

—> SCHOOL SUSTAINABILITY PROJECT LIBRARY <—

BUTTERFLY GARDEN *at Schools*

Create Circular System as a step
towards
A Zero Waste City

A Zero Waste
School

Plant Local.
Nurture Nature.
Watch Life
Take Flight.

Small
Gardens
Big Impact
Bright
Futures

Butterflies
come when
nature is
cared for.



SUPPORTS
BIODIVERSITY



CREATES LIVING
CLASSROOMS



CONNECTS CHILDREN
WITH NATURE



ENGAGES SCHOOL
& COMMUNITY



BUILDS ENVIRONMENTAL
STEWARDSHIP

When we plant for butterflies,
we plant for a healthier planet
and a kinder tomorrow.



School Butterfly Garden in 90 Days

A planning guide by Mission City Chakra

By

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A Mission City Chakra Resource

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SCHOOL BUTTERFLY GARDEN IN 90 DAYS

A planning guide by Mission City Chakra

A butterfly garden can begin with just a few plants and a small corner of the school campus.

But it can become much more than a garden.

It can be a demonstration of circularity, a space for biodiversity, an outdoor science laboratory and a living classroom where students observe nature first-hand.

ACKNOWLEDGEMENTS

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- **Mr. Narendra Bhagwat**

1. GETTING STARTED

Create a Butterfly Garden Using What You Already Have

A butterfly garden does not need to begin with a large budget.

Start by looking at the resources already available in and around the school.

Use dry leaves instead of buying soil

Use dry leaves generated on the school campus to create plant beds or fill planters. As the leaves decompose, they return nutrients to the soil.

If the school does not generate enough dry leaves, explore whether nearby homes, institutions or gardens have dry leaves that can be shared.

Reuse discarded containers as planters

Instead of buying new pots, reuse old paint buckets, leaky buckets and other suitable discarded containers.

Schools can invite parents to donate clean, usable containers through the parent WhatsApp group.

Use compost made at school

Where available, use compost produced from the school's dry leaves, nirmalya or other biodegradable waste to nourish the garden.

Start small

You do not need a large garden.

One suitable plant can be a beginning. Three plants can create a small biodiversity corner. An existing garden can gradually be enriched with host and nectar plants.

The idea is simple: use what the school already has, add what is needed, and allow the garden to grow over time.

2. WHY CREATE A BUTTERFLY GARDEN?

A butterfly garden can:

- Support local biodiversity.
- Provide food and habitat for butterflies and other insects.
- Create an outdoor science laboratory.
- Help students observe the butterfly life cycle.

- Encourage curiosity, observation and scientific thinking.
- Add a living, low-maintenance green space to the school campus.
- Support pollinators and other beneficial insects.

But the garden can become much more than a collection of flowering plants.

From Butterfly Garden to Biodiversity Learning Space

As plants attract butterflies, they also attract bees, dragonflies, birds, spiders and other forms of life.

Students can observe these relationships and gradually build a record of the biodiversity on their own campus.

A small garden can therefore become a School Biodiversity Learning Space.

3. A CIRCULAR BUTTERFLY GARDEN

A butterfly garden is also an opportunity to demonstrate the circular systems found in nature.

Dry leaves become soil.

Soil supports plants.

Plants provide food and habitat.

Butterflies and other organisms become part of the ecosystem.

The cycle continues.

A simple circular system

Dry leaves → Soil → Plants → Butterflies & other life → Seeds → New growth

The school can strengthen this cycle by reusing discarded containers as planters and using compost generated on campus.

This helps students understand that materials need not become waste when they are designed to remain within natural or human-made cycles.

4. CHOOSING THE RIGHT PLACE

Look for a place that:

- Receives approximately 4–6 hours of sunlight.
- Is away from playgrounds and busy walkways.
- Is not frequently disturbed.

- Is reasonably close to a water source.
- Is not regularly exposed to pesticides or insecticides.
- Retains existing shrubs and trees wherever possible.
- Is accessible for students to observe and maintain.

Keep the garden pesticide-free

Avoid chemical pesticides and insecticides in and around the butterfly garden.

Caterpillars feeding on leaves are a natural and essential part of the butterfly life cycle. Some plant damage is therefore expected.

A butterfly garden should make space for nature—not try to control it.

5. ESSENTIAL ELEMENTS OF A BUTTERFLY GARDEN

A successful butterfly garden needs more than flowers.

Host Plants

Host plants are plants on which butterflies lay their eggs and caterpillars feed.

Nectar Plants

Nectar plants provide food for adult butterflies.

Shelter

Shrubs, climbers, trees and leaf litter provide shelter and resting places for butterflies and other organisms.

Water

Provide shallow water sources such as a shallow dish with pebbles or a moist patch.

Avoid stagnant water and refresh water sources regularly.

Natural Space

Allow some natural leaf litter and plant growth to remain. A butterfly garden does not need to look perfectly manicured.

6. DESIGNING THE GARDEN

Start with whatever space you have.

Plants can be grown:

- directly in the ground,
- in reused buckets and containers,
- in existing garden beds, or
- in a combination of these.

There is no single ideal design.

If You Have Space for Only One Plant

Start with one suitable butterfly-supporting plant.

The objective is not to create a perfect garden immediately.

The objective is to begin.

If You Have Space for Three Plants

Combine different types of plants so that the garden begins to provide both food and habitat.

For example:

- Curry leaf
- Vinca
- Marigold

If You Have More Space

Gradually increase the diversity of host plants, nectar plants and shrubs.

A useful principle

More plant diversity → more opportunities for biodiversity.

Existing school gardens do not need to be redesigned. They can simply be enriched by adding suitable host and nectar plants.

7. CHOOSING PLANTS

A good butterfly garden should include both **host plants and nectar plants**.

When choosing plants, consider:

- Plants suited to Pune's climate.
- Plants that can grow in the available sunlight.

- Plants that support locally occurring butterflies.
- Plants that are safe and appropriate for the school environment.
- Plants that the school can maintain without excessive water or chemical inputs.

Starter Plants

The following plants are included in this handbook as examples from the existing Mission City Chakra plant library:

- Curry leaf
- Vinca
- Marigold
- Lemon
- Hibiscus
- Passion flower
- Bryophyllum
- Blood flower
- Jamaican spike
- Ixora

The detailed Plant & Butterfly Library is available as an online resource and can be used to explore plant–butterfly associations while planning a school garden.

<https://missioncitychakra.com/butterfly-garden-at-schools/>

8. OBSERVE NATURE

Once the garden is established, the most important activity is simply to observe.

Students can look for:

- Butterfly eggs
- Caterpillars
- Pupae
- Adult butterflies
- Butterflies visiting flowers

- Bees and other pollinators
- Dragonflies and damselflies
- Spiders
- Birds
- Seasonal changes in plants

Students can observe the complete butterfly life cycle:

Egg → Caterpillar → Pupa → Butterfly

Encourage them to record what they see rather than simply being told what they should find.

9. DEVELOP SCIENTIFIC SKILLS

The garden can become a simple outdoor laboratory.

Students can:

- Identify butterfly species and plants.
- Maintain field notebooks.
- Photograph butterflies and other organisms.
- Count different species.
- Compare observations across seasons.
- Record flowering periods.
- Observe changes in butterfly activity.
- Ask questions and develop explanations based on their observations.

The emphasis should be on **observation, curiosity and inquiry**.

10. CREATE A SCHOOL BIODIVERSITY REGISTER

The school can maintain a simple **School Biodiversity Register** documenting the life found on its campus.

The register may include:

- Butterfly species observed
- Caterpillars and pupae
- Host and nectar plants
- Bees and other pollinators
- Dragonflies and damselflies
- Birds visiting the garden
- Spiders and beneficial insects
- Seasonal flowering
- Weather and rainfall observations
- First and last sightings of butterfly species
- Student photographs and sketches
- Nature journals and field notes

Over time, this becomes a record of how the school's ecosystem changes through the seasons.

The school itself becomes a place of observation and discovery.

11. CROSS-CURRICULAR LEARNING

The biodiversity learning space can support learning across subjects.

Subject	Learning Opportunities
Science	Life cycles, biodiversity, ecosystems, pollination, adaptation, food chains
Mathematics	Species counts, data collection, graphs, seasonal comparisons
Geography	Local biodiversity, habitats, climate and seasonal changes
Languages	Nature journals, essays, poems and storytelling
Art	Nature sketching, botanical illustration and photography
Environmental	Conservation, native species and urban biodiversity

Education	
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The garden therefore does not need to be treated as an additional activity outside the curriculum.

The campus itself becomes a learning resource.

12. CITIZEN SCIENCE

Schools can go beyond observing biodiversity for their own learning and contribute to wider citizen-science efforts.

Students can:

- Conduct annual butterfly counts.
- Compare butterfly diversity before and after establishing the garden.
- Record and photograph observations.
- Upload observations to suitable citizen-science platforms such as iNaturalist and the India Biodiversity Portal.
- Share biodiversity records with the school community and neighbourhood.

Citizen science helps students understand that their observations can contribute to a larger understanding of urban biodiversity.

13. CURRICULUM CONNECTIONS

A butterfly garden can provide practical learning opportunities aligned with the school curriculum.

Maharashtra State Board

Class 4 Environmental Studies introduces the life cycle of a butterfly and metamorphosis.

Classes 6–10 Science and Geography include concepts such as biodiversity, ecosystems, food chains, adaptation, habitats and environmental conservation.

CBSE

Primary classes introduce insects, life cycles and environmental observation through EVS.

Middle school covers biodiversity, ecosystems, food chains, adaptation, habitats and conservation.

Secondary classes reinforce ecological concepts, biodiversity conservation and environmental sustainability.

Schools can adapt the garden as a practical learning resource appropriate to the age and curriculum of their students.

14. A BUTTERFLY GARDEN IN 90 DAYS

The objective is not to create a perfect garden in 90 days.

It is to **begin a living system.**

Start

Identify a suitable space and use the resources already available.

Build

Create beds or planters and introduce suitable host and nectar plants.

Observe

Invite students to watch, record and document the life that appears.

Learn

Connect observations to science, mathematics, language, art and environmental education.

Grow

Gradually add plants, biodiversity records and new learning activities.

The garden grows—and so does the learning around it.

15. PLANT AND BUTTERFLY LIBRARY

Plant	

Common Name	Passion Flower
Scientific Name	<i>Passiflora foetida</i>
Local Name	कृष्णकमळ
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	    Tawny Coster Red Lacewing Leopard Lacewing Cruiser

Plant			
Common Name	Wedelia		
Scientific Name	Wedelia trilobata		
Local Name			
Category	Host / Nectar / Both		
Growth Form	Tree / Shrub / Herb / Climber / Creeper		
Butterflies Supported	 Rice Swift  Common Small Flat  Angled Pierrot  Dark Glass Blue  Tawny Coster  Common Grass Yellow		

Plant	
Common Name	Bryophyllum
Scientific Name	<i>Kalanchoe pinnata</i>
Local Name	पानफुटी
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	 Red Pierrot

Plant	
Common Name	Marigold
Scientific Name	Tagetes erecta
Local Name	झेंडू
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	Plain Tiger Common Crow Common Mormon Mottled Emigrant

Plant	
Common Name	Vinca
Scientific Name	<i>Periwinkle Catharanthus roseus</i>
Local Name	सदाफुली
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	    Giant Redeye Grass Demon Common Mime Lime Butterfly     Common Mormon Lemon Emigrant Mottled Emigrant Indian Jezebel   White Orange-tip Great Orange-tip

Plant	
Common Name	Lemon
Scientific Name	<i>Citrus limon</i>
Local Name	लिंबू
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	    Lime Blue Common Banded Peacock Lime Butterfly Blue Mormon   Spangle Common Mormon

Plant	
Common Name	Blood flower
Scientific Name	<i>Asclepias curassavica</i>
Local Name	हळद कुंकू, कुकीं
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	     Plain Tiger Striped Tiger Common Crow Chestnut Tiger Blue Tiger

Plant	
Common Name	Curry leaves
Scientific Name	<i>Murraya koenigii</i>
Local Name	कढीलिंब/ कढीपत्ता
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	   Lime Butterfly Blue Mormon Common Mormon

Plant	
Common Name	Hibiscus
Scientific Name	<i>Hibiscus rosa-sinensis</i>
Local Name	जास्वंद
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	    Rice Swift Common Mime Lime Butterfly Blue Mormon     Common Mormon Sahyadri Birdwing Lemon Emigrant Mottled Emigrant  Great Orange-tip

Plant	
Common Name	Jamaican Spike
Scientific Name	<i>Stachytarpheta indica</i>
Local Name	Snake Weed
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber
Butterflies Supported	 Plain Tiger  Striped Tiger  Glassy Tiger  Common Jay  Common Awl

Plant	
Common Name	Forget me not
Scientific Name	<i>Ixora casei</i> , <i>Ixora coccinea</i> , <i>Ixora brachiata</i>
Local Name	Ixora
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	    Blue Mormon Common Mormon Common Mime Lime Butterfly  Monkey Puzzle

Plant	
Common Name	Oleander
Scientific Name	<i>Nerium oleander</i>
Local Name	कण्हेर
Category	Host / Nectar / Both
Growth Form	Tree / Shrub / Herb / Climber / Creeper
Butterflies Supported	   Common Crow Blue-Spotted Crow Striped Blue Crow

16. A SCHOOL BIODIVERSITY LEARNING SPACE

A butterfly garden is much more than a collection of flowering plants. It is a living outdoor classroom where students experience nature first-hand, observe ecological relationships, and develop scientific curiosity.

As butterflies attract many other forms of life—including bees, dragonflies, birds, spiders and beneficial insects—the garden gradually becomes a School Biodiversity Learning Space, supporting experiential learning across multiple subjects.

17. LEARNING OPPORTUNITIES FOR STUDENTS

Observe Nature

- Observe the complete butterfly life cycle (egg → caterpillar → pupa → butterfly).
- Learn the difference between host plants and nectar plants.
- Watch butterflies laying eggs, caterpillars feeding, and butterflies visiting flowers.
- Observe seasonal changes in plants and butterfly activity.

Develop Scientific Skills

- Identify butterfly species and native plants.
- Record observations in field notebooks.
- Photograph butterflies and other wildlife.
- Measure butterfly diversity throughout the year.
- Compare observations across seasons.
- Learn basic ecological concepts such as habitats, food chains, pollination and biodiversity.
- Develop inquiry, observation and critical thinking skills.

Build a School Biodiversity Register

Students can maintain a School Biodiversity Register, documenting the rich variety of life found on the campus.

- The register may include:
- Butterfly species observed
- Caterpillars and pupae found
- Host plants and nectar plants
- Bees and other pollinators
- Dragonflies and damselflies
- Birds visiting the garden
- Spiders and beneficial insects
- Seasonal flowering calendar
- Weather and rainfall observations

- First and last sightings of butterfly species each year
- Student photographs and sketches
- Nature journals and field notes

Over time, this register becomes a valuable record of the school's biodiversity and helps students understand how ecosystems change through the seasons.

Cross-Curricular Learning

The biodiversity learning space can support teaching across several subjects:

Subject	Learning Opportunities
Science	Life cycles, biodiversity, ecosystems, pollination, adaptation, food chains
Mathematics	Species counts, data collection, graphs, seasonal comparisons
Geography	Local biodiversity, habitats, climate and seasonal changes
Languages	Nature journals, essays, poems, storytelling
Art	Nature sketching, botanical illustration, photography
Environmental Education	Conservation, native species, urban biodiversity

Citizen Science

Students can contribute to biodiversity conservation by participating in citizen science initiatives.

They can:

- Conduct annual butterfly counts.
- Compare butterfly diversity before and after establishing the garden.
- Upload observations to platforms such as iNaturalist and the India Biodiversity Portal.
- Share biodiversity records with the local community.

18. CURRICULUM CONNECTIONS

The butterfly garden can be used as a practical teaching resource aligned with the school curriculum.

Maharashtra State Board (SSC)

Class 4 Environmental Studies introduces the life cycle of a butterfly (metamorphosis).

Classes 6–10 Science and Geography include biodiversity, ecosystems, food chains, adaptation, habitats and environmental conservation.

CBSE

Primary Classes (III–V) introduce insects, life cycles and environmental observation through EVS.

Middle School (VI–VIII) covers biodiversity, ecosystems, food chains, adaptation, habitats and conservation.

Secondary Classes (IX–X) reinforce ecological concepts, biodiversity conservation and environmental sustainability.

Mission City Chakra Note

A butterfly garden should not be viewed merely as a landscaping feature. It is the beginning of a School Biodiversity Learning Space—a place where curiosity is nurtured, science comes alive, and students develop a lasting connection with the natural world. With minimal maintenance and thoughtful planning, this small green corner can become one of the most engaging learning spaces on the school campus.

ABOUT MISSION CITY CHAKRA

Designing Cities as Circular Systems

Mission City Chakra (MCC) is an initiative of the Centre for Sustainable Development, Gokhale Institute of Politics and Economics, working towards a **Zero-Waste Pune by design**.

Inspired by nature, where resources continuously move through circular systems and nothing becomes waste, MCC focuses on **reducing waste at source** through better material choices, circular practices and institutional policies.

Our approach is to work with **Intermediate Policymakers**—people who influence the everyday choices of hundreds or thousands of people. These include school principals, office administrators, elected representatives, housing society leaders and other institutional decision-makers.

MCC develops and documents practical solutions, creates implementation resources and supports institutions in adopting waste-reduction practices at scale.

From a Garden to a Living Classroom

Mission City Chakra works towards a Zero-Waste Pune by design, inspired by the circular systems found in nature.

A butterfly garden demonstrates this philosophy at a school level.

Dry leaves can become soil.

Discarded containers can become planters.

Compost can nourish plants.

Plants can provide food and habitat for butterflies and other organisms.

Students can observe these relationships and understand how natural systems continuously use, transform and renew resources.

A butterfly garden should therefore not be viewed merely as a landscaping project.

It is a small ecosystem, a circular system and a living classroom.

What begins as a few plants can become a biodiversity record, a science laboratory and a place where students develop a lasting connection with the natural world.

Start small. Observe. Learn. Let the garden grow.

Mission City Chakra

School Sustainability Project Library

www.missioncitychakra.com