

*Expanding and  
Enhancing the*  
**East London  
Waterworks Park  
Learning Circle**

Daniel Boutin, Sarah Kogan,  
Elion Sholla, and Serena Tura



# Our team



**Daniel Boutin**  
Biomedical Engineering



**Sarah Kogan**  
Computer Science

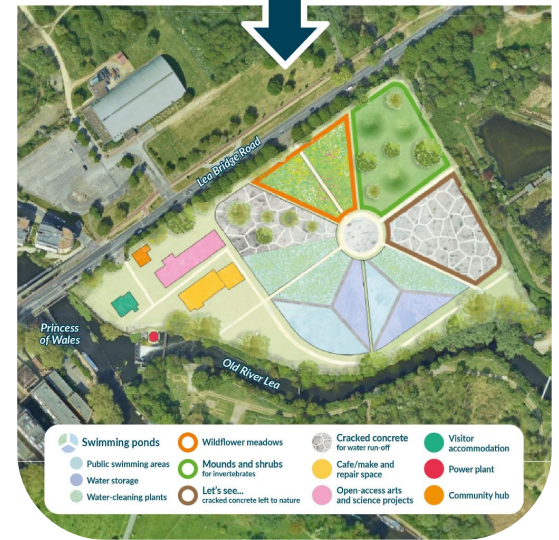
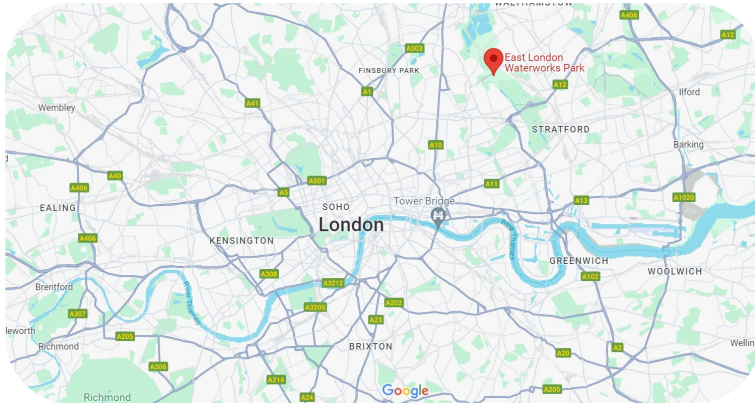


**Elion Sholla**  
Civil Engineering

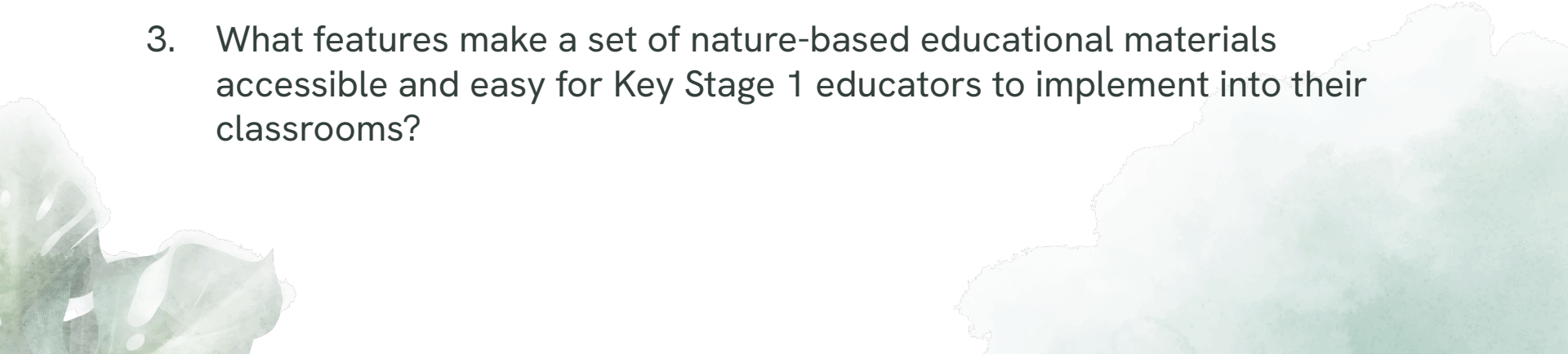


**Serena Tura**  
Biomedical Engineering

# What is the East London Waterworks Park Learning Circle?



# We used several key questions to guide our research

1. How can the East London Waterworks Park collaborate with schools to drive environmental appreciation and bring awareness to their greater mission?
  2. What types of educational materials are effective for teaching primary school students?
  3. What features make a set of nature-based educational materials accessible and easy for Key Stage 1 educators to implement into their classrooms?
- 

# Project Goal & Objectives

**Goal:** Develop educational materials to facilitate collaboration between the East London Waterworks Park (ELWP) and schools in Hackney and Waltham Forest area.

1

Understand how nature-based education fits in the **National Curriculum**

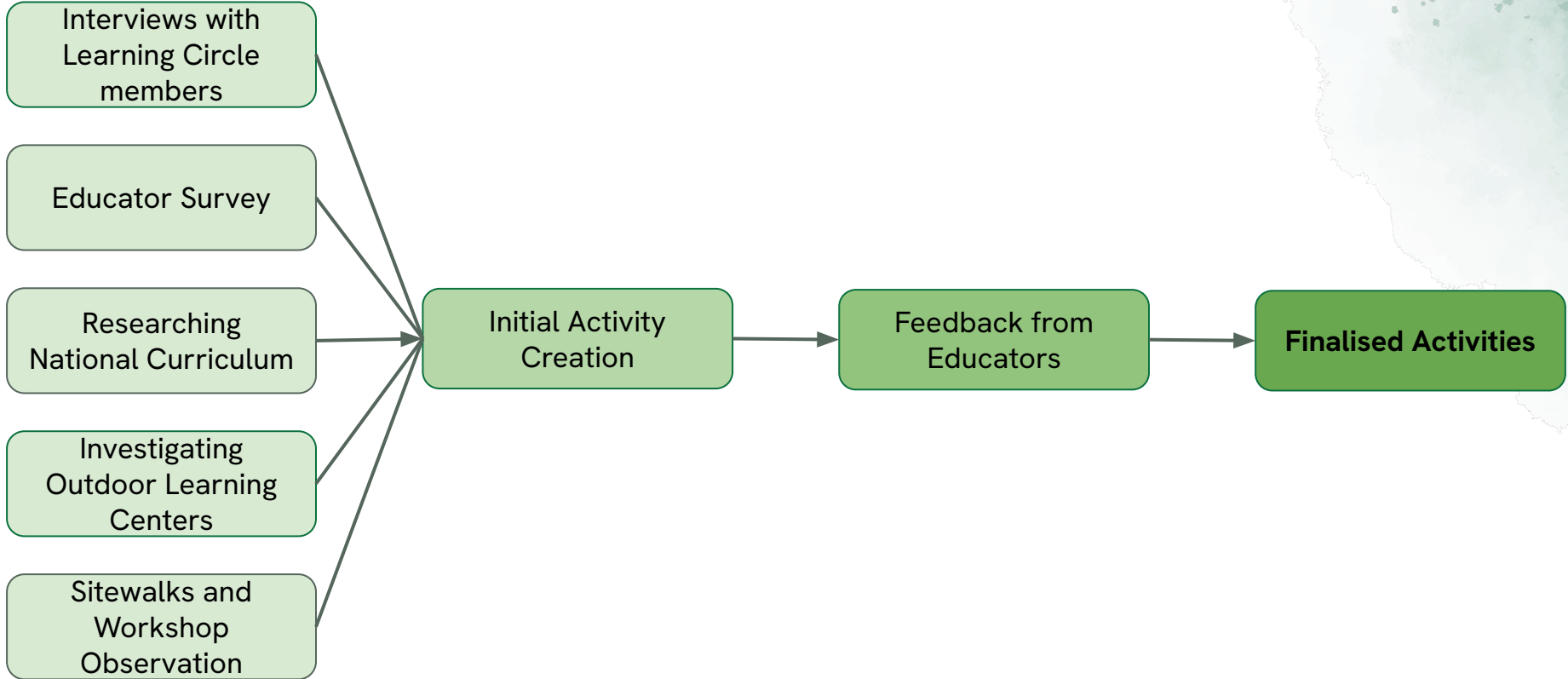
2

Develop **nature-based educational materials** for experiential outdoor engagement for Key Stage 1 pupils

3

Collect **feedback from educational professionals** to improve our materials

# Research Design Process



# Field observations served as a baseline for our project

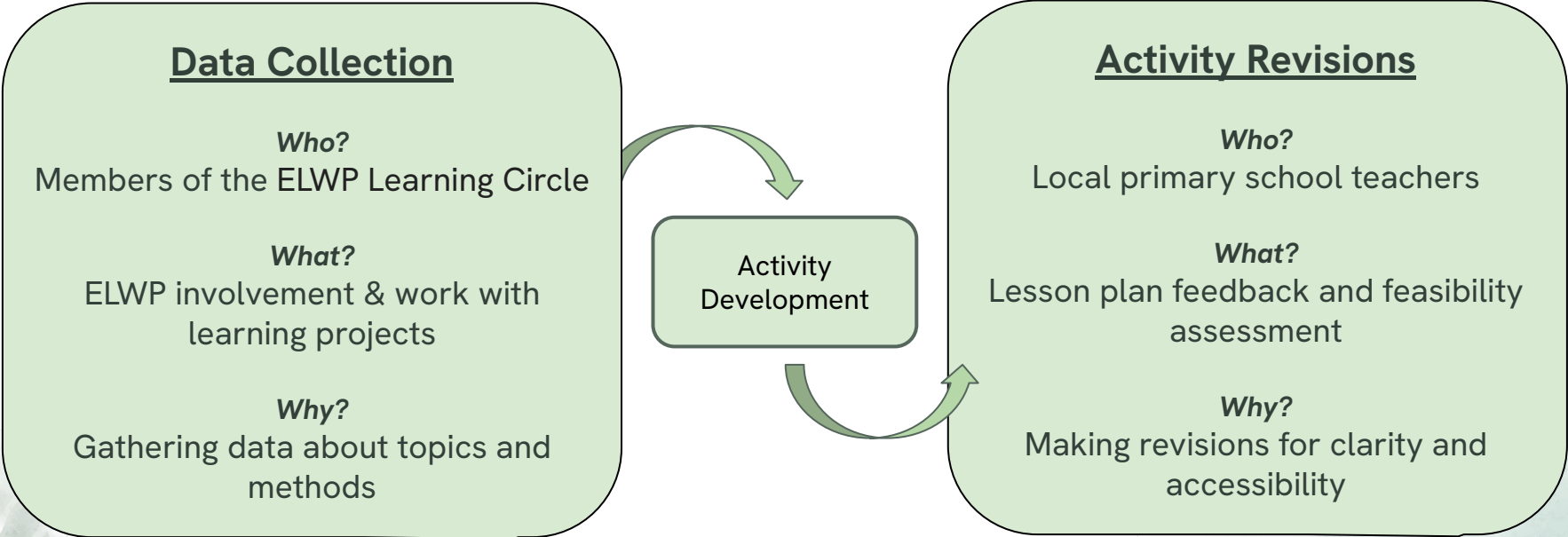


- Focus on Key Stage 1 rather than primary school students
  - *"... it would be a terrible missed opportunity if you didn't include the younger children... These are the experiences that stay with them for life"*
- Sitewalks
  - Scope of ELWP project
  - Natural resources available
- Workshop Observation
  - Keeping students engaged



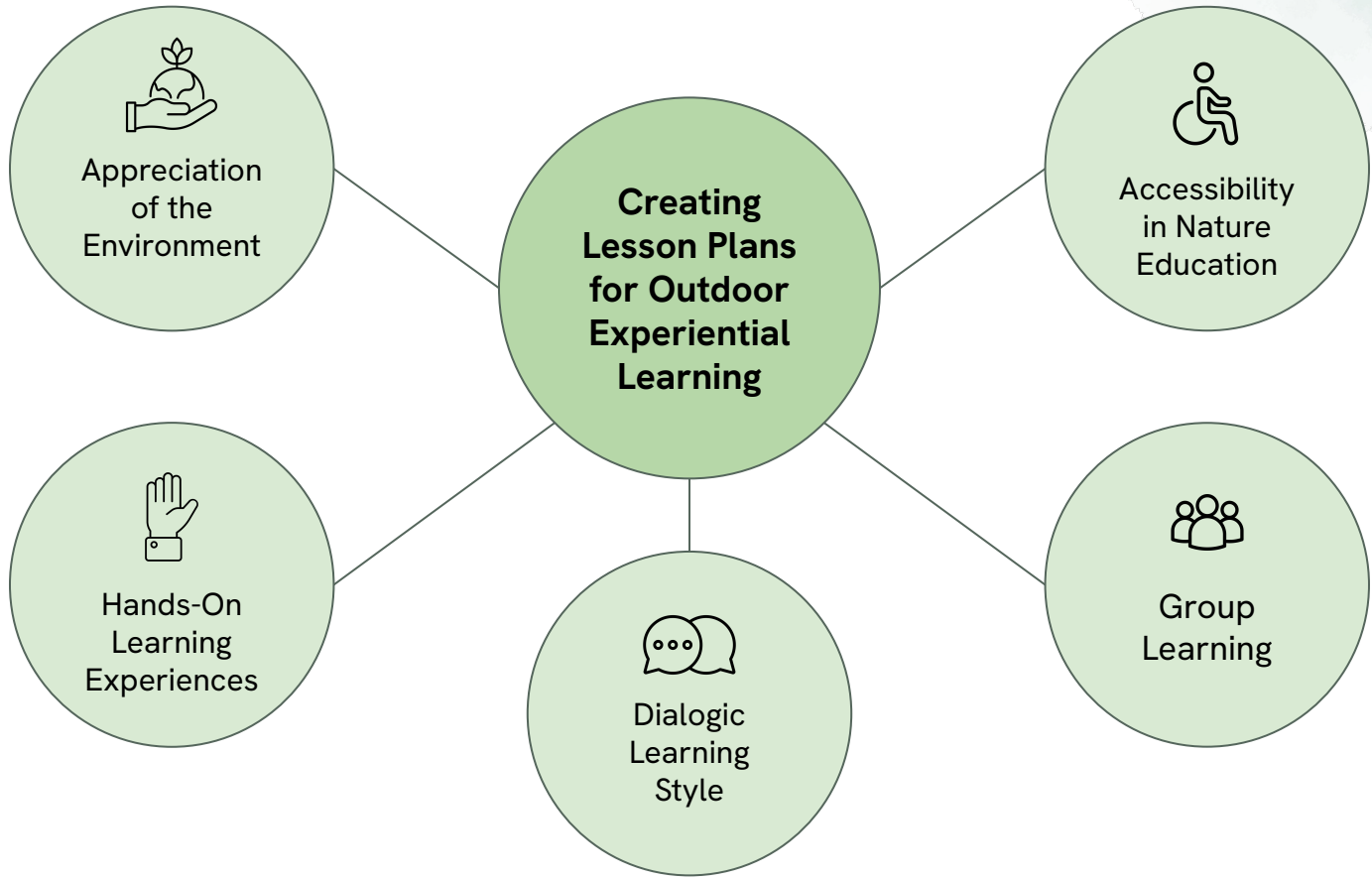
**Sitewalk and ecoACTIVE workshop with Year 7 and 8 students**

# Our interview process covered two stages





# Key findings influenced our educational materials



# Each lesson plan covers three stages



## OVERVIEW

**Learning Objectives**  
*Final goals for students*

**National Curriculum Guidelines**  
*Activity integration with National Curriculum*



## LESSON

**In-Class Presentation**  
*In-class slideshow of concepts*

**In-Class Worksheet**  
*Interactive, to solidify concepts*

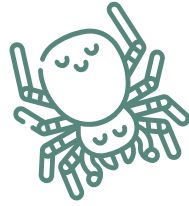
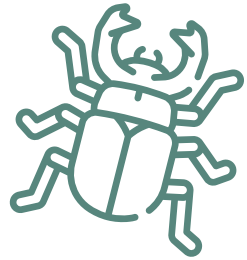
**On-Site Activity**  
*Demonstration of concepts*



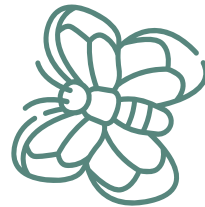
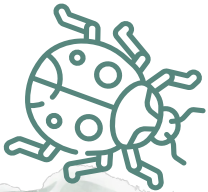
## REFLECTION

**Accessibility Concerns**  
*Potential modifications*

**Reflection Questions**  
*Questions to solidify learning*



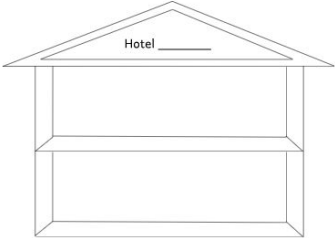
## Activity Examples















# Bug Hotel

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Create your own Bug Hotel!  
Draw in your own bugs and materials in the diagram below.  
What bugs will you include to stay? What environment will they live in?



Example Materials:			Example Bugs:		
Leaves 	Pinecones 	Grass 	Centipede 	Shieldbug 	Woodlouse 
Rocks 	Flowers 	Tree Bark 	Worm 	Harvestman 	Ladybird 

**Activity:** Creating a “bug hotel” which bugs would enjoy living in, using materials they live in naturally

## Objectives

Animal Identification

Habitats

Environmental Security

Independence

**HABITATS** are where animals live.

Where do each of these animals live?



Ants



Birds



Mice



Bees



Anthill



Nest



Mouse Hole




























Beehive

# Biodiversity Bingo

Date: \_\_\_\_\_ Name: \_\_\_\_\_

## BIODIVERSITY BINGO

 Leaf bigger than your hand	 Butterfly	 Yellow flower	 Ladybird	 Animal making a sound
 River	 Flying insect	 Lake	 Spiderweb	 Grass
 Animal tracks	 Seed	 Free Space	 Tree stump	 Mushroom
 Squirrel	 Swan	 Bee	 Leaf with pointy edges	 Dog
 Shapes in the clouds	 The smell of soil	 More than 5 ants	 An animal eating	 A home for an animal

What was your favorite part of the walk?

\_\_\_\_\_

\_\_\_\_\_

**Activity:** Discovery of Animals and Marking them off

## Objectives

Identification of Ecosystems

Animal and Plant Habitats

Biodiversity

Eco-consciousness



# Rewilding Colouring

REWILDING COLOURING SHEET Name: \_\_\_\_\_

Draw your rewilded habitat

Some plants and animals that live in my habitat are:

Animals	Plants
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

**Activity:** Drawing unused land and then “rewilding” the space with colourful plants and animals

## Objectives

Rewilding

Habitats

Plant and Animal  
Identification

Eco-consciousness

What is  
REWILDING?



# Special Tree

**SPECIAL TREE** Name: \_\_\_\_\_

Draw your special tree:

My tree is... (circle one)  Deciduous  Evergreen

Take your bark rubbing here:

Draw a leaf of your tree:

**Activity:** Exploration of a tree in the local area

## Objectives

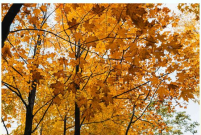
Deciduous vs. evergreen trees

Types of leaves

Animal and plant habitats

Changes across seasons

A **deciduous** tree turns yellow in autumn.



It has no leaves all winter.





# Project Recommendations



## Sitewalk Implementation

Conduct sitewalks where students participate in an activity

Adjust activities based on student engagement and teacher feedback



## Social Media

Advertise opportunities to collaborate on the ELWP blog, Facebook, Instagram, or Youtube

Expand outreach to other parts of East London



## Expanding Work

Utilize structure to develop more complex lessons for older students

Run workshops with local schools and environmental programs



# Thank you!

## Questions or Comments?

Contact us!  
Daniel Boutin  
Sarah Kogan  
Elion Sholla  
Serena Tura

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# Lesson Plan Creation

Brainstormed 10 Ideas → Narrowed down to 4 Ideas

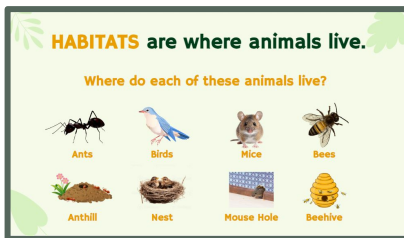
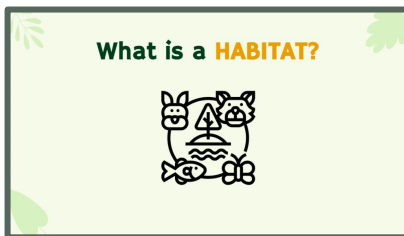
## Materials for Each Lesson Include:

### 1. Activity Overview Document

#### Activity Overview Document

- Content Overview
- Learning Objectives
- National Curriculum Requirements
- Content
- Activity
- Accessibility Concerns
- Reflection Questions

### 2. In-class Slideshow

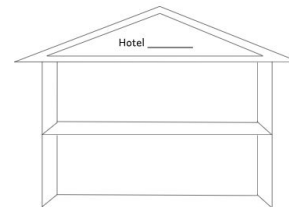














### 3. Activity + Worksheet

Name \_\_\_\_\_ Date \_\_\_\_\_

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Example Materials:			Example Bugs:		
 Leaves	 Pinecones	 Grass	 Centipede	 Shieldbug	 Woodlouse
 Rocks	 Flowers	 Tree Bark	 Worm	 Harvestman	 Ladybird

# We brainstormed a variety of activities and focused on developing 4 of them

*A-Z of Places  
Animal Seed Dispersal  
Animal Track Trap*

## **Biodiversity Bingo**

*Birdwatching  
Cloud gazing  
Whittling  
DIY Rainstorm  
Green High Five*

## **Bug Hotel**

*Dam Building  
Interactive Timelines  
Hapa Zome*

*Seed Bombs  
Bird Feeders  
Leaf prints*

## **Special Tree**

*Bird's nest  
The Stick Man book  
Water filter  
Biodiversity Mosaic  
Endangered Animal Roleplay*

## **Rewilding Drawings**

*Biodiversity Data  
Teach Wild  
Plant Identification*

# Who are we?



We are a **student group** from Worcester Polytechnic Institute, a **STEM university** in Massachusetts

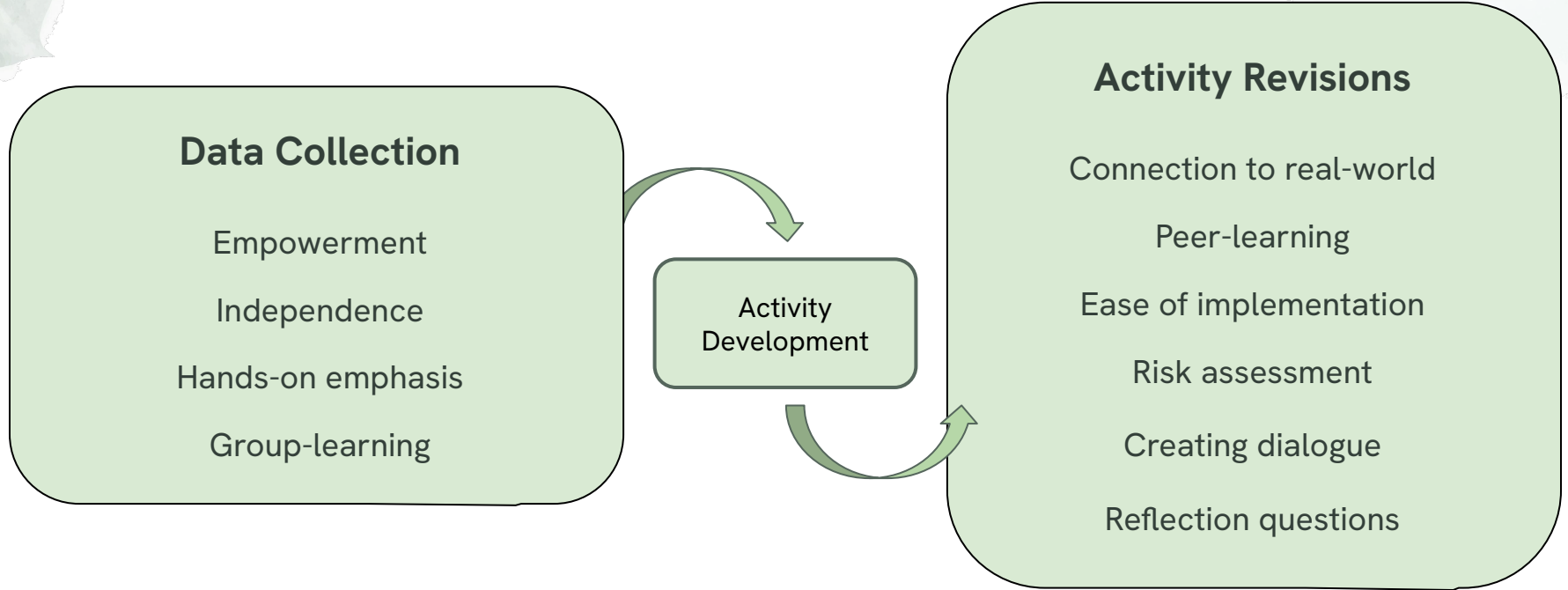


We are working on a social science **research project** as part of our degree to **expand the work** of the Learning Circle



We developed **four lesson plans** that easily fit into the existing curriculum and have to do with **environmental education**

# Our two-stage interview provided key insights.



# Our interview process covered two stages

## Data Collection

*Who?*

Members of the ELWP Learning Circle

*What?*

ELWP involvement & work with learning projects

*Why?*

Gathering data about topics and methods

Activity  
Development

## Activity Revisions

*Who?*

Local primary school teachers

*What?*

Lesson plan feedback and feasibility assessment

*Why?*

Making revisions for clarity and accessibility

# Interviews provided us with key insights

## Data Collection Insights

- Hands-on activities
- Group Learning
- Building Confidence
- Independence

*"It has to start with something **hands-on** for younger children. It really does. And that's what grabs them. That's what excites them."*

## Activity Revision Insights

- Connect to real-world issues
- Peer-learning
- Ease of implementation
  - Risk assessment
  - Minimize "speaking at"
  - Maximize "speaking with"
- Verbal reflection questions



# Project Deliverables

## 4 Fully Developed Lesson Plans

### Special Tree

**SPECIAL TREE** Name: \_\_\_\_\_

Draw your special tree:

My tree is. (circle one)  Deciduous  Evergreen

Take your bark rubbing here: \_\_\_\_\_

Draw a leaf of your tree: \_\_\_\_\_

### Rewilding Colouring

**REWILDING COLOURING SHEET** Name: \_\_\_\_\_

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Some plants and animals that live in my habitat are:

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2 _____	2 _____
3 _____	3 _____

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Hotel \_\_\_\_\_

Example Materials:			Example Bugs:		
					
					

### Biodiversity Bingo

Date: \_\_\_\_\_ Name: \_\_\_\_\_

**BIODIVERSITY BINGO**

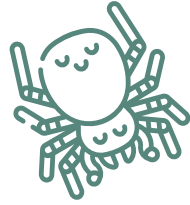
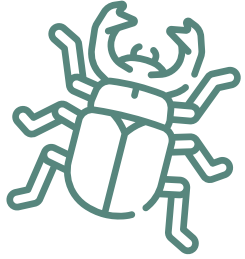
				
				
				
				
				

What was your favorite part of the walk?

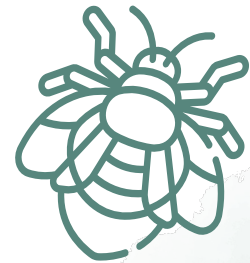
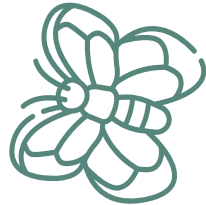
\_\_\_\_\_

\_\_\_\_\_





# Activity Example: Bug Hotel



# Learning Objectives



## Identification

Practice **identification skills** and give children freedom to explore.



## Security

Build **security and feeling of belonging** in their environment.



## Independence

Allow children to explore their environment and promote **curiosity**.



# National Curriculum Guidelines



National  
Curriculum

## Habitats

“Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants.”

## Identification

“Identify and name a variety of plants and animals in their habitats, including micro-habitats.”

## Life Cycle

“Explore and compare the differences between things that are living, dead, and things that have never been alive.”



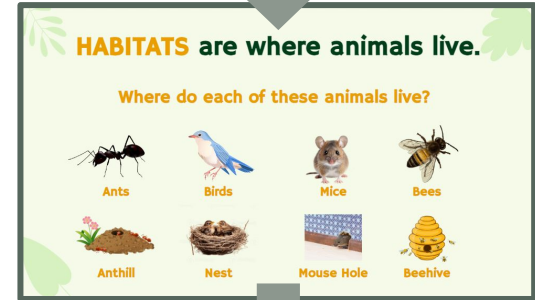
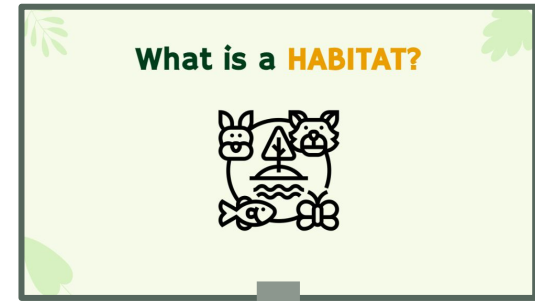
OVERVIEW

# Instruction: In-Class Presentation

- **Presentation** to be taught by educators in class
- Follows a sequential **story** to keep children engaged
- Activity and reflection dictated in presentation



LESSON



# Instruction: In-Class Activity

- Students fill this [hotel illustration](#) with drawings of bugs and materials for them to live in.
- Examples are given at the bottom for [inspiration](#) and reference
- [Reflection activity](#) to be completed afterwards



LESSON

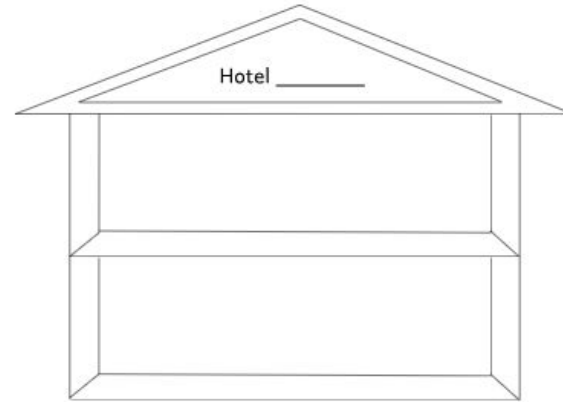
Name: \_\_\_\_\_

Date: \_\_\_\_\_

Create your own Bug Hotel!

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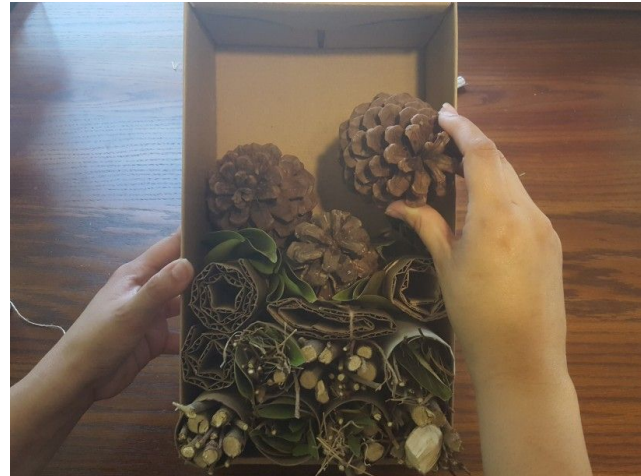
What bugs will you include to stay? What environment will they live in?



Example Materials:			Example Bugs:		
Leaves 	Pinecones 	Grass 	Centipede 	<a href="#">Shieldbug</a> 	Woodlouse 
Rocks 	Flowers 	Tree Bark 	Worm 	Harvestman 	Ladybird 

## Instruction: On-site

- Students work with their peers to collect a variety of **materials** for **bugs** to live in
- Use leaves, twigs and supervisors' help to pick up any bugs they find
- **Organize** bugs with materials they like, based on their **habitat**.



# Modifications can be made to maximize accessibility



## Vision Impairment

Worksheets contain **large, bold lettering** and spaced-out text



## Mobility Restrictions

Supervisors are present to aid in discovery if students cannot reach certain items



## Learning Disability

Topics allow for **spectrum of understanding**, are simple for a wide range of learning styles



## Sensory Aversion

Students can opt to have supervisors pick up things. This is also an activity to push students to **try new things**.



**REFLECTION**