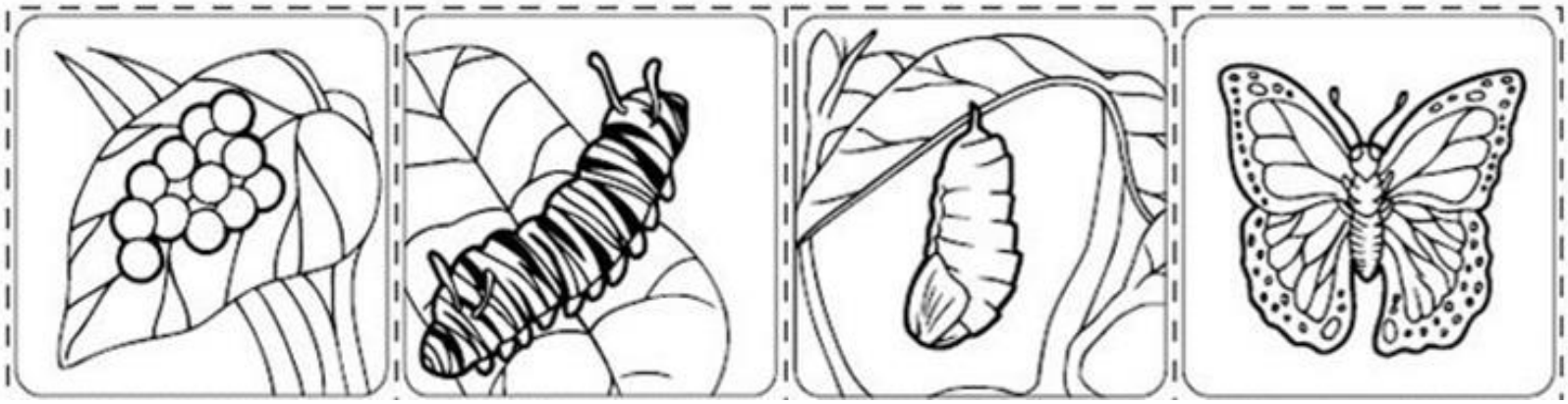
After you read The Very Hungry Caterpillar, use this sheet to list or draw how the caterpillar changed during the story.

1 egg	2 caterpillar
3 chrysalis	4 butterfly

Life Cycle of a Butterfly (worksheet 2)

Butterfly Life Cycle

1	2	3	4



Pre-Visit Activity *3*

Lesson	Objectives/ Outline of Lesson	Duration	Resources
Lesson 3: The Butterfly's Home			
Objectives: To learn about which environmental characteristics make up a favorable butterfly habitat.			
Introduction	1. Ask: • How are caterpillar and butterfly alike? *(They are actually the same creature)* • What is the butterfly's main activity in each stage? *(Egg: growing and developing, caterpillar: eating, chrysalis: changing form, butterfly: eating and reproducing.)* 2. Sing the song - How a Butterfly Grows (To the Tune of: Farmer in the Dell), with appropriate actions. *The butterfly lays her eggs.* *The butterfly lays her eggs,* *Heigh ho the derry-o* *The butterfly lays her eggs* *Substitute with:* *The caterpillar hatches out.* *The caterpillar eats the leaves* *The caterpillar gets sleepy* *The caterpillar becomes a chrysalis* *The butterfly pops out.* *The butterfly flies away.*	5 minutes	
Development	1. Ask children, • What do butterflies need to survive? • Have you seen any butterflies in our school garden or in the park? • What do butterflies do in the day? Night? • Where do you think butterflies sleep? • Has anyone visited a butterfly Garden? • What can you see in this garden? • Is there a difference between a butterfly garden and a garden in the school or in the park?	30 minutes	Butterfly Park by Elly MacKay (available at National Library)

	2. Encourage children to share and ponder on what they have already known or what questions do they have about butterfly gardens? Record their responses on the 3R chart. 3. Say: Today I have a read-aloud for you that ties into our upcoming field trip excursion. As I read aloud, listen for ideas that you might see during our upcoming trip or think about how this book might be related. 4. Read Butterfly Park by Elly MacKay to the children. 5. After reading, ask: • Why do you think the whole neighborhood helped the girl? • Could the young girl have finished the butterfly park without help • Why was the butterfly park so important to the girl? • Why do you think there are no butterflies in the park? • How does the park change by the end of the story? • Tell how planting flowers changed Butterfly Park • How can we care for our butterflies? • What do butterflies eat? (They eat nectar from flowers.) • Where do they rest? (They like to rest in the sun. A good butterfly garden should provide both sunny places and shady places where butterflies can cool off while they eat.) • Where do they get water? (They usually get water from puddles.) • What types of things, other than just plants, should be in a butterfly garden? (food, water, cover, and places to raise their young.) • Where do butterflies sleep? (At night, or during inclement weather, most butterflies perch on the underside of a leaf, crawl deep between blades of grass or into a crevice in rocks, or find some other shelter, and sleep.) • Where can they hide from the rain? (Butterflies hide when it rains. They usually go to the same places they do for the night. Some butterflies hide under large leaves, some crawl down into dense leaves or under rocks, and some just sit head down on grass stems or bushes with wings held tightly.) 6. Refer back to the 3Rchart and go through the reflection questions.		Chart (refer to page 39)

	7. Recap that a successful butterfly garden has plants that meet butterfly's needs during all four life stages, the egg, caterpillar, chrysalis, and adult. You can attract butterflies to your garden by providing them with food (plants and flowers), water, shelter, and places to lay their eggs (host plants). Butterflies drink nectar, so growing nectar-rich flowers will attract butterflies to your garden. Also, when their eggs hatch, the caterpillars eat the foliage of the plant they were laid on, so growing the right type of plants to feed caterpillars is important, since it will allow female butterflies to lay their eggs in your garden. 8. Inform children that they will be going to Hortpark Butterfly Garden tomorrow. They will be going to research on how a butterfly garden looks like.		
Closure	Teach children the rhyme on "Good Morning Butterfly" and encourage them to perform the appropriate actions after you. *Way up in the sky* *The butterflies fly.* *While down in their nests* *The butterflies rest.* *With a wing to the left* *And a wing to the right* *The sweet little butterflies* *Sleep all through the night.* *SH-h-h-h they're sleeping.* *The bright sun comes up.* *The dew falls away.* *Good morning, good morning* *The butterflies say.*	5 minutes	

Follow-up activity	Have children create a 'paper garden' by drawing their ideas to demonstrate which environmental characteristics make up a favorable butterfly habitat.	20 minutes	

TEACHING RESOURES:

Recommended books (available at National Library) :

1. Grow your own butterfly farm / John Malam
2. Super simple butterfly gardens: a kid's guide to gardening / Alex Kuskowski ; consulting editor, Diane Craig.
3. Design your own butterfly garden / Susan Sales Harkins and William H. Harkins

3R - Chart

RETELL What do you know about butterfly gardens?	**RELATE** What experiences have you had about the topic of butterfly gardens?	**REFLECT** What questions do you have about butterfly gardens?

Retell, Relate, Reflect – Sentence Prompts

RETELL: (telling about, using your own words, describing, summarizing…)
- This is about…
- I notice that…
- I especially like…

RELATE: (making connections, sharing memories, telling personal stories, sharing feelings…)
- This reminds me…
- This makes me think of…
- It makes me feel…
- I remember…
- What I found especially meaningful was…

REFLECT: (wondering about, asking questions, predicting, sharing insights…)
- I wonder if… I wonder why…
- Maybe…
- I think…
- Now I understand that…
- What do you think about…
- A question raised in my mind is...

Information

There are 4 main requirements for a successful butterfly garden. These are:

1. WARMTH

Pick a sunny spot to plant your garden. Butterflies are cold blooded and rely on warmth from the sun to warm their body and wings for flight. Also, incorporate rocks in your butterfly garden where butterflies can rest and sun themselves.

2. SHELTER & PROTECTION

Plant some shrubs in your garden to provide shelter from weather. Butterflies also require shelter from predators to feed and lay eggs. You will need to be as organic as possible, and resist using chemicals when butterflies or caterpillars are around.

3. FOOD

Food plants need to be chosen for the different stages of the butterfly lifecycle. Plant species are also often specific for different species of butterfly. You will need plants that provide food for the caterpillars (larval host plants) and also plants which provide nectar for mature butterflies. Larval host plants are critical for a successful butterfly habitat. Suitable host plants will persuade the butterflies to stay a while and lay eggs. Grow a variety of plants so that a reliable food source is available throughout the year.

4. WATER

Butterflies prefer to drink their water from mud pools, because they gain much needed salt and minerals from the mud. In your garden provide a moist shallow area in the dirt for them to drink from or include a bird bath or shallow dish with a handful of dirt added

On-site Activity

Lesson	Objectives/ Outline of Lesson	Duration	Resources
Lesson : The Butterfly Garden			
Objectives: • To Understand parks regulation and etiquette • To Observe and identify habitat needs of butterflies.			
Introduction	Before the trip, briefly talk about the behavioral expectations for the children. Review the following rules: • Stay with the adults. • Stay on the paths. • Walk instead of run. • Pick up your trash. • Keep your hands, body, and objects away from the plants and insects.	5 minutes	
Development	1. On a walk through the entrance of the Garden, point out the butterfly sculpture and invite children to describe what they have noticed. • Briefly explain that this is the sculpture of a Painted Jezebel butterfly. Share with them that: • They are usually seen flying at treetops, coming down only to feed at flowering plants • The caterpillars and eggs are usually found on Common Mistletoe plants. • Their bright colours serve as a warning, to ward off predatory animals (i.e. animals that want to eat them!) • The bright yellow and orange colours are actually on the underside of the wing. The upper side is white in colour with black veins. 2. Start the walk and move around the garden. Stroll through the garden and observe different species of butterfly host and nectar plant. Along the way, you can point out interesting plants, animals and other features you encounter along the way. 3. Explain that the first activity is a scavenger hunt. You will lead the children on a route and they will have to spot and find all the items on the scavenger hunt list. Refer to the questions they	40 minutes	Scavenger hunt list (refer to page 44)

	<u>Suggested scavenger hunt list</u>: • Birds like to eat butterflies and caterpillars. Find good places for butterflies to hide! *(They especially like hiding in trees, either under the leaves or within the bark. Butterfly will also look for a place where they're able to camouflage themselves so they can't be seen. This is done by their blending in with the natural objects around them, often pretending to be in inanimate object in order to not draw attention)* • Butterflies get thirsty. Where can they find water? *(Water for butterflies should be provided in the form of a puddle in a sunny area)* • Butterflies come in rainbow colors. Name all the colors you see. • Many creatures live in the garden. What insects, birds, mammals, or reptiles live in the garden? Ask a few children to share about some animals, like what they were doing (e.g. the changeable lizard basking in the sun, birds eating, chirping, etc.) • Butterflies like flowers of all sizes. Find a tall one, short one, and a teeny-tiny one. • Find each stage of the life cycle: the egg, caterpillar, chrysalis and butterfly. Where do you find them in the garden? 4. Praise the class for their good observational skills. Discuss how we should not hurt butterflies and caterpillars. The garden is their home (natural habitat) and we are the visitors. We can all help to protect them by not plucking or damaging plants and keeping our parks clean.		
Closure	Activity 2: Invite children to 'sketch' the butterfly garden.	15 minutes	Paper, Clipboard/ Cardboard, Pencil

Scavenger Hunt List

☐ **Birds like to eat butterflies and caterpillars. Find good places for butterflies to hide!**
(They especially like hiding in trees, either under the leaves or within the bark. Butterfly will also look for a place where they're able to camouflage themselves so they can't be seen. This is done by their blending in with the natural objects around them, often pretending to be in inanimate object in order to not draw attention)

☐ **Butterflies get thirsty. Where can they find water?**

Butterflies come in rainbow colors. Name all the colors you see.

☐ **Red**
☐ **Blue**
☐ **Yellow**
☐ **Green**
☐ **Orange**
☐ **Black**
☐ **Brown**
☐ **Others**

Many creatures live in the garden. What insects, birds, mammals, or reptiles live with the butterfly and caterpillar?

☐ **Bee**
☐ **Ladybug**
☐ **Grasshopper**
☐ **Bird**
☐ **Snail**
☐ **Lizard**
☐ **Ant**
☐ **Others**

Butterflies like flowers of all sizes. Find a

☐ **Tall one**
☐ **Short one**
☐ **Teeny-tiny one.**

Find each stage of the life cycle:

☐ **Egg**
☐ **Caterpillar**
☐ **Chrysalis**
☐ **Butterfly**

Post-Visit Activity

Lesson	Objectives/ Outline of Lesson	Duration	Resources
Lesson 5: The Butterfly Journal			
Objectives: • To observe growth and change in the caterpillars • To note down the changes in the journal • To understand that as wild creatures, the butterflies are part of the natural world and belong out in it.			
Introduction	1. Show picture of a Baby, and let the children talk about it. Ask: • Can a baby walk? • Can a baby talk? • Can a baby throw a ball? • Can you walk? (have the children walk in place) • Can you talk? (count to five with the children) • Can you throw a ball? (have the children pretend to throw a ball and catch it) • Why is that? 2. Inform children that they were once babies, but now they are growing bigger. 3. Teach the rhyme and invite them to do the actions after you. *Once I was a baby, baby, baby.* *(pretend to rock baby in arms)* *Once I was a baby, small, small, small.* *(gradually crouch down)* *Now I'm growing bigger, bigger, bigger.* *(gradually stand up)* *Now I'm growing bigger, tall, tall, tall!* *(stretch hands above head)* 4. Ask again: • Why are you getting bigger? *(They are growing bigger because they eat good foods, go to bed and sleep, and wash themselves to keep clean.)*	10 minutes	

	• Do you think a caterpillar gets bigger too?		
Development	1. Ask: • What are caterpillars? *(A caterpillar is the larval stage of butterflies and moths.)* • What do they look like? *(Caterpillars have a segmented body consisting of a head, a thorax (with three pairs of jointed legs with hooks), and an abdomen (usually with five pairs of stumpy prolegs).* • Where have you seen caterpillars? • What were they doing? *(The caterpillar will spend most of its time eating. Its primary function is to eat and grow in preparation for pupating.)* • What do caterpillars look like when they are grown? 2. Read a book on the title – Caterpillars by Rebecca Rissman. 3. After reading, Review the body parts of caterpillars. 4. Ask: • What happens to caterpillars when they are growing? *(They get bigger in size and have to shed its old skin. It then gets new skin. Caterpillars shed their skin four or more times while they are growing. The discarded skin looks black and is in a wrinkled wad.)* • What happens during the beginning of pupation? *(The caterpillars stop eating and crawl to the lid of the cup. They spin a silk button on the lid. They hang head down from the silk button in a characteristic J -shape. This means that chrysalises will form in a matter of hours.)* • How long did the caterpillar stay in the chrysalis? *(After approximately 10 to 14 days as a chrysalis, the butterfly is ready to emerge.)* • Do you think the butterfly is ready to take its flight once it emerges from its chrysalis? *(When the butterfly emerges from its chrysalis, its wings are small and wet, and the butterfly cannot yet fly. The butterfly must pump fluids from its abdomen through the veins in its wings, which causes the wings to expand to their full size. Next, the wings must dry and the butterfly must exercise flight muscles before it can fly.)*	40 minutes	Caterpillars by Rebecca Rissman (available at National Library) Butterfly Kit available at Oh Farm (refer to page 47 for more information)

	5. Inform children that they will be going to watch caterpillars grow and change. They have to record the changes daily and when the caterpillars have become butterflies, they will set them free outdoors, where they belong. 6. Distribute butterfly kit (2 caterpillars in each kit) for the children to observe. Give them opportunity to observe the caterpillars (with magnifying glass). Listen to the questions they ask. Likewise you can ask questions to help children identify the parts of the caterpillar. • What do you see in the cup? • What do you think it might be? • Can you describe how its look? • Can you identify the body parts? • What does it eats? • What do you think the caterpillar will look like tomorrow? 7. Remind children that it is their duty and responsibility to look after the caterpillars. Plan a daily feeding schedule of the class 'pet' so that every day (or week), someone new is in charge of feeding the caterpillars.		
Closure	Children to use illustrations to record their observations on the Butterfly Journal (record the observation once every 3 to 4 days).	10 minutes	Butterfly Journal (Refer to page 49)

TEACHING RESOURCES

- **Recommended books** (available at National Library):

1. Caterpillars of Singapore's Butterflies by Horace Tan and Khew Sin Khoon
2. Creeping caterpillars / by Robin Nelson.

- **Butterfly Kit**

Oh Chin Huat Hydroponic Farms Pte Ltd
14A, Bah Soon Pah, Singapore 769970
Tel : 65-67538011
Email : ohfarms@singnet.com.sg
Webpage: www.ohfarms.com.sg
Opening Hours: Monday to Saturday, 8.00 am to 5.00 pm

DURING THE DAILY OBSERVATION:

Keep aside a time for daily update on the growth of the caterpillar. Allow time for observation and to record the observation.

1. OBSERVING CHANGE:. GROWTH AND MOLTING

- . To help children focus on the changing caterpillar, ask some specific questions, such as:
- What do you see in the cup that was not there the last time you looked?
- Where do you think it came from?
- What do you think it might be?
- Does the caterpillar seem larger?

2. FROM CATERPILLAR TO CHRYSALIS

- Ask them to notice the size of their caterpillars, their level of activity, whether or not they have spun as silk button on the lid of the container, and their position in the container (may be hanging in J-shape from lid).

3. THE BUTTERFLY EMERGES

- Remove the empty chrysalis from the box for the children to see. Have them observe how it is split from end to end.
- Before releasing the butterflies, hold a brief discussion indoors about it. Ask the class, "Do you think we should keep the butterflies in the box or let them go? Try to give a reason for your answer."
- Help children to recognize that the butterflies can survive in the outside world because that is their natural home. The advantage of letting them go are that they will have more space, they will be able to find flowers, -and they will mate and produce eggs, thus ensuring that there will be more butterflies.
- Have a little farewell with the butterflies.

Recommended web resource

Visit this link to get information on how to take care of the caterpillar - http://www.ohfarms.com.sg/butterfly_basics/caterpillar_care

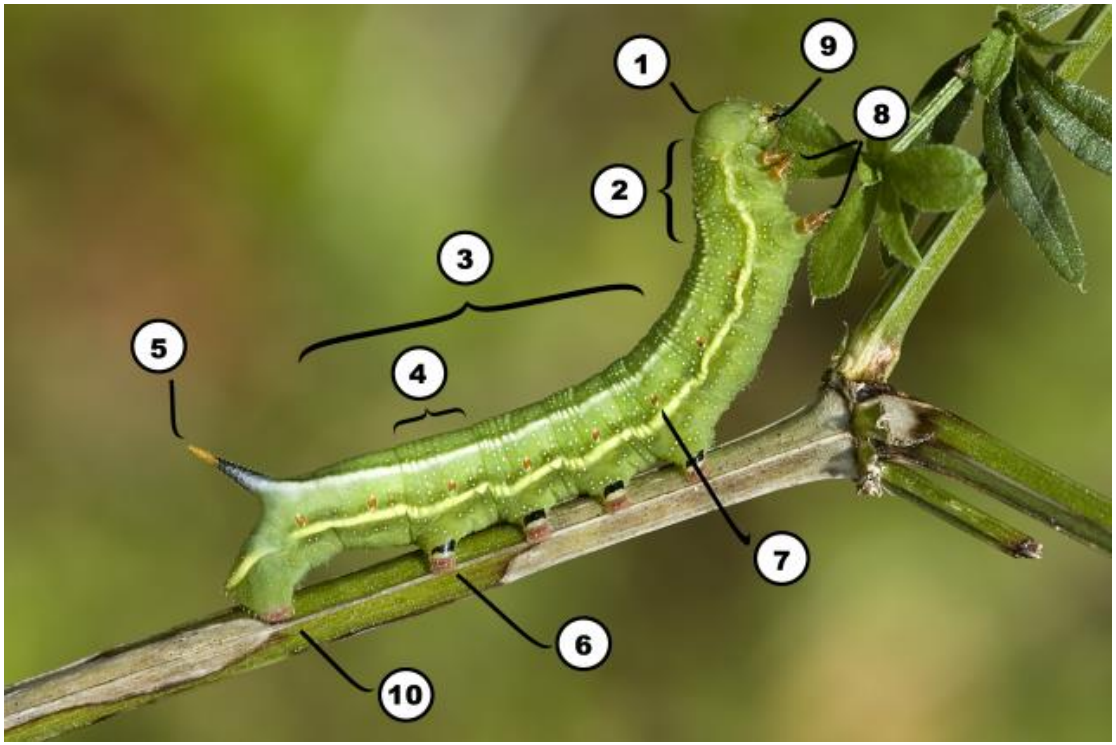
The Butterfly Journal (Recording Sheet)

Does your caterpillar grow?
A caterpillar sheds its skin five times before it becomes a chrysalis. Keep a record of the changes in the caterpillar. Draw some pictures of the caterpillar as it grows. Be sure to write the day number under each picture.

Day # _____ Day # _____ Day # _____

Day # _____ Day # _____ Day # _____

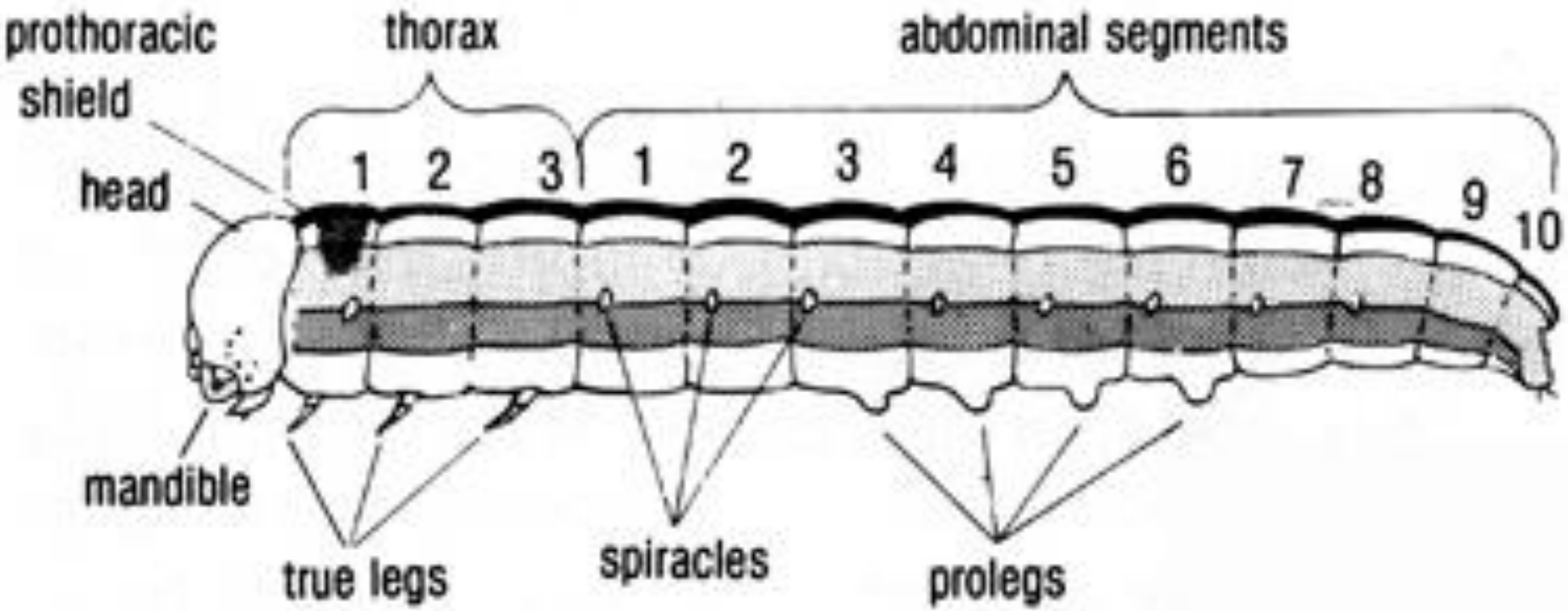
Information (Extracted from: http://insects.about.com/od/morphology/ss/caterpillar-diagram.htm)



Caterpillars come in many colors, shapes, and sizes. Some caterpillars are quite hairy, while others are smooth. Regardless of these varied features, all caterpillars share certain morphological features. These common features are labelled and described in this caterpillar diagram.

1. **Head -** the first section of the caterpillar body. The head includes the eyes, called stemmata, the mouthparts, the small antennae, and the spinnerets, from which the caterpillar produces silk.
   Thorax - the second section of the caterpillar body. The thorax consists of 3 segments (t1, t2, and t3), 3 pairs of true legs, and a dorsal plate called the prothoracic shield.
3. **Abdomen -** the third section of the caterpillar body. The abdomen is 10 segments long (a1-a10), and includes the prolegs, most of the spiracles, and the anus.
4. **Segment -** a section of the thorax or abdomen. A caterpillar has 3 thoracic segments and 10 abdominal segments.
5. **Horn -** a dorsal projection present on some caterpillars, such as hornworms. The horn may help camouflage the larva.
6. **Prolegs -** unsegmented legs, usually found in pairs on the 3rd through 6th abdominal segments. The soft prolegs bear hooks on the ends which the caterpillar uses to cling on to surfaces. The number and size of the prolegs can be an identifying characteristic.
7. **Spiracle -** an external opening of the tracheal system that allows gas exchange (respiration). The caterpillar contracts muscles to open and close the spiracles. One spiracle pair is on the first thoracic segment (t1); the other 8 pairs are on the first 8 abdominal segments (a1-a8).
8. **True legs -** three pairs of segmented legs, also known as thoracic legs, located in pairs on each of the three thoracic segments. Each true leg ends in a tiny claw.
9. **Mandibles -** the jaws, used for chewing.
10. **Anal prolegs -** a pair of unsegmented legs located on the last abdominal segment.

Information


prothoracic shield
thorax
abdominal segments
head
1 2 3 1 2 3 4 5 6 7 8 9 10
mandible
true legs
spiracles
prolegs

Engagement with Community and Parents

Going Green: Parents and Children get into the Soil on Planting Day

Before the hands-on, parents and children attended a briefing conducted by Mr Yeo Chow Khoon, the Npark Community In Bloom (CIB) Manager.

On 20th October 2016, parents and children celebrated their FIRST Planting Day which was headed by Mr. Yeo Chow Khoon, the Npark Community In Bloom (CIB) Manager.

The enthusiastic group of parents from all walks of life came together to wield a shovel and plant some beautiful plants; to build the butterfly garden from scratch. But it was not like Jack and the Beanstalk; tossed some magic beans and a giant beanstalk shoot up. This was where CIB Community In Bloom (CIB) jumped in and provided useful guidance to help our garden flourish.

We are pleased to work hand-in-hand with Mr. Yeo Chow Khoon, in enhancing our school's garden to improve the learning environment for nature, outdoor and discovery. With his help, our young children and parents were all set ready.

These adorable and eager to learn children, were busy getting their hands into the soil planting the plants. The children loved digging and getting their fingers dirty. They really deserved a pat on the back to celebrate this success! Most importantly, getting back to nature is very important for children. It helps them to feel calm and relaxed, while exploring and developing their curiosity.

Kudos to all our parents and children! Thanks to every one of them for their commitment and dedication to enhancing our greenery and adding to the neighbourhood's biodiversity and our quality of life.

"First you dig… next you place the plant into the hole and you carefully pat, pat, pat the plant into place."

Mr Yeo Chow Khoon supervised the day, and was very helpful adding his knowledge and time with designing the garden.

Parents worked efficiently during the day encouraging planting and sprinkling the earth with the children. On the other hand, the children were rather curious and liked to learn by doing, and loved to play in the dirt.

A cold 'showering' in the sun was the perfect way to end the planting day. Watering the plants was a big hit too, only lifting the full bottle was a challenge.