EDUCATIONAL KIT
INSECTARIUM

4-5 YEARS OLD

Insects and Flowers

Communauté métropolitaine de Montréal

Montréal

espace pour la vie montréal

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01


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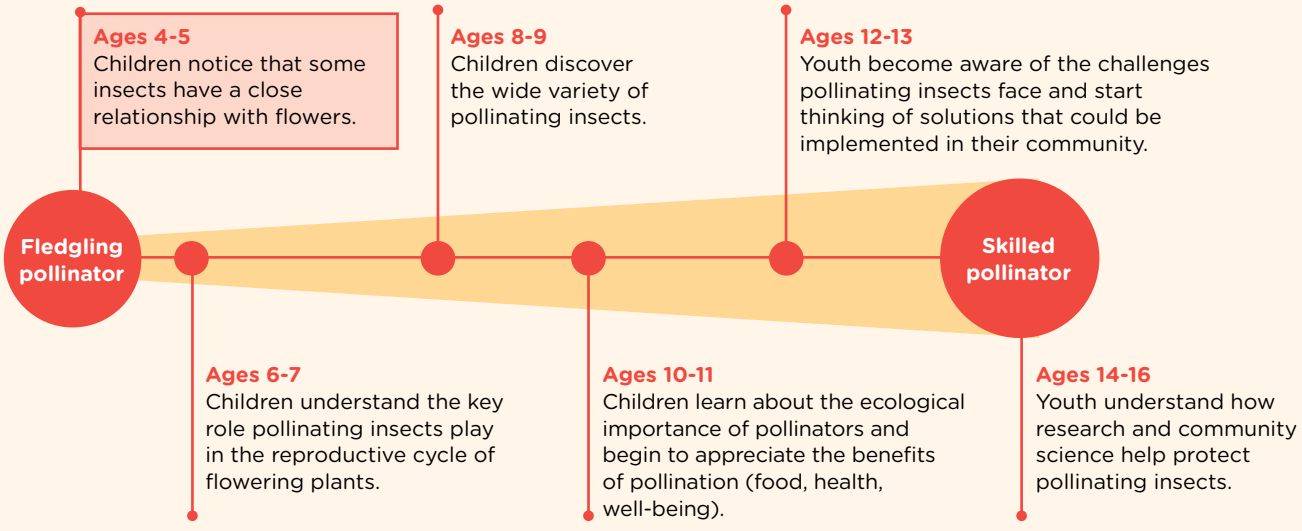
OVERVIEW

OVERVIEW OF THE KITS

This kit is part of a series of educational kits about pollinating insects, curated for youth aged 4 to 16. Each kit builds on the last, with themes and goals that evolve by age group, from exploring the basics of pollinators to learning about the threats they face and ways to help protect them. Every kit stands on its own, so there is no need to complete one before using another.

Progression of Learning Goals Across the Kits



WHY USE THESE KITS?

Pollinating insects play a vital role in keeping ecosystems healthy and supporting food production. But these tiny, essential creatures are facing serious challenges: habitat loss, climate change, pollution, and more. All of these threats are causing their populations to decline.

Thankfully, many people, organizations and communities are working to slow this decline. Every action that helps protect pollinators makes a difference. Learning about them is already a meaningful first step. **By using this kit, you are helping raise awareness about these important insects and encouraging kids to care about their protection.**

WHO IS THIS KIT FOR?

This kit is ideal for **educators, camp leaders, and anyone else** looking to introduce a group of young children to the captivating world of insects. The simple activities require few materials and can be done in a classroom, at a community centre or outdoors. You can run the activities one after another in a single session or spread out over several days—or even weeks. **The kit is designed for groups of at least four children, aged 4 to 5**.

Theme and key messages of this kit

This kit introduces children aged 4 to 5 to the close relationship between pollinating insects and flowers.

Through the activities, children will learn the following key messages:

1

Pollinating insects visit flowers to find food.

2

Insects seen on flowers are often pollinators.

02

BEFORE YOU BEGIN

This background information will help you lead the activities and answer children's questions. Feel free to rephrase in your own words, while keeping the key scientific terms intact.

POLLINATORS 101

GLOSSARY

Arthropods:
A group of animals with jointed legs and a hard outer shell (exoskeleton).

Insects:
Arthropods with six legs and a body divided into three parts: the head, thorax and abdomen.

Insect pollinators:
Insects that carry pollen from the stamens of one flower to the pistil of another flower of the same species.

Pollination:
The transfer or movement of pollen grains.

Setæ:
Tiny hair-like structures found on the bodies of many insects.

What is an insect?

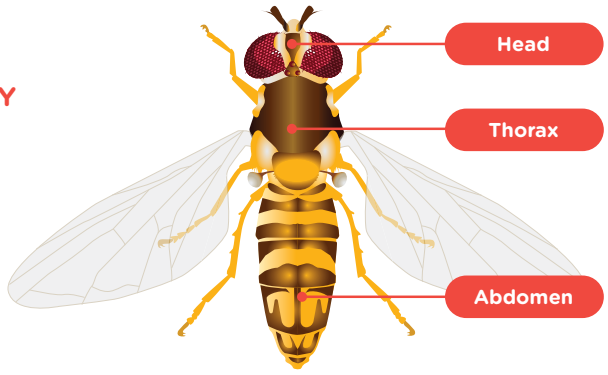
Insects are **animals that are part of the arthropod group**. Arthropods have jointed legs and an **exoskeleton**, or in other words, a hard outer shell. This group also includes arachnids (spiders), myriapods (millipedes), crustaceans (crabs) and others.

Insects differ from these other arthropods in three key ways:

- They have **six legs**
- They often have **wings**
- Their **bodies are divided into three parts**: the head, thorax and abdomen

Insects come in an incredible variety of shapes and colours, and they are adapted to many different environments.

PARTS OF AN INSECT'S BODY



What is a pollinating insect?

Pollinating insects are insects that, **because of their body shape and ability to fly, move pollen from one flower to another of the same species**. This helps fertilize the flower and, eventually, leads to the production of fruit.

There is a wide range of insect pollinators,
mainly from four groups:

Diptera
flies

Lepidoptera
butterflies and moths

Coleoptera
beetles

Hymenoptera
bees, bumble bees, wasps

To spot a pollinator in nature, **watch to see if it visits multiple flowers**. If it moves from flower to flower, it's probably a pollinator!

Why do pollinating insects visit flowers?

Insects visit flowers to **find food**, mainly in the **form of nectar and pollen**.

NECTAR

Nectar is a **sweet liquid made mostly of water and sugars**. It provides a source of energy for pollinating insects. Some social insects, like bumble bees and honey bees, collect nectar to make honey, which they store as food to feed their colony.

POLLEN

Pollen, on the other hand, **is a fine powder made up of microscopic grains that contain the male reproductive cells of flowering plants**. It's rich in nutrients—proteins, fats, vitamins, and more—making it a valuable food source for many pollinating insects. Several species of hymenopterans collect pollen either to bring back to their colony or to shape into a small ball, which they leave near their eggs, often placed in the ground or in small cavities. This food reserve allows the larvae to feed themselves as they grow.

What do plants get out of it?

Pollinating insects help flowering plants complete a key stage in their reproductive cycle: pollination. As mentioned earlier, pollination is the transfer of pollen grains from one flower to another of the same species. **Once a flower receives pollen, it becomes fertilized and can develop into a fruit containing seeds**, which will grow into new plants.

To improve their chances of being pollinated, flowering plants have every reason to attract pollinators that help move pollen from flower to flower. They use a variety of signals to do this. For example, a flower's colour, shape and size help it stand out visually from the rest of the plant. Scents also play a role by attracting pollinators and guiding them toward the parts of the flower that hold nectar.

In short, pollinating insects and flowering plants have a **mutually beneficial relationship: the insects find food, and the plants are able to reproduce**.

TIPS FOR GUIDING THE GROUP

Your role is to lead the three activities—but more importantly, to guide the children as they explore the world of pollinators. Here are a few tips to help you along the way.

Your audience:
4–5
year-olds

Children aged 4 and 5 are **naturally curious, full of imagination, and love stories**. At this stage, they're becoming more independent, can take on small responsibilities, wait their turn, and follow a short sequence of steps. **Their attention span typically ranges from 10 to 15 minutes**.

1

Make sure you understand how each activity works, and give children clear instructions *before* getting started.

When explaining instructions to the group, speak clearly and use examples if needed to help illustrate your point.

2

It's perfectly okay not to have all the answers!

With over a million insect species in the world, it is completely normal not to know everything! If a child asks a question and you are not sure of the answer, be honest and share what you do know. The most important thing is to provide accurate information and nurture their curiosity about the topic.

"Can butterflies eat from all flowers?"

– Child

"Wow, that's a really great question! I'm not sure if they can eat from every type of flower out there. But I do know that to find flowers they like, they use their antennae to detect scent and their eyes to spot beautiful colours." ***– You***

This kit gives you the key concepts you need to better answer questions and guide the group's learning about pollinating insects.

3

Welcome children just as they are.

Children already have their own thoughts and experiences related to insects. Some may be afraid of stinging bugs, for example. Acknowledge their feelings with kindness, and reassure them that the activities are safe.

4

Make it interactive.

This kit is designed for dynamic, hands-on learning. When speaking to the group, ask questions to keep the children engaged and attentive.

5

Respect their attention span.

Watch for signs of fatigue or disengagement, such as restlessness, distraction or a drop in interest. If you notice these signs, switch to a different activity or take a short movement break.

6

Use a keyword to regain attention or to signal quiet time.

Before starting, check with the person in charge to see if there's a keyword they use to bring the group back to calm.

If not, suggest your own keyword to the children (for example: "1, 2, 3... butterfly!"). You can also pair it with a simple gesture, such as putting a finger to the lips or raising an arm in the air.

TIPS FOR SUPPORTING ACCESSIBILITY AND INCLUSION

Some of the children in your group may have functional limitations (e.g., hearing loss, learning difficulties). These challenges are not always visible. Here are a few ways to ensure that all children—whether they have a disability or not—can fully take part in the activities:

1. **Adapt the activity** to meet each child's needs, especially when it involves movement.
2. Encourage children to **choose the position that's most comfortable** for them—standing or sitting—during movement-based activities.
3. **Make sure your face is visible when speaking** to the group. Facial expressions and lip movements help with understanding.
4. **Adjust your voice volume** to suit the group and the setting.
5. **Repeat what a participant has said** to make sure the whole group has heard and un-derstood.
6. **Check for understanding**, and if needed, repeat or rephrase.
7. **Explain any words or ideas** that might be new to the group.
8. **Let the children know what to expect**: outline the plan and how long the activity will take.
9. Choose a **calm, quiet location** that minimizes distractions (e.g., noise or other near-by activities).
10. Make sure any images you show are **visible to the whole group**. If possible, project them on a screen.
11. When showing images, **describe what's in them** (e.g., "*Look, this picture shows Comma the butterfly unrolling his proboscis to drink nectar*").
12. If you are not familiar with the group, **ask the group leader** if any children have func-tional limitations. Find out how you can help them participate fully.

ACTIVITY 1 – LET'S GET STARTED !

HOW TO INTRODUCE THE ACTIVITY

Let the group know that you'll be spending some time together learning about pollinating insects.

Start by introducing a few basic concepts, since many children may never have heard the word "pollinator" before. To spark discussion, ask what their favourite insect is. Then invite them to say whether they've heard the words "pollinator" or "pollen" before, and to share what they think those words might mean. Wrap up with a short, simple explanation of what pollinating insects are, focusing on their special relationship with flowers.

Throughout the kit, you'll find sample conversations to help you lead the activities. When asking questions, listen to a few answers while keeping an eye on our timing.

*"Hi everyone! My name is Justin. Today, we're going to spend some time together talking about something I really care about: pollinating insects! Have you ever heard the word **insect**? You have?*

Great! And what exactly is an insect? That's right. They're animals that are often small and have six legs, like an ant, a butterfly, a bee or a ladybug.

*I'm here today to talk to you about pollinating insects. Have you ever heard the word **pollinator**, or the word **pollen**?*

Yes, well said—pollen is found in flowers. So, pollinating insects are insects that visit flowers."

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Activity name: Flowers and the Senses

Type: Sensory exploration

Duration: 5 minutes

Materials:

One of the following options:

- **Preferred option:** Flowering plants in a garden or park. Choose flowers the children are likely to recognize and might see again in everyday life.
- Dried flowers
- Printed photos of flowering plants (to cut out, p. 17) and a bit of imagination

Activity description:

In this activity, children focus their attention on flowers by engaging several senses: sight, smell and touch.

How to play:

1. Bring the children close to the flowers.
2. Invite them to observe the flowers. Draw their attention to the colours, shapes and sizes.
3. Next, have the group smell—or imagine the smell of—the flowers.
4. Ask the children to gently touch the flowers, or imagine what they might feel like.

WRAP-UP

Ask the children to share what they like about flowers. Then, guide the discussion toward pollinators and why these insects might enjoy visiting flowers. Their answers will help create a natural transition to the next activity.

"When you look at, smell and touch flowers, how does it make you feel? What do you like about flowers?

Yes, they have beautiful colours! And they really do smell nice. Remember earlier, I told you about pollinating insects—the ones that visit flowers. Why do you think they go to flowers?

Do you think they also like how flowers smell and look?"

1 Choose flowers that are familiar to you and safe to use. Keep in mind that some plants can cause skin or respiratory allergic reactions, while others may be toxic if ingested.

ACTIVITY 2 – IN ACTION !

HOW TO INTRODUCE THE ACTIVITY

At the end of Activity 1, the children were asked why they think pollinators visit and enjoy flowers. Use their answers to introduce Activity 2.

"So, if I understand correctly, you think pollinating insects visit flowers to find food and because they think flowers are beautiful? Well, let's see if that's true! We're about to find out by following the adventures of a butterfly named Comma!"

Activity name:
The Feast of Virgule the Butterfly

Type: A mime-along story

Duration: 15 minutes

Printables:

- Story illustrations and script to mime out (p.19)

Optional step

If time and materials allow, **help the children make simple butterfly costumes**. Wearing the costumes during the story helps everyone step into the role of the main character.

Activity description:

In this mime-along story, children act out the movements and emotions of a pollinating insect.

How to play:

1. Place the story illustrations where all the children can see them (for example, by sticking them to the board).
2. Read the story aloud, taking your time to speak clearly and use expression in your voice to keep the children engaged.
3. Each time a **butterfly icon** appears in the story, act out the movement or emotion that Comma is experiencing.
   For example: "He slowed the flapping of his wings and glided gently toward the ground."
4. When an illustration icon appears, guide the children's attention to the corresponding image.

Before starting the story, take a moment to practise a simple mime gesture with the children, like flapping your arms like butterfly wings. This short movement activity will help them get ready to engage with the story.

Wrap-up

Take a moment to talk with the children about what they learned in the story. The goal is to help them think about how the tale answered the original question: "Why do pollinating insects visit and enjoy flowers?"

"Thank you for listening so nicely to The Tale of Comma the Butterfly. You did such a great job acting out his movements and adventures—well done!

So, in the story, what was Comma looking for? Yes, he was looking for something to eat. His tummy was rumbling so much it made funny noises! And what did he finally eat? That's right—nectar he found in the garden's flowers.

But how did he find those flowers? Yes, he did see the other insects, but there were some other clues that helped him earlier in the story. Do you remember? That's right—he smelled the flowers' scent with his antennae and saw their colours with his eyes.

So we can say that pollinating insects, like Comma, use their antennae to smell scents and their eyes to see colours. These clues help them find flowers that have food for them. That food is called nectar and pollen."

ACTIVITY 3 – WHAT WE LEARNED !

HOW TO INTRODUCE THE ACTIVITY

Simply introduce the activity.

"Now that we know pollinating insects have a very special relationship with flowers, we're going to play a fun game where we help the insects and flowers find each other."

Game name:
Pollinators and Flowers Make a Match

Type: Memory game

Duration: 10 minutes

Location: Sitting on the floor or at a table

Printables:

- Cards (p. 31)

If you have a large group, feel free to print several sets of cards and divide the children into small teams. Just make sure each team is supported by an adult.

Description:

In this memory game, instead of matching two identical images, children match pairs made up of one pollinating insect and one flower.

Goal of the game:

Work together to flip over all the cards and find the right pairs: one pollinating insect and one flower.

How to play:

1. Shuffle the cards and place them face down on the playing surface.
2. Invite one child to turn over two cards.
3. Check the pair:
   - If the cards make a match (a flower and a pollinating insect): Great job! You've helped an insect and a flower find each other. Place the pair face up off to the side.
   - If it's two flowers or two insects: Turn them back over and continue.
4. The game ends when all the cards have been matched correctly.

WRAP-UP

Since this is the final section of the kit, take a few minutes to reflect on what the children experienced, and ask them what they learned.

"Congratulations! You matched all the cards by pairing the pollinating insects with their flowers.

We had a wonderful time together today. First, we took time to look at, smell and touch real flowers. Then, we shared the adventures of The Tale of Comma the Butterfly. Comma's story helped us understand that pollinating insects, like him, find food in flowers—using their eyes and antennae to spot them. And finally, we played a card game where we had to pair a pollinating insect with a flower.

What's an important message you learned today?

Great answers—everything you said is important! For me, the message I'll remember is that pollinating insects and flowers have a special relationship. Next time you visit a garden or see some flowers, take a moment to look closely. If you spot an insect, you can guess it might just be a pollinator!"

OPTIONAL ACTIVITY – WHAT'S NEXT?

Once the main activities are done, consider finding new ways to highlight the special relationship between pollinating insects and flowers. These follow-up activities will help reinforce what the children have learned.

Here are a few ideas you can try in the weeks or months to come:

Revisiting Comma's story

You can repeat the storytelling activity—or any of the others from the kit. At this age, children enjoy repetition and familiar routines. Keep the illustrations visible to help them become more familiar with the story. Later on, invite the children to retell the story themselves using the pictures as a guide.

Observing pollinating insects

Go flower-spotting in a garden, yard or park. Take time to look closely and see if any insects are nearby. Encourage the children to notice details like the insects' body shapes, sizes, behaviours, as well as the colours and scents of the flowers.

Flower and insect parade

Use simple materials (paper, cardboard, paint, autumn leaves, twigs, etc.) to create flower and insect costumes. Then organize a parade where children form flower–insect pairs.

Let's Move Like Flowers!

On the next page, you'll find a movement activity sheet.

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OPTIONAL ACTIVITY

Activity name:
Let's Move Like Flowers

Type : Sensory and imaginative movement

Duration: 5 minutes

Materials: aucun

Activity description:

In this activity, children imagine themselves as flowers. Through gentle movement and visualization, they explore the sensory world of flowers.

How to play:

1. **Starting position – The peaceful flower**
   In a calm voice, ask the children to close their eyes. Invite them to imagine that they are peaceful, colourful flowers swaying gently in the breeze of a sunny garden. Encourage them to shape their bodies like flowers—arms can become petals.
2. **Waking up to the sun**
   Invite them to slowly stretch their arms toward the sky, like petals opening to the warm, gentle sunlight.
3. **Scents of the garden**
   Ask the children to take slow, gentle breaths and imagine a soft breeze carrying the scent of nearby flowers. Tell them that a butterfly (or another pollinating insect) has detected this sweet scent with its antennae.
4. **Petal texture**
   Guide the children to softly touch their own arms, imagining they are feeling delicate, silky, fragile petals. Invite them to imagine the butterfly landing on the petals.
5. **Diversity**
   Ask the children to strike a new flower pose. On your signal, everyone opens their eyes and looks around. Every flower is different... and beautiful! These flowers are so beautiful, fragrant, and colorful that they attract many pollinating insects.

PRINTABLE MATERIALS

Activity 1
Let’s get started!

NEW ENGLAND ASTER

PRINTABLE MATERIALS

Activity 2 In action!

A MIME-ALONG STORY

THE FEAST OF COMMA THE BUTTERFLY

Illustration: Lucie Crovatto

Illustration to show.

One beautiful summer morning, Comma the butterfly reaches a big milestone in his life: he emerges from his chrysalis, where he spent several days transforming from a caterpillar into a butterfly.

He feels the gentle rays of the sun on him—on his orange wings—as he opens them slowly... very slowly.

But suddenly... uh-oh! A strange feeling washes over him. His tummy makes funny noises.
Comma is very hungry! The last time he ate, he was still a caterpillar!
He tries to remember...
What does he like to eat?
He can't remember!

So, Comma flaps his wings and sets off in search of a meal that's right for him.

Illustration: Lucie Crovatto

Illustration to show.

Down on the ground, Comma spots a reddish, furry animal with tiny paws and a bushy tail.
It's a squirrel! And he's eating something...

Curious, Comma flies closer.
He slows the flapping of his wings and glides gently toward the ground.

In his tiny voice, he says to the squirrel, "Hello, what are you eating?"
The squirrel answers cheerfully, "Hi there, little butterfly! I'm having a feast. I just dug up a stash of nuts I'd hidden underground. Want one, friend? I've got plenty to share."

Comma is so happy.
Finally, his tummy will stop rumbling!
He watches the squirrel eat.
His friend has big, strong teeth that let him crunch into the nuts.
Comma gets ready to take his first bite.
He leans in, takes aim...
But as he opens his mouth, a long, straw-like tongue unrolls in front of him.
Strange!

Still determined, he doesn't give up.
He brings his tongue closer to the nut and...
Bonk!
It bumps against the hard shell.
Comma tries to slurp, but nothing happens.
The nut stays just the way it is.

That's when he realizes: He doesn't have teeth like the squirrel.
He can't eat nuts!

He tries to remember...
What does he like to eat?
He still doesn't know!

So, Comma flaps his wings and sets off in search of a meal that's right for him.

Illustration: Lucie Crovatto

Illustration to show.

While flying through the sky, Comma meets another animal who flies too—a bird!
Maybe butterflies and birds eat the same thing?

Shyly, Comma asks, “Hello, bird. Can I ask what you like to eat?”
In his sweet, musical voice, the bird replies, “Hello, little butterfly! That’s a great question! I love seeds and small fruits.”
“Oh, that sounds tasty!” says Comma enthusiastically.
The bird adds: “Ah! I almost forgot—I also love to snack on delicious insects.”

Comma starts to tremble.
Wait—does the bird eat insects... like him?

“Yes, insects! In fact, I’m feeling a bit hungry right now. I think a butterfly would make a perfect snack!” says the bird excitedly.
Panicked, Comma quickly replies: “Uhh... thanks for the info. I really have to go!”

He flaps his wings as fast as he can to escape,
but the bird is fast and begins to chase him.
Comma veers left,
Then right,
He flies high into the sky,
Then low,
Very low, close to the ground.

He’s scared... but he spots a bush!
He hides in its branches and leaves, folding his wings tight.
The bird arrives and looks all around.
Comma stays perfectly still—like a statue.

After several long minutes, the bird gives up and flies far, far away.
Hooray! Comma is safe!
He gently flutters his wings in relief.

But... gurgle gurgle! His tummy is still growling.
He tries to remember...
What does he like to eat?
He still doesn’t know!

So, Comma flaps his wings and sets off once more to find the right meal.

Illustration: Lucie Crovatto

Illustration to show.

In escaping the bird, Comma has flown far from the forest.
Now he finds himself in a place that looks very grey: the city.
He looks around but doesn't see anything he could eat.
It makes sense—he's surrounded by tall buildings, shops and cars.
He's hungry. Very hungry. His wings are heavy, and he flies slowly.

He's almost out of energy...
But then—a soft scent reaches his antennae.
Yes, butterflies can smell with their antennae!
And over there, on a little balcony, he sees bright bursts of colour—pink, yellow, red, blue!

His heart races with excitement.
With the last of his strength, he flies toward the colourful, sweet-smelling place.

Illustration: Lucie Crovatto

Illustration to show.

It's a balcony garden!
Inside, Comma sees insects celebrating.
Bumble bees, bees, flies and butterflies are all dancing among the flowers.
Comma asks: "What's the celebration for?"
A bumble bee answers: "It's a flower buffet! The humans here appreciate insects like us. They call us 'pol-li-na-tors.' I'm not sure what that means, but they made a garden just for us. Go ahead, help yourself to the nectar in the flowers!"

Nec-tar? That word sounds delicious!
Comma flies to a flower, unrolls his straw-like tongue again, and...
Splooch!
He finds a sweet liquid.
His long tongue is perfect for drinking it.
He slurps up a little bit.
Yum, it's sweet!

After a few sips, Comma doesn't feel so hungry anymore.
He feels strong and happy!

He tries to remember...
What does he like to eat?
Now he knows!
He's found the perfect meal: the sweet nectar of flowers!
It's just right for him.

So Comma joins the party.
He dances and twirls in the air,
Knowing he'll have a wonderful summer with his new pollinator friends.

STORY SECRETS

Here are some details about Comma. You might want to explore these topics with the children after reading the story.

A butterfly named Comma?

The main character in the story is named Comma, a nod to the species he belongs to: *Polygonia comma*, known in English as the Eastern Comma. The name comes from a **small, white, comma-shaped mark** found on the underside of his wings.

© Denis Doucet

If insects have six legs, why does Comma seem to have only four?

That's because his first pair of legs—his forelegs—are underdeveloped! Comma belongs to the species *Polygonia comma*, which is part of the Nymphalidae family. **Butterflies in this family all have reduced front legs** and only use their remaining four legs for walking. Even though these reduced legs aren't used for movement, they still play an important sensory role.

Take a moment to look at the illustrations of Comma. You'll notice his tiny front legs are tucked close to his body.

What did Comma eat before he became a butterfly?

Before becoming a butterfly, Comma was a caterpillar. To support their growth, **caterpillars eat a large quantity of leaves**. They use their mandibles—mouthparts that work a bit like human teeth—to cut and chew their food. Once they become adults, butterflies no longer have mandibles. Instead, they use a long proboscis to feed.

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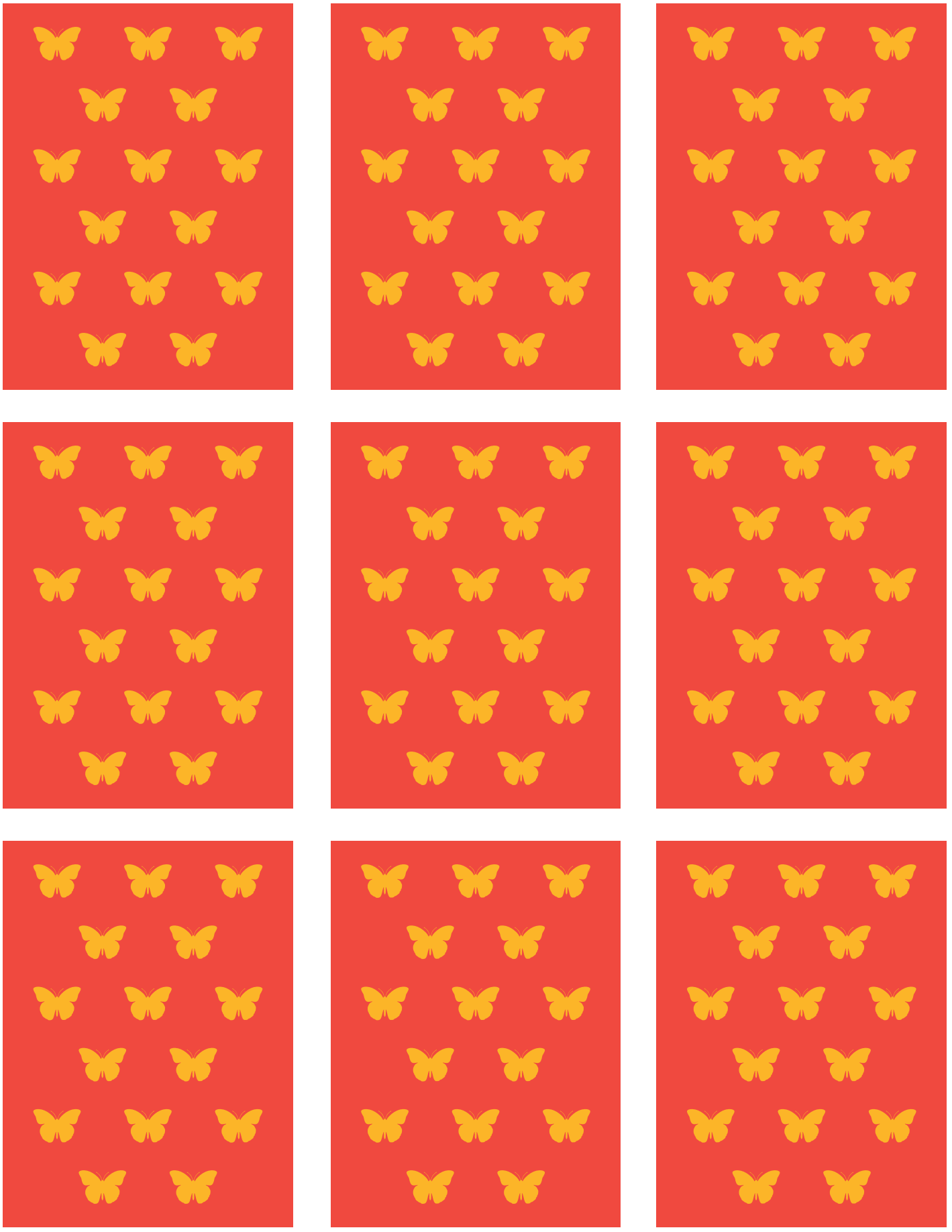
PRINTABLE MATERIALS

Activity 3
What we learned!

Print double-sided



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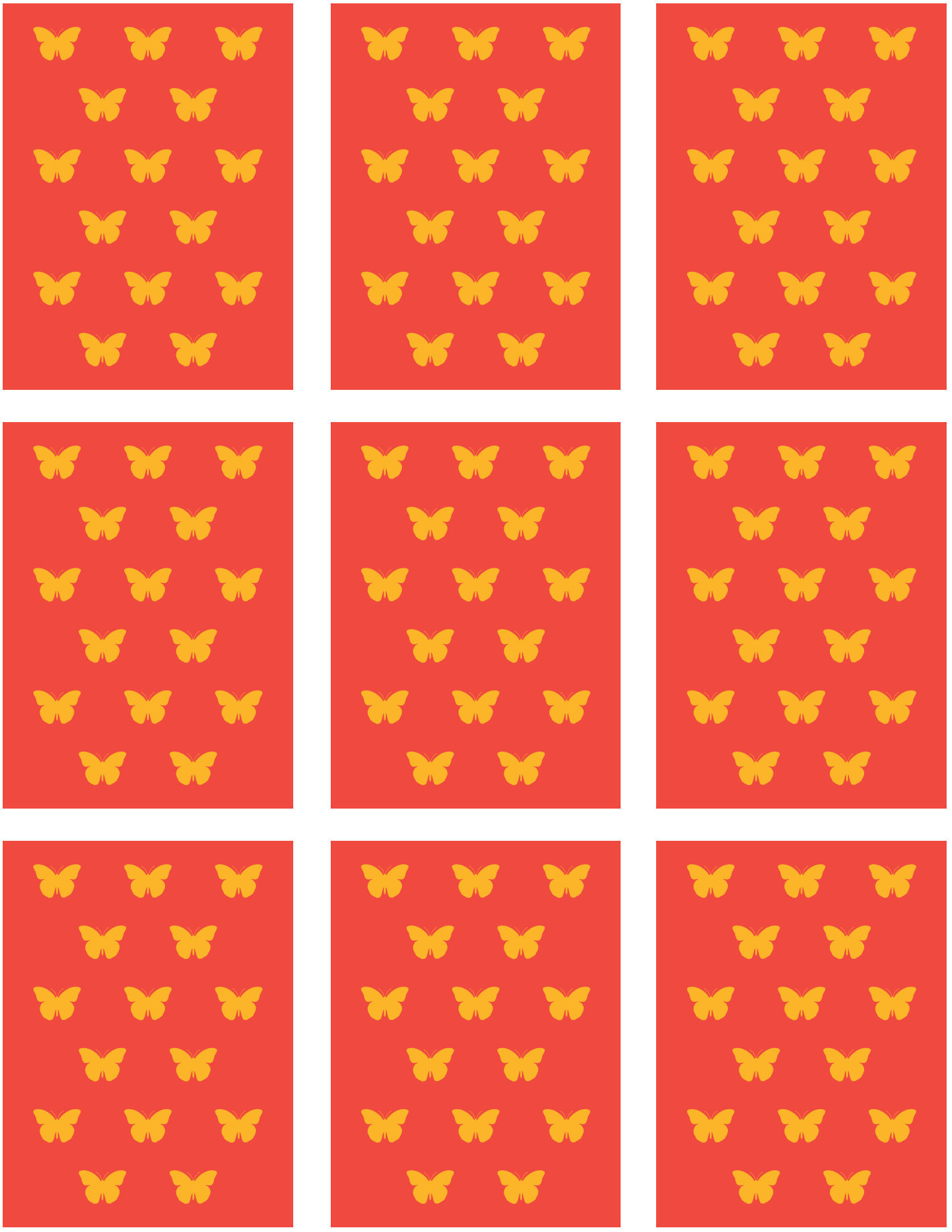

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