LESSON PLAN

THE SECRET LIFE OF SEEDS



Subjects: Science, Environment & Nature, Technology, Arts, Digital Literacy, Engineering
Age Range: 4-5 years

Problem to be solved: Children explore plant growth and the environment, observing how seeds develop into plants and how to care for them.

Message for the Child: "Let's listen very quietly. The seeds want to tell us something."

Planned Activities:
Part 1: Exploring seeds
Part 2: From seed to plant
Part 3: From learning to gardening
Part 4: Conclusions

Knowledge to be acquired
Children will develop the understanding of:
- the basic life cycle of a plant, from seed to growing plant;
- the conditions plants need to grow, including water, light, suitable soil and space;
- how seeds can be dispersed by natural forces, such as wind;
- how environmental conditions can affect plant growth;
- the differences between growing conditions, such as sun and shade or moist and dry soil;
- how plants change and develop over time;
- the importance of caring for plants and the natural environment;
- how observation, comparison and experimentation can help us understand natural processes;
- ability to make predictions and comparisons
- the connection between plants, their growing environment and the wider natural world.

Skills to be acquired
Children will develop the ability to:
- observe and describe seeds, plants and changes in plant growth;
- make predictions and simple assumptions based on their observations;
- plan and sequence simple steps for planting and growing plants;
- make choices about seeds, containers, locations and growing conditions;
- carry out simple experiments and compare different growing conditions;
- use age-appropriate gardening tools safely and purposefully;
- develop fine motor skills through planting, watering and handling natural materials;
- document observations through photographs, drawings and simple records;
- compare results and identify similarities and differences;
- communicate observations, ideas, predictions and conclusions;
- reflect on what they discovered and consider what they might change or try next;
- cooperate with others, share tasks and take responsibility for caring for plants;
- connect observations from indoor investigations with experiences in the outdoor environment.

Required resources:
- book: The Tiny Seed by Eric Carle;
- (a link to buy the book is attached below; link to use an audio version or a flipbook with pictographs are attached below)
- seeds: lettuce, peas, onion, cherry tomato, sunflower;
- flowerpots, empty toilet paper rolls or used plastic cups;
- soil;
- watering cans;
- hairdryer;
- camera/tablet on a tripod for timelapse photos;
- flowerbeds and rainwater collection point;
- electricity for using hairdryers
- a tablet or a computer to use audiobook or online flipbook
- internet connection to use audiobook or online flipbook

Follow up plans:
- Continue monitoring and documenting plant growth over time.
- Harvest and use suitable produce as food, connecting gardening with healthy eating and everyday life.
- Use plants, leaves and flowers in creative activities and artworks.
- Collect and dry selected flowers and blooms for later use in crafts and artistic projects.
- Revisit children's observations and questions to develop further investigations about plants, nature and seasonal changes.

STEAM outdoor activity center: seeds and seedlings, soil and compost, small gardening tools, watering cans and access to collected rainwater, clipboards with paper and pencils, plant identification cards or simple visual guides, a designated planting and observation area where children can regularly return to their plants.

Part 1 - Exploring seeds | 2-3 activities

Expected Learning Outcome	**The child:** • shows curiosity and interest in seeds, plants and nature. • understands that plants grow and develop through different stages. • observes and describes simple characteristics and changes in seeds and plants. • makes simple predictions and assumptions about how seeds and plants grow or move. • compares observations and discusses what they discover.
Engagement:	1. Read The Tiny Seed aloud and explore the illustrations. 2. Invite children to share what they notice and already know about seeds: “What is a seed?”, “What happens to a seed?”, “How can a seed travel from one place to another?” 3. Introduce the “Wind’s Dance” experiment: give each child a paper seed and invite them to predict where it will land when blown by a hairdryer. 4. Test the paper seeds and observe whether they land in water, sand, soil or somewhere else. 5. Discuss: “What made the seed move?”, “Where did it land?”, “What do you think would happen to a real seed?”
Making assumptions	Children • share ideas about how seeds travel in nature: “How do you think a seed can move from one place to another?” • predict where their paper seed will land when moved by the wind. • make predictions about what might happen to a seed after it lands. • discuss what they think a seed needs to begin growing: “What do you think a seed needs to grow?” • make predictions based on the pictures and events in The Tiny Seed.
Comparison and evaluation	• Compare pictures from The Tiny Seed: seed, growing plant and flower. • Compare where the paper seeds landed during “The Wind’s Dance” and discuss why they landed in different places. • Discuss why some seeds in the story grew while others did not. • Revisit children’s predictions: “What did we think would happen? What did we discover?” • Encourage children to explain what they think a seed needs in order to grow.

Part 2 - From seed to plant (5-6 activities)

Expected Learning Outcome	**The child:** • understands the basic stages of plant growth. • identifies and describes what plants need to grow. • participates in simple planning and decision-making related to planting and growing plants. • makes simple predictions and investigates how different conditions affect plant growth. • observes, documents and describes changes in plant growth over time. • develops creativity and problem-solving skills through hands-on investigation. • compares observations and reflects on what they have discovered.
Engagement	1. Begin with the question: "How can we help a seed grow?" 2. Invite children to share their ideas about what a seed needs and how they could help it grow. 3. Show different seeds and encourage children to observe and compare them. 4. Ask: "Where should we put our seed?", "How much water might it need?", "What do you think will happen?" 5. Introducing the challenge: "Can we plan an experiment to find out what helps a seed grow?" Encourage children to make initial predictions before planning and planting.
Choosing the design of the plan	**Children:** • choose which plant they would like to grow (e.g. lettuce, peas, onion, cherry tomato or sunflower). • discuss what their chosen plant needs to grow and decide where it should be placed, considering sun or shade. • decide which container and materials they will use for planting. • sequence the steps needed for planting: container, soil, seed and water. • draw their planting plan and explain their choices. • select and use appropriate gardening tools, such as a pot and watering can.
Constructing the plan	**Children:** • plant the selected seeds according to their plan. • make a plant pot using an empty toilet paper roll or a reused plastic cup. • set up an experiment by planting the same seeds in different conditions, for example in a dark box with a small opening and on a windowsill. • take weekly photos of the plants as they grow and observe and discuss changes over time. • compile the photos into a simple timelapse video. • watch the completed video together • discuss: "What changed the most?" "What helped the plants grow?" "What would we do differently next time?"
Evaluating the work	**Children:** • observe whether the seeds have germinated and how the plants have changed over time. • compare the plants grown in different conditions, such as the dark box and windowsill. • discuss what helped the plants grow and what may have limited their growth. • compare the results with their initial predictions: "What did we think would happen?" "What actually happened?" • discuss what worked, what did not work and what they would change if they repeated the experiment.

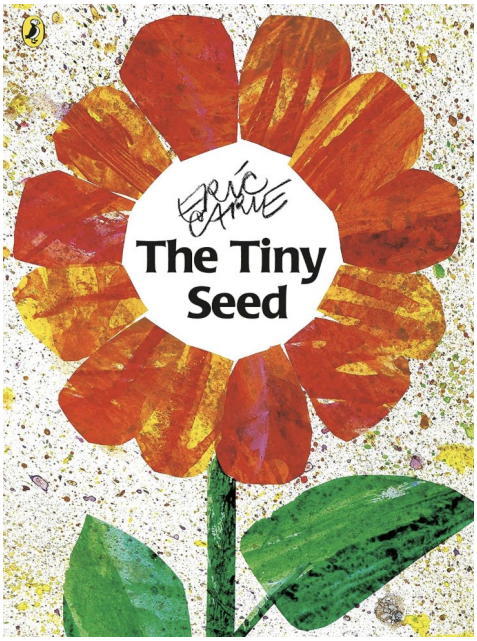
Part 3 - From learning to gardening (2-3 activities)

Expected Learning Outcome	**The child:** • practices caring for plants and the garden. • develops fine motor skills through hands-on gardening activities. • observes plant growth and other natural processes outdoors. • connects indoor investigations with real experiences in the garden. • makes simple predictions and discusses changes they observe. • uses simple gardening tools safely and purposefully. • cooperates with others and shares gardening tasks. • demonstrates responsibility for caring for plants and the garden. • develops an understanding of the importance of caring for plants and the natural environment.
Engagement	1. Begin with the question: "What can we see happening in the garden today?" Invite children to explore the garden and share what they notice. 2. Revisit previous learning: "What do plants need to grow?" 3. Encourage children to look closely at the plants and notice changes: "What has changed since we last saw them?" 4. Invite children to make predictions: "What do you think will happen to the plants next?" or "When do you think we might see a flower?" 5. Discuss how children can help the plants grow and stay healthy: "What can we do to take care of our plants?" 6. Introduce comparison: "Do you think a plant grows differently in the sun and in the shade?"
Practical part	**Children:** • plant seeds or seedlings in the flowerbeds. • use collected rainwater to water the plants. • choose suitable planting locations according to the plants' sunlight needs, such as sun or shade. • observe the plants and make predictions about how long they might take to grow or when flowers might bloom. • regularly revisit the plants and record changes through drawings, photographs or simple measurements. • compare plants growing in different conditions, such as sun and shade or moist and dry soil. • discuss their observations and consider which conditions seem to support plant growth best.
"Circle" - reflection and discussion	**Children's activity:** • Share observations and experiences. • Recall what plants need to grow. • Make and explain predictions. • Observe and compare plants in different conditions. • Compare predictions with observations. • Draw or describe what they noticed. **Teacher's activity** • Guide the discussion and support children's observations. • Revisit key learning about plant growth. • Encourage predictions and explanations. • Ask guiding questions: • "Which plant do you think will grow fastest?" • "How does watering help the plant?" • "What can we do to help plants grow better?" • Help children compare predictions with their observations.

Part 4 - Conclusions

Feedback	**Teacher's feedback** • Observe children's participation, engagement and understanding. • Give feedback based on children's observations, predictions and involvement. • Highlight children's discoveries and encourage further exploration. **Children's feedback** • Share what they enjoyed most. • Describe what surprised them about plants. • Share what they learned or discovered. • Say what they would do differently next time.
Observation and improvement	Monitor and document plant growth over time. Compare plants grown in different locations or conditions and discuss which growing methods were successful and which were less effective. Revisit children's drawings and planting plans and adjust care routines when needed. Use harvested plants, leaves and flowers in further activities, such as preparing food, creating artworks and drying flowers for later use.

Available resources:



“The Tiny Seed” by Eric Carle

A link to buy: https://a.co/d/06bGXn24

A link to animated read aloud: https://youtu.be/PqHbUacZ8Nc?si=mSx7N4a6FcyuUkRz

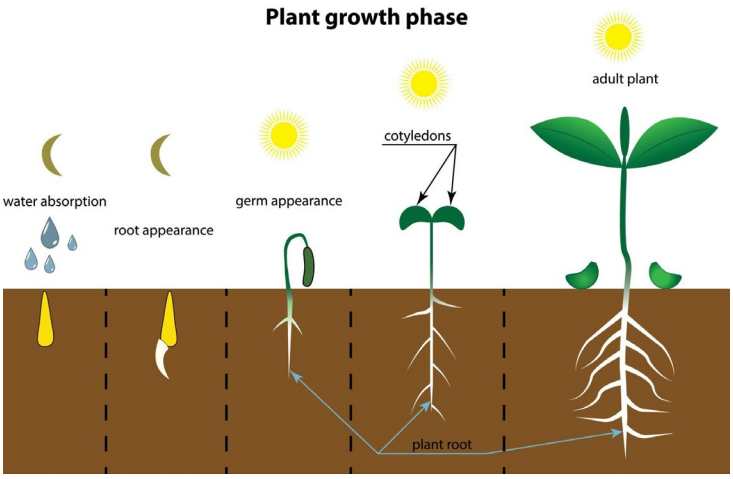
A link to online flip book with pictographs: https://online.fliphtml5.com/uulkp/cxsx/#p=1



Plant in a box light experiment

A link to gather ideas

http://www.thelittlebackyardfarm.com/2014/08/ how-plants-travel-to-find-light.html


Plant growth phase
adult plant
cotyledons
water absorption
germ appearance
root appearance
plant root

Photos for inspiration:















