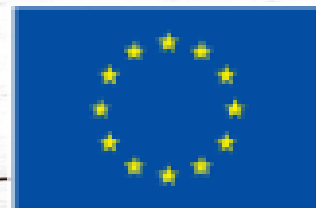




UrbSTEAM

Teaching STEAM through Urban
Garden Based Learning
in the kindergarten

Educational Material
Module 4.
The Outdoor Classroom



Co-funded by
the European Union



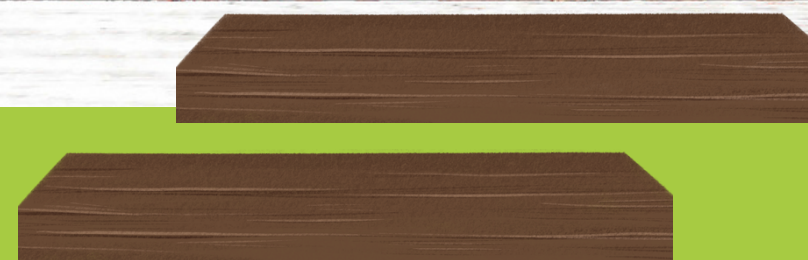


UrbSTEAM

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Learning objective:

- Inform about Safety in the Garden
- Classroom Management in the Garden
- Gardening and Academic Curriculum
- STEAM in the Garden
- Explore Garden Education Activities and Definitions



Expected Results

learners are expected to

- understand the main aspects of an outdoor classroom
- get new ideas on how to manage an outdoor classroom
- be informed about safety in the garden
- to understand gardening and academic curriculum
- explore educational activities in STEAM through the garden



UrbSTEAM

Teaching STEAM through Urban
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SAFETY IN THE GARDEN

- Record all **allergies**, provide a **first aid kit** and drinking **water**.
- **Clothing appropriate** to weather conditions, proper **shoes** to protect feet.
- **Hat, sunglasses, sunscreen and shade** are necessary on a hot day.
- **Wash their hands** thoroughly before and after working in the garden.
- Children should be **supervised** at all times
- **Safe use and handling** of all garden tools and equipment.
- Secure place to **store tools, fertilizers, and garden chemicals** out of reach of students when the garden area is unattended.
- Students should **not pick and eat unwashed fresh produce**
- Exposure to the sap, leaves, and stems of certain plants **can cause mild skin irritation**



picture from; <https://blog.thompson-morgan.com/safety-precautions-for-kids-in-your-garden/>



CLASSROOM MANAGEMENT

Establish garden rules with your students before going to the garden. You might ask them some questions such as;

- **How do we want to feel when we are in the garden?**
- **How can we act to feel that way?**
- **How do we treat the garden?**

You can also demonstrate to students proper use of tools. Phrase the rules positively and try to keep them simple “Walk in the garden” vs. “No running in the garden”



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<http://www.csgn.org/outdoor-classroom-management>



CLASSROOM MANAGEMENT

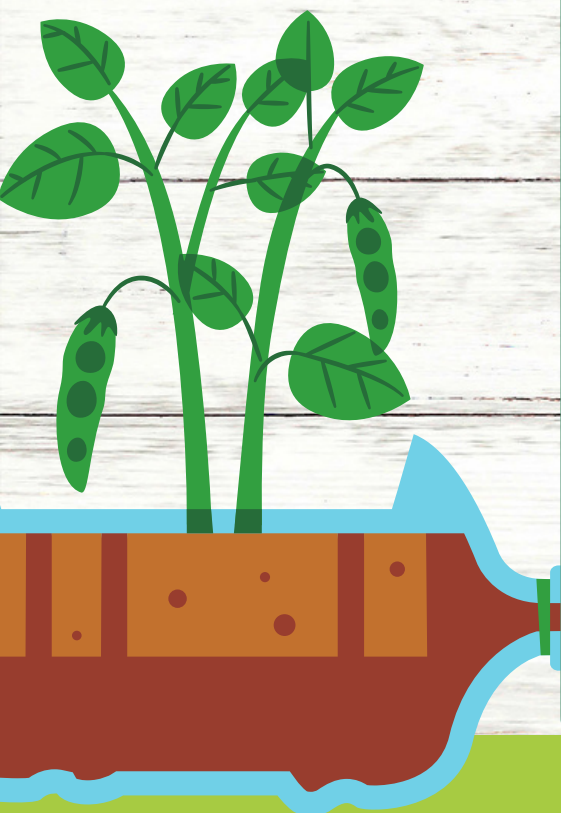
- **Routines and rituals** are important, so students know what to expect when they are in the garden.
- Build opportunities for **free exploration**
- Use activities or scavenger hunts to guide have a **structured garden exploration time**



CLASSROOM MANAGEMENT

- Sit in a circle
- Giving directions to children before passing out materials
- Make expectations clear
- Have a job chart for kids to rotate responsibilities
- Signal when it's time to clean up
- After gardening, review what was accomplished – reflect
- Children mirror us. If you are calm and quiet, they will follow. If you are very energetic, you might have to grab their attention more often.

How to build your own outdoor classroom



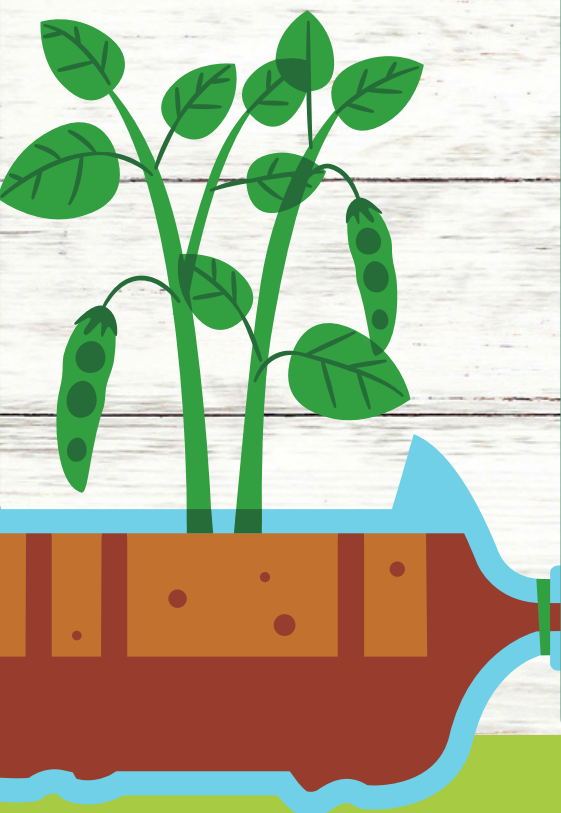


GARDEN ACTIVITIES

Here is an example of garden activities;

In 2010–2011, four schools brought their students on four separate field trips to the USDA People’s Garden. Students spent a whole day in the People’s Garden. They were divided into eight groups of 6–8 students and rotated between eight separate activities.

Wilson, C., Schroeder, C., Scott, T. (2021). The USDA Future Scientists Urban Agriculture Program. In: DeCoito, I., Patchen, A., Knobloch, N., Esters, L. (eds) Teaching and Learning in Urban Agricultural Community Contexts. Urban Agriculture. Springer, Cham. https://doi.org/10.1007/978-3-030-72888-5_8





ACTIVITIES IN THE GARDEN

1. HAIKU POEMS
 2. LEAF COLLECTION
 3. MEASUREMENTS
 4. GARDEN INSECTS
 5. FLOWER OBSERVATION
 6. POND STUDIES
 7. IDENTIFYING BUTTERFLIES and TAGGING a MONARCH
 8. VEGETABLE GARDENING
- 

ACTIVITIES



Leaf collection activity,



Monarch identification and tagging

https://link.springer.com/chapter/10.1007/978-3-030-72888-5_8#Fig10

ACTIVITIES



Haiku illustration

For example, fifth grade student Austin Hamm penned the following haiku poem:

Monarchs beautiful
Travel through the clear
blue sky. And, no-one
knows why!



Student drawing of pond life

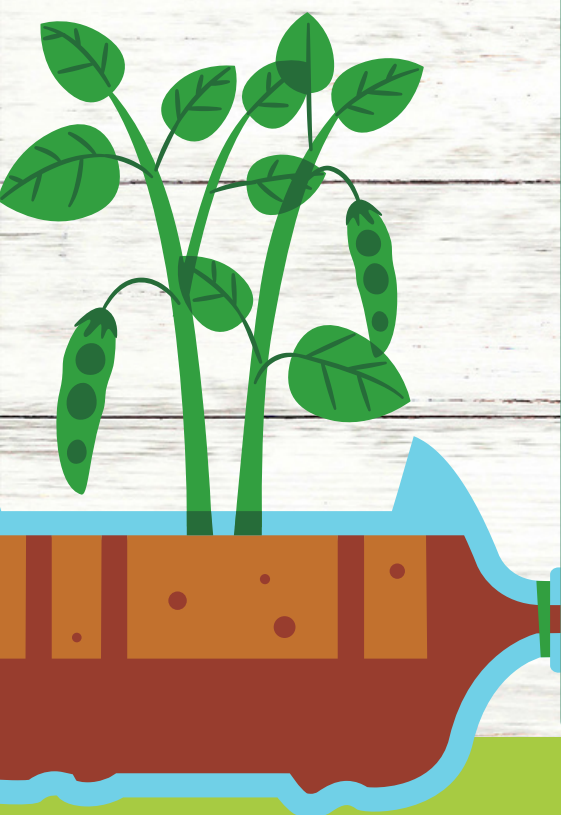
https://link.springer.com/chapter/10.1007/978-3-030-72888-5_8#Fig10

Haiku illustration



Zarger (2008) claims that gardening cultivates a 'sense of wonder' for the workings of the natural world (p. 8)

Albert Einstein said, "Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world" (Viereck 1929).

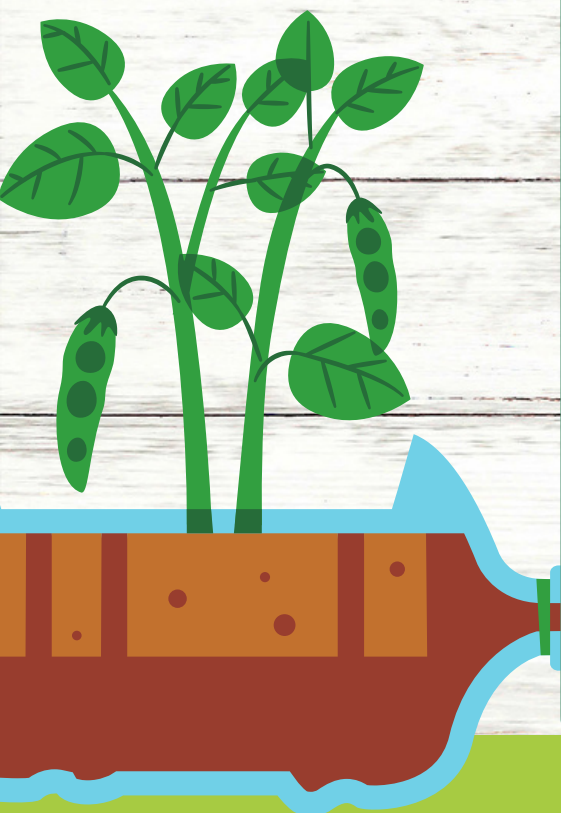




MATHS IN GARDEN

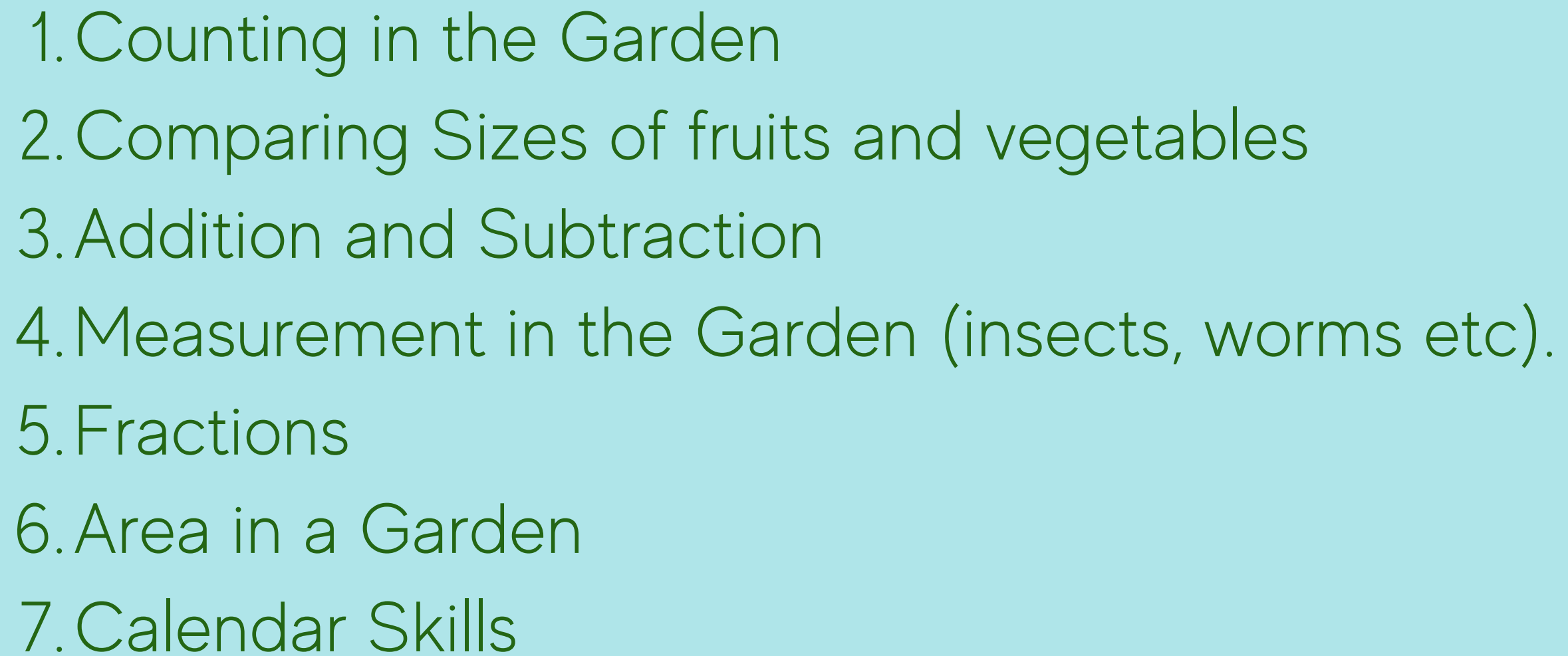
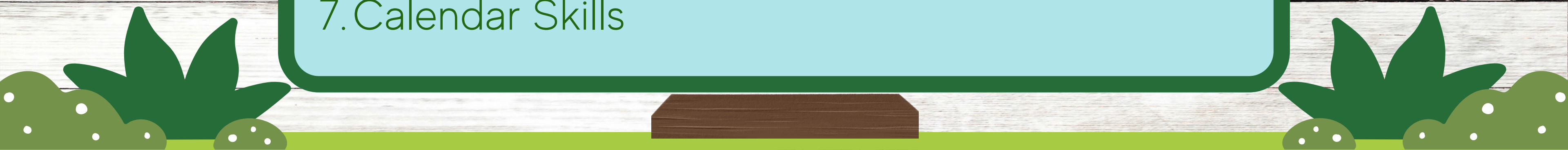

MEASUREMENTS

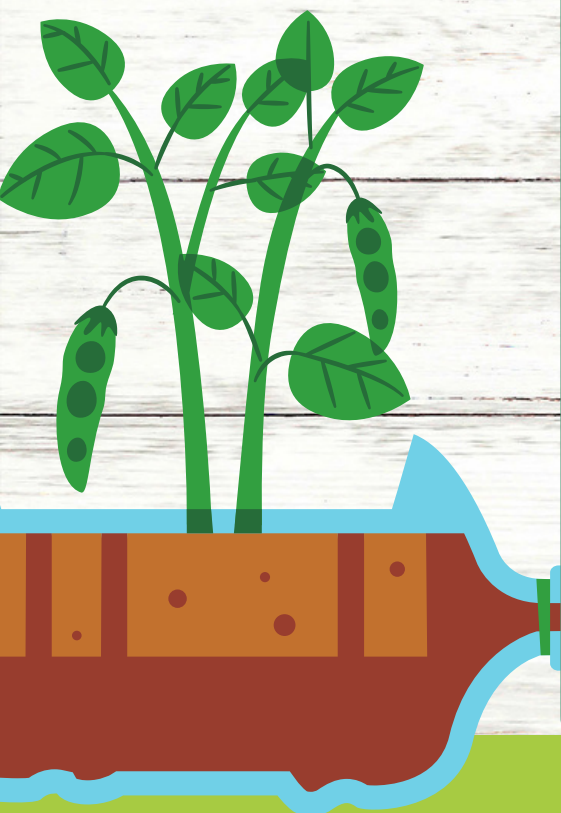
- Students are taught the units of measurement but have little understanding of the concept.
- In the garden they can use **non-standard units** like paces to measure aspects of the garden, e.g., length and width, and then use meter sticks to better understand the standard metric units.
- Students are then given the freedom to make any measurements they choose within the garden, such as the diameter of a flower or the length of a grasshopper's antenna.







MATHS IN GARDEN

1. Counting in the Garden
 2. Comparing Sizes of fruits and vegetables
 3. Addition and Subtraction
 4. Measurement in the Garden (insects, worms etc).
 5. Fractions
 6. Area in a Garden
 7. Calendar Skills
- 
- 
- 



<https://peanutbutterfishlessons.com/10-math-skills-practice-in-the-garden/>

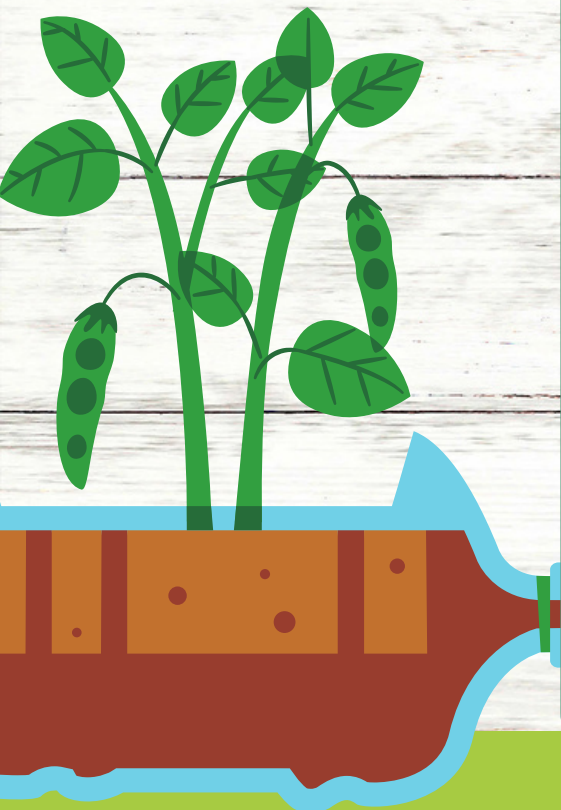




'Integrated STEAM learning, outdoors in an urban garden, is part of the answer to re-engaging students in science'

'It is a way to get them involved experientially, to encourage them to ask questions once more, and to interest them in finding imaginative solutions to the world's agricultural problems that lie ahead'

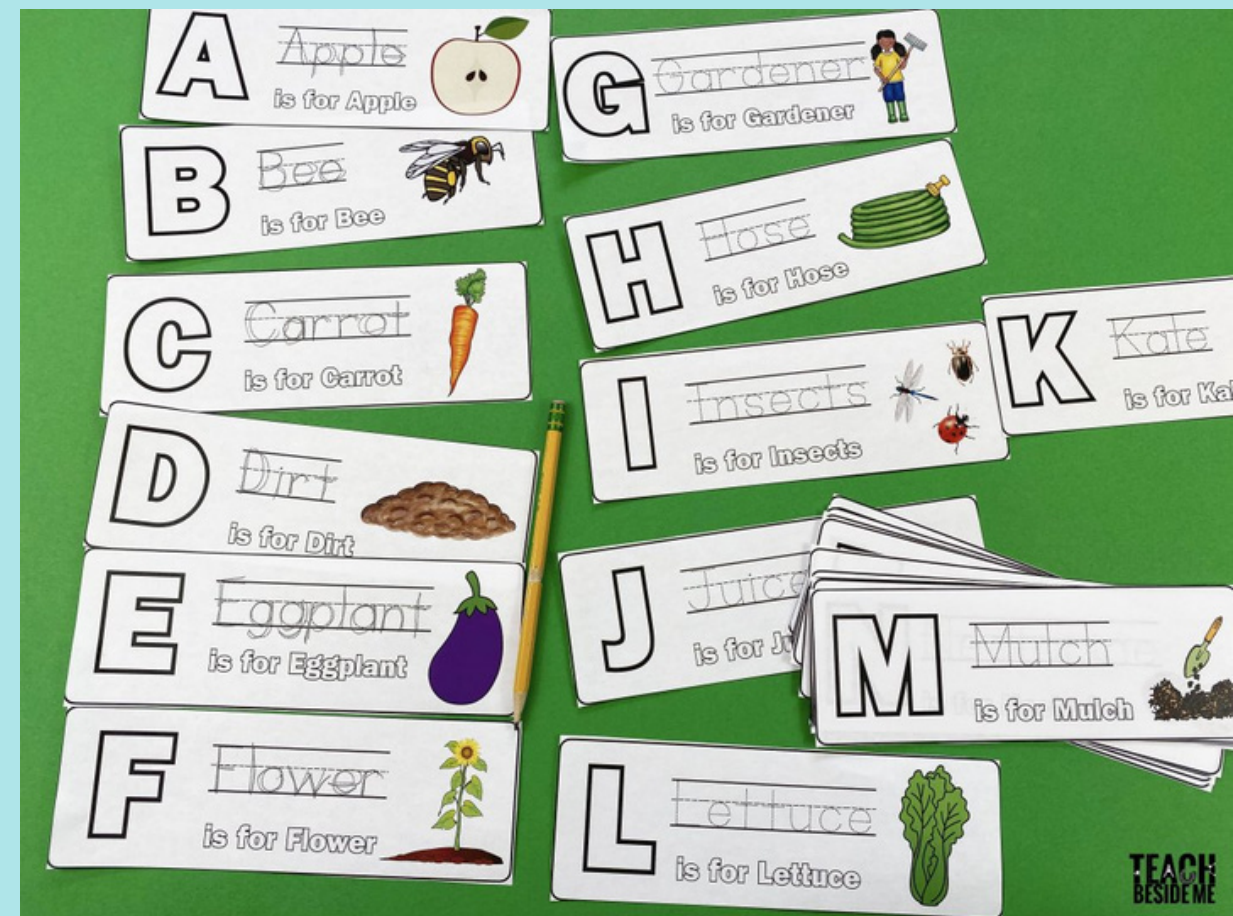
Wilson, C., Schroeder, C., Scott, T. (2021).



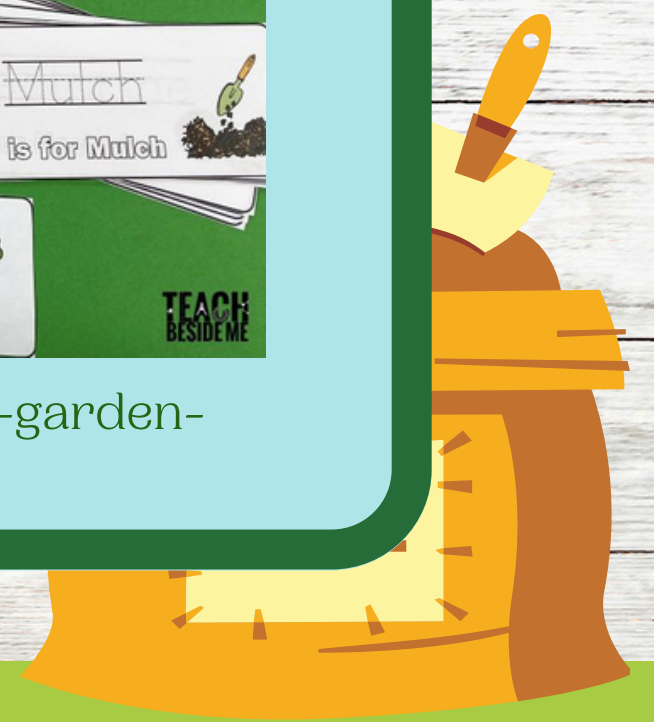
LANGUAGE ARTS IN GARDEN

ABC garden– Most alphabet gardens are simply created by incorporating plants that begin with each letter of the alphabet.

For example, plant some asters for “A,” balloon flowers for “B,” cosmos for “C” and so on



<https://teachbesideme.com/printable-garden-alphabet-cards/>



LANGUAGE ARTS IN GARDEN

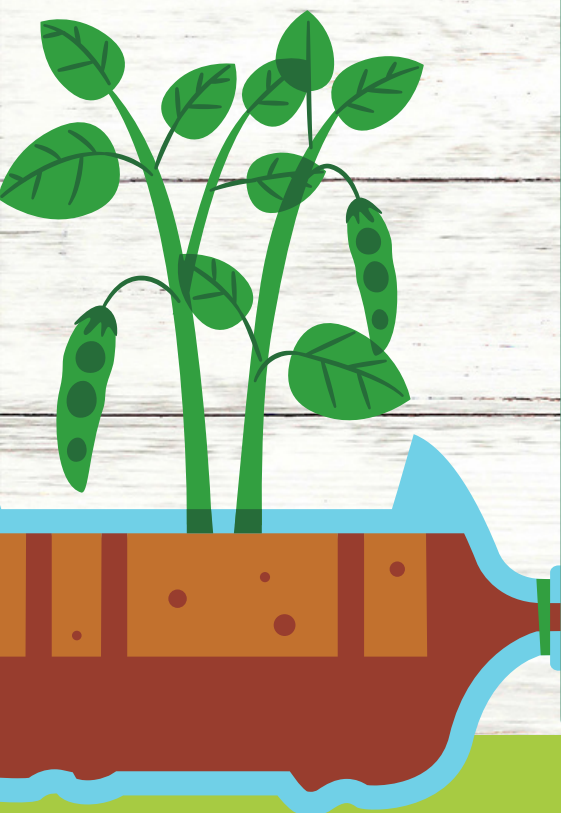
other ideas for activities are;

ABC Names – With this alphabet theme, choose plants that begin with each letter of a child's name.

ABC Shapes – Similar to names, this design uses a child's first initial for the overall shape of the ABC garden.



<https://www.gardeningknowhow.com/special/children/alphabet-garden-plants.htm>





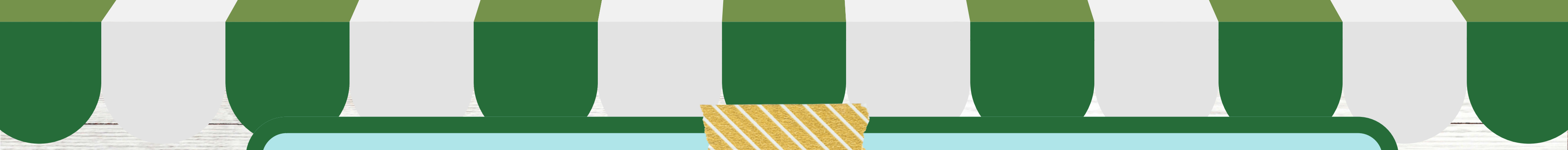
LANGUAGE ARTS IN GARDEN

Plant labels – Help children create labels for the plants in the garden.

Plant signs – Using the same concept as with labels, children can make or decorate signs for each plant name.

Steppingstones – Make interesting paths along the way or simply mark off specific areas of the garden with hand-crafted tiles or steppingstones using letters of the alphabet.







In the article '**Seeing the forest through the trees: at the intersection of Forest Kindergartens and art-based environmental education**' Tracey Hunter-Doniger, investigates the interconnectivity between art and ecology within a Forest School model.

She refers that the success of outdoor programming, like Forest Schools, is that outdoor curriculum art-based environmental education could provide **valuable learning experiences**.

Within this article, the author dispels myths surrounding a romanticized connection between children, nature and artmaking.





'SEEING THE FOREST THROUGH THE TREES: AT THE INTERSECTION OF FOREST KINDERGARTENS AND ART-BASED ENVIRONMENTAL EDUCATION

The findings revealed that the symbiotic relationship between art and ecology within the Forest School model empowered the children in three distinct ways:

- (1) **they became scientists/artists**
- (2) they made **discoveries through collaborative efforts**
- (3) they **infused art and science** as they shared sketches and explored their environment.





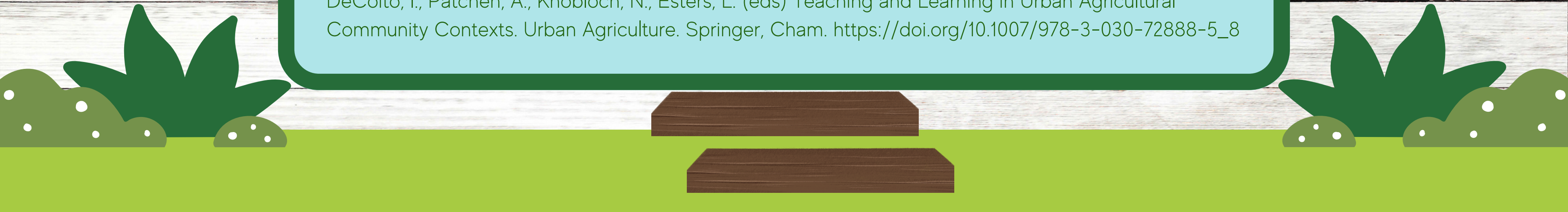
"As the camp progressed, the children filled their field notebooks with sketches, notes, and labels (see image)...They also designed and created forts using some manmade objects and some objects found in nature'

Figure 2. An example of a child's field sketchbook with imagined insects sketches as part of their research.





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Thank for your attention

