



Handbook of Nature Activities



Engaging discovery, inclusion,
play, and learning in connection
with Arctic nature.

Written by
Deisi Maricato
Jessica Aquino



HANDBOOK OF NATURE ACTIVITIES

ENGAGING DISCOVERY, INCLUSION, PLAY, AND LEARNING
IN CONNECTION WITH ARCTIC NATURE

WRITTEN BY
DEISI MARICATO AND JESSICA AQUINO

COPY EDITING AND ADDITIONAL ILLUSTRATIONS BY
CÉCILE MARIE CHAUVAT

Project funding:



Project collaborators:



Project supported by:



Maricato, D., and Aquino, J. (2023) Handbook of Nature Activities: Engaging discovery, inclusion, play, and learning in connection with Arctic nature. *Sauðárkrókur, Iceland: Hólar University*

© 2023 Deisi Maricato and Jessica Aquino

Útgefandi/Publisher: Háskólans á Hólum. Hólar í Hjaltadal, 551 Sauðárkrókur, Ísland.

Heiti/Title: Handbook of Nature Activities: Engaging discovery, inclusion, play, and learning in connection with Arctic nature

Höfundar/Authors: Deisi Maricato and Jessica Aquino

Handbook of Nature Activities: Engaging discovery, inclusion, play, and learning in connection with Arctic nature (online ed.)

ISBN: 978-9935-9722-0-0

Handbook of Nature Activities: Engaging discovery, inclusion, play, and learning in connection with Arctic nature (print ed.)

ISBN: 978-9935-9722-1-7

Öll réttindi áskilin. Bók þessa má ekki afrita með neinum hætti, svo sem með ljósmyndun, prentun, hljóðritun eða á annan sambærilegan hátt, að hluta eða í heild, án skriflegs samþykkis útgefanda.

All rights reserved. This book may not be reproduced in any manner, such as photography, printing, recording or otherwise, in whole or in part, without the written permission of the publisher.

Illustrations © Cécile Marie Chauvat p 22: raven, salmon, humpback whale, female grey seal, arctic fox, and puffin; p 25: plant press; p 30 moss terrarium; p 61: Hvamstangi and seals in Vatnsnes p62: Hvítserkur

Photos @ Deisi Maricato p. 05, 11, 15, 19, 20, 26, 27, 32, 33, 36, 44, 50, 52, 53, 54, 63, 64, and 67.

Photos @ Jessica Aquino p. 10, 45, 46 and 49.

Photos @ Cécile Marie Chauvat p. 40.

Design and layout: Deisi Maricato and Cécile Marie Chauvat



ACKNOWLEDGMENT

Our sincere thanks to the educators who helped our project by carrying out the Handbook activities in their teaching-learning context. Thank you especially to Special and Inclusive Education Teacher, Guðrún Rögnvaldsdóttir and her team at Grunnskóli Fjallabyggðar, Iceland; and to Karítas Sigurbjörg Björnsdóttir from FabLab in Sauðárkrókur, Iceland for helping us create some of the project ideas at the Fabrication Laboratory and for your encouragement. Thank you to the teachers at Leikskólinn Tröllaborg and Grunnskólinn austan Vatna, Suaðarkrókkur, Iceland for the wonderful work that you do with outdoor education, especially Guðmunda Magnúsdóttir and Christine Hellwig. Thank you to Grunnskóli Húnaþings vestra, Iceland for allowing us to do some environmental education projects at your school. We had a lot of fun with your students. And special thanks to Laura Ann Howser for your encouragement and kind words. We would also like to thank Cécile Marie Chauvat for your dedication in copy editing the Handbook and for your artistry in the illustrations that you have made. It has been a pleasure working on this Handbook with such wonderful friends and colleagues.







TABLE OF CONTENTS

About the Handbook.....	9
Multi Pedagogical Perspectives.....	12
Sticky Scavenger Hunt.....	16
Butterflies.....	18
Roll Bird Feeder.....	19
Natural Masks.....	21
Nature bracelet.....	23
Natural light catcher.....	24
Decorating butterflies.....	27
Paper bodies with natural materials.....	28
Moss Terrarium.....	29
Fairies and Gnomes.....	31
Egg box scavenger hunt.....	33
Collection Race.....	35
Flower Press.....	37





Recycled paper and flowers.....	41
Confetti with dry leaves.....	43
Printing tote bags.....	45
Move like Arctic animals.....	47
Peace Garden.....	50
Literacy sandbox.....	52
Art with stones.....	53
Stick stars.....	55
Write a story.....	56
Frozen globes.....	57
Frozen bubbles.....	59
Observing the natural landscape.....	61
Suncatchers.....	63
Books that connect with Nature.....	65
References.....	68



DEDICATION

I would like to dedicate this work to my beloved family who, through love, empathy and companionship, make my journey on this planet lighter and sweeter. And to the natural world, for providing me with the best and beautiful memories of my childhood.

Deisi Maricato

To my father who was my first nature guide. Thank you for helping me see how wonderful the natural world was in my own backyard. To my patient husband who goes with us on extended camping trips around Iceland despite his allergies and how fond the midges are of him. And to my two very energetic boys who help me see the world through your eyes.

Jessica Aquino





ABOUT THE HANDBOOK

The Handbook of Nature Activities is a free online ebook of outdoor education activities for children ages 5-10 years-old. It can be used in school as classroom activities, with youth groups, or with parents and guardians. The Handbook is based on a socio-constructivist approach where individuals build knowledge through their experiences with their environment and through social integration. It seeks to promote a deeper link between youth and nature in a playful way, through place-based games and crafts connected with the local environment in their own community. We hope that these activities help to promote a practice of learning that respects the cultural and social identity of young people, encouraging a greater connection with their local community and the world around them.

The diversity of the human universe shows us the importance of developing a teaching-learning practice that helps respect the realities of each individual. Throughout the process of building this Handbook we wanted to build each activity with inclusion in mind. We believe that all young people should be embraced and welcomed by the project. We have added tips on how to adapt the activities for young people with disabilities (developmental or physical). Each of the Handbook's activities uses words in simple sign language, Tákni með tali (TMT), used within the public school system in Iceland. TMT is used in this Handbook to encourage other forms of communication with young people who may have a speech delays; or who are in the process of learning the local language. It is the authors' hope that this handbook shows how easily nature-based activities can be adapted in schools or for youth groups.



The activities in this Handbook reinforce the cognitive importance and well-being through contact with nature. Also included are many activities that can be performed indoors if the weather outside does not allow being outdoors.

The Handbook has a multidisciplinary focus, making it possible to link activities with different disciplines. This includes:

- Promoting learning through sensory experiences with nature
- Understanding the importance of preserving the natural environment
- Promoting the importance of civic engagement
- Promoting empathy
- Encouraging inclusion and respect of human diversity
- Stimulating autonomy and collaboration
- Supporting the learning processes through exploration, curiosity and discovery
- Helping to develop self-motivation and self-regulation during the learning process







MULTI PEDAGOGICAL PERSPECTIVES

NATURE-BASED EDUCATION

Nature-based education aims to promote pedagogical actions that embrace nature by promoting connection, care, and respect for the natural world within the educational environment. Outdoor teaching-learning practices, as well as opportunities to have learning experiences outside the classroom, are encouraged (Dewey, 2007). This allows children to explore the natural world in a fun way. Promoting learning through connection with nature can be beneficial for children's physical and emotional well-being (Cree and Robb, 2021).



PLACE-BASED EDUCATION

Place-based education is about creating inclusiveness through building compassion, responsibility, and respect. This method includes all members of the community towards a more sustainable environment (Aquino, 2019). It also acknowledges that humans are connected to and have an influence on ecosystems (Shannon, 2017). Place-based education aims to develop teaching-learning activities based on young people's cultural, historical, geographic, and social world. These learning activities help to promote the learner's connection with their own reality and their local community (Smith, 2002; Sobel, 2017).

In this way, the learning process that is meaningful to children can encourage them to develop a sense of belonging to place (Barron et. al., 2020) and the construction of identity with their local communities. By building this identity, children develop greater awareness of how their actions towards the environment may interact with the well-being and sustainability of the place where they live (Pereira and Castrogiovanni, 2020).





EDUCATION FOR DIVERSITY AND INCLUSION

This Handbook was written in Iceland by authors who are immigrants and mothers of children with typical and atypical development, as well as multicultural, multiracial, and multilingual backgrounds. Inclusive education understands the importance of respecting differences and diversities in educational environments, and seeks to ensure successful learning by adapting to the needs of the learners. Both as an educational philosophy and practice, it aims to promote active learning and participation for all (Moriña, 2017). The Icelandic policy for inclusive education reflects the idea of 'the school of diversity' or 'skóli marg-breytileikans' in Icelandic (Magnúsdóttir, 2016). In this sense, teaching practices should seek to ensure respect for all diversity and (dis)abilities (Ainscow, 2020; UNESCO, 2017); including race, gender, sexual orientation, religious, multicultural, and linguistic realities, different worldviews, indigenous peoples, etc. Inclusive and equitable access to education for all learners should be ensured (UNESCO, 2017; Armstrong et. al., 2011) to promote a liberating education that recognizes and respects differences (Freire, 2014).



MINDFULNESS

Mindfulness educational activities encourage reflection and being aware of the present moment (Fisher, 2020); and help to promote the development of adaptive, social, and emotional skills in children (Parker et. al., 2014). It also fosters future-focused competence (Leland, 2015), for example solving problems, planning, and decision-making (Chiesa et. al, 2011). Similarly, studies highlight the benefits of using mindfulness in the education of children with learning disabilities (Thomas, 2013). Leland (2015) points out that mindfulness in education minimizes the impact of bullying, helps students with learning disabilities, and benefits students who are training in careers with high emotion and stress.





EDUCATION AS A REFLECTIVE PRACTICE

The activities created throughout the Handbook are meant to be used within a reflective practice. It is important, as an educator or youth leader, to reflect on the practice of learning. This helps to actively create a supportive environment that is responsive to the needs and differences of all youngsters in the group. Reflective practice is a concept that acknowledges how we learn by reflecting on our experience, which in turn helps us to take action for change (Jasper, 2003). Also known as the experience, reflection, action model (ERA); it is explained as:

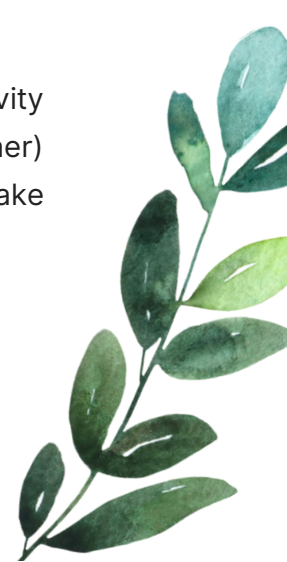
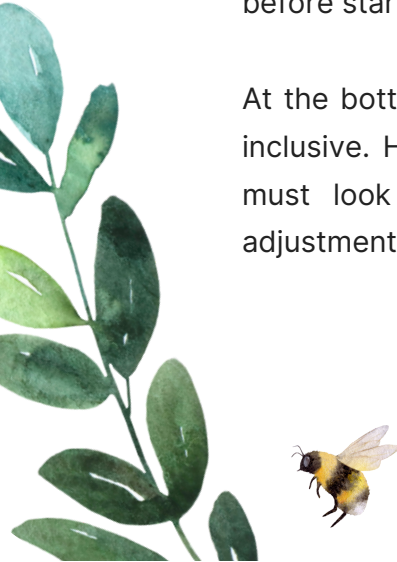
- **Experience:** thinking of the experience that has happened
- **Reflection:** thinking about how the experience could have been different and what changes can be made for improvement
- **Action:** using this new perspective to take action for change (Bassot, 2020)

HOW TO USE THE HANDBOOK



Each activity will list the materials and the procedure needed. The Handbook encourages outdoor adventure and the collection of materials available in the natural world. However, this is not always possible. We suggest collecting extra natural materials when you are out with your youth if you can. They can be used later when it is not practical to carry out outdoor activities due to weather conditions or any other reason. Throughout the book, materials that can be collected outside during the activity, or otherwise should be procured before starting the activity, will be marked with this leaf symbol 🍃.

At the bottom of the page we give some tips about how to make the activity inclusive. However, the educator (parent, guardian, youth leader, or teacher) must look at the activity from a learner-centered approach and make adjustments based on the needs of the learner.







STICKY SCAVENGER HUNT

Materials:

- Cardboard box
- Marker pen
- Double-sided tape
- Scissors

Procedure:

Cut out the cardboard box to form a flat panel. Then, draw a large table split into two columns. Name the first column "Find it" and list plants that the youngsters will be asked to find in the natural environment. Name the second column "Stick it". Cover each cell in this column with double-sided adhesive tape. Then, the students can stick the plants they collect outside in their corresponding place in the table. This activity will help in learning to identify plants.



THINKING ABOUT INCLUSION

Socialization in the school environment means that all youngsters should be included regardless of their (dis)abilities. By including students with disabilities in activities along with their classmates, you are promoting socialization, empathy, and awareness of human diversity in the group. On an individual level, this activity stimulates concentration, body control, and fine motor skills as the youngsters must collect the objects in nature and then stick them to the cardboard. It also stimulates global motor coordination as they will use movements such as running, walking, or crouching when chasing objects.



Observe



Find it	Stick it
Blueberries	
Feather	
Dandelion	
Green Leaves	
Yellow leaves	
Red leaves	

BUTTERFLIES

Materials:

- Glue
- Paper
- Natural materials such as branches, leaves, and flowers 🌿

Procedure:

After collecting material from nature, you can create butterflies on the paper by gluing branches, leaves, and flowers. This activity aims to promote students' perception of nuances and changes in color. It also encourages creativity through an artistic and playful activity.

THINKING ABOUT INCLUSION

This activity promotes fine motor coordination which is important for the development of hand, finger, and wrist muscles. Handling different objects present in nature helps children to develop curiosity and perception about differences and similarities between them. In addition, through this activity it is possible to encourage the enrichment of children's vocabulary, for example by saying the name and characteristic of each object and encouraging them to repeat the words.

The educator should make sure that all youths are able to participate in the experiment by exploring the colors of flowers, sticks, and leaves.



Butterfly



ROLL BIRD FEEDER

Materials:

- Toilet paper roll
- Peanut butter (or sunflower seed paste)
- Birds seeds

Procedure:

Before this activity, please be aware of possible allergies. If someone has a nut allergy, you can use sunflower seed paste as an alternative. With your youngsters, rub the peanut butter (or sunflower seed paste) on the outside of the toilet paper tube. Next, roll the tube in bird seeds. Then, they must pass a string through the inside of the tube in order to create a ring that can be hung from a tree branch. Finally, go for a walk together near a public garden or somewhere near the school where it is possible to hang the bird feeders. Enjoy bird watching!



THINKING ABOUT INCLUSION

This activity can focus on different sensory perceptions. For example, taste and smell, as the youngsters can smell and eat peanut butter or sunflower seed paste (check for allergies). Touch is stimulated through contact with the different textures, and sight through the different colors of the seeds.



Bird



NATURE MASKS

Materials:

- A4 paper
- Printer
- Scissors
- Glue
- Cardboard
- Natural materials like leaves, flowers and sticks 🌿

Procedure:

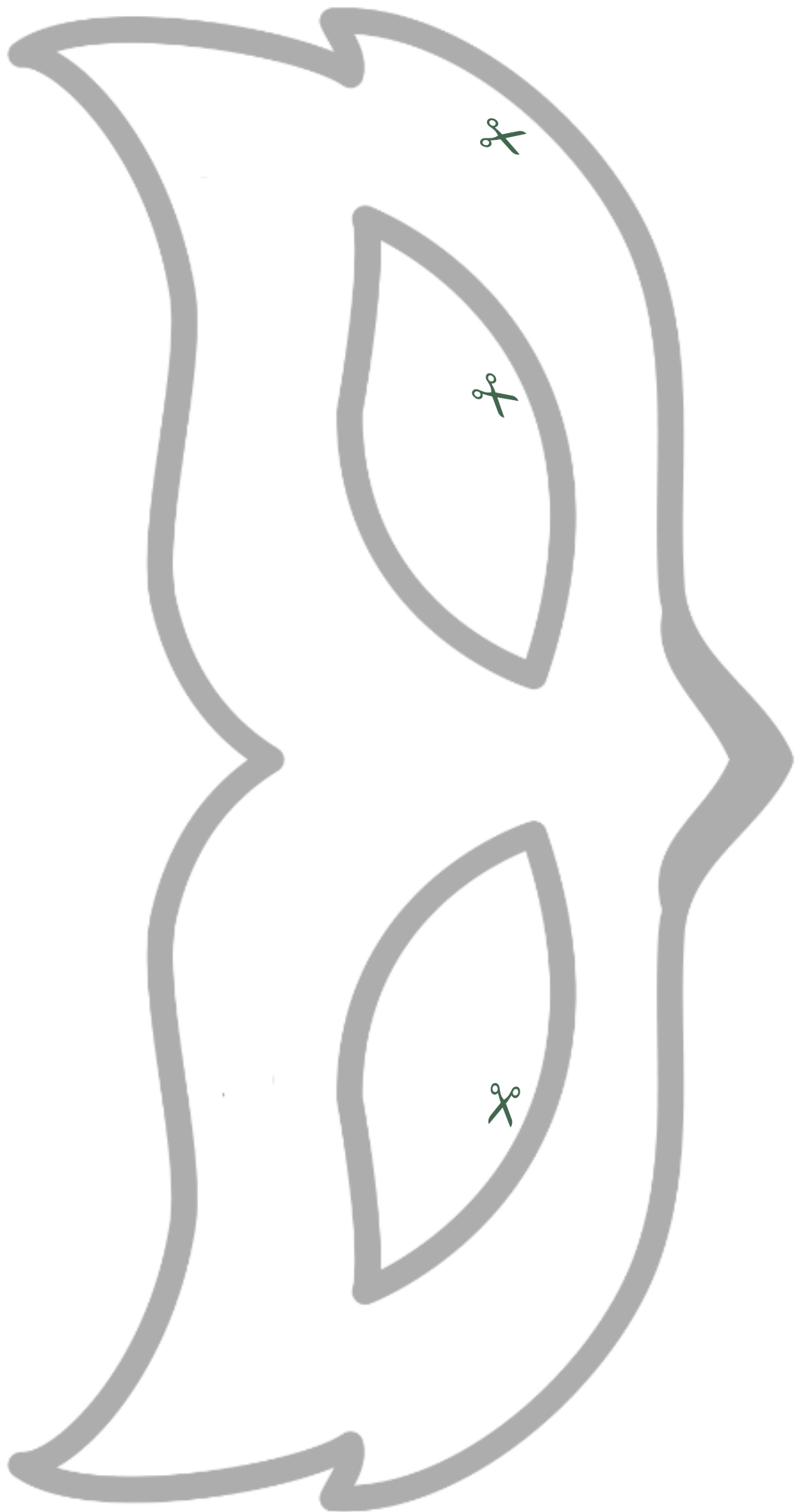
Print the image on the following page and distribute it among your youngsters. To give more structure to the masks, glue them on cardboard before cutting them out. Have your youth cut out the mask and eye spaces by cutting along the lines with the scissors icon. They can decorate the mask by gluing on the leaves, flowers and sticks they collected earlier.

THINKING ABOUT INCLUSION

Youngster's social and emotional growth depends on safe access to social interactions and experiences. Through the masks created in this activity, you can work with the children's feelings, such as joy or sadness. To help with this process, you can use a mirror for a complementary activity where youngsters play and explore facial expressions. They can draw the facial expressions they like most on a sheet of A4 paper and then decorate it with natural elements.



Scissors





NATURE BRACELET

Materials:

- A4 paper
- Ruler
- Pencil
- Scissors
- Double-sided tape
- Flowers 🌸

Procedure:

First, using a ruler and a pencil, draw horizontal lines on A4 paper, leaving a space of 4 cm - 5 cm between them. Then, cut along the lines to form strips of paper, and put double-sided tape along the entire length of the strip. To carry out this activity, take the youngsters on a walk where they will pick flowers to make the bracelets.

Once the flowers have been picked and you are back from the walk, give a strip of paper with double-sided tape to each person. The youth can decorate their bracelet by sticking flowers on the strip of paper. When they are done, the ends of the strips can be glued to each other and the bracelets will be ready.



Flower

THINKING ABOUT INCLUSION

Making art while playing encourages creativity, intuition, self-regulation, and self-determination. To engage the youth's active participation in this activity, the educator can stimulate curiosity through questions about the colors, textures, and aromas of the objects they see.





NATURAL LIGHT CATCHER

Materials:

- A4 paper
- Printer
- Tape
- Scissors
- String
- Self-adhesive laminating sheets
- Flower petals 

Procedures:

Print the oval found on the next page. Ask the youth to cut out the outline and center of the oval by following the dotted lines with the scissors icons. Next, make a hole in the paper where the circle with an X is located. The youngsters can pass a string through the hole and tie it in a ring to hang up the light catcher later, then fill the center of the oval with a self-adhesive laminating sheet and cut off the excess.

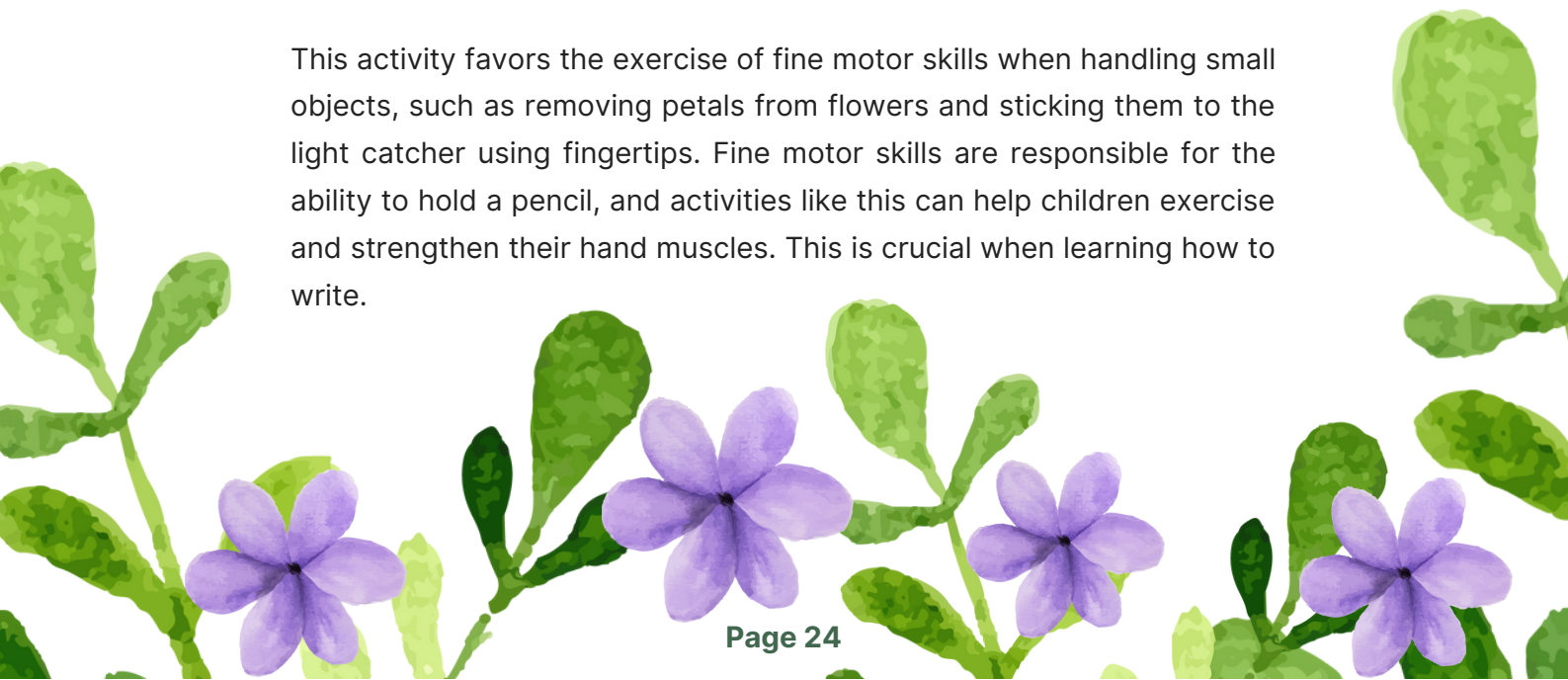
Youngsters should fill in the entire center of the shape by sticking flower petals of different colors on the self-adhesive sheet. When they are done, the light catchers will be ready to be hung in a window where there is sunlight.

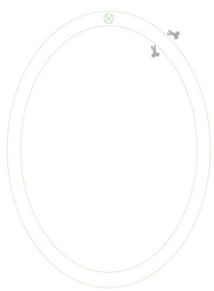
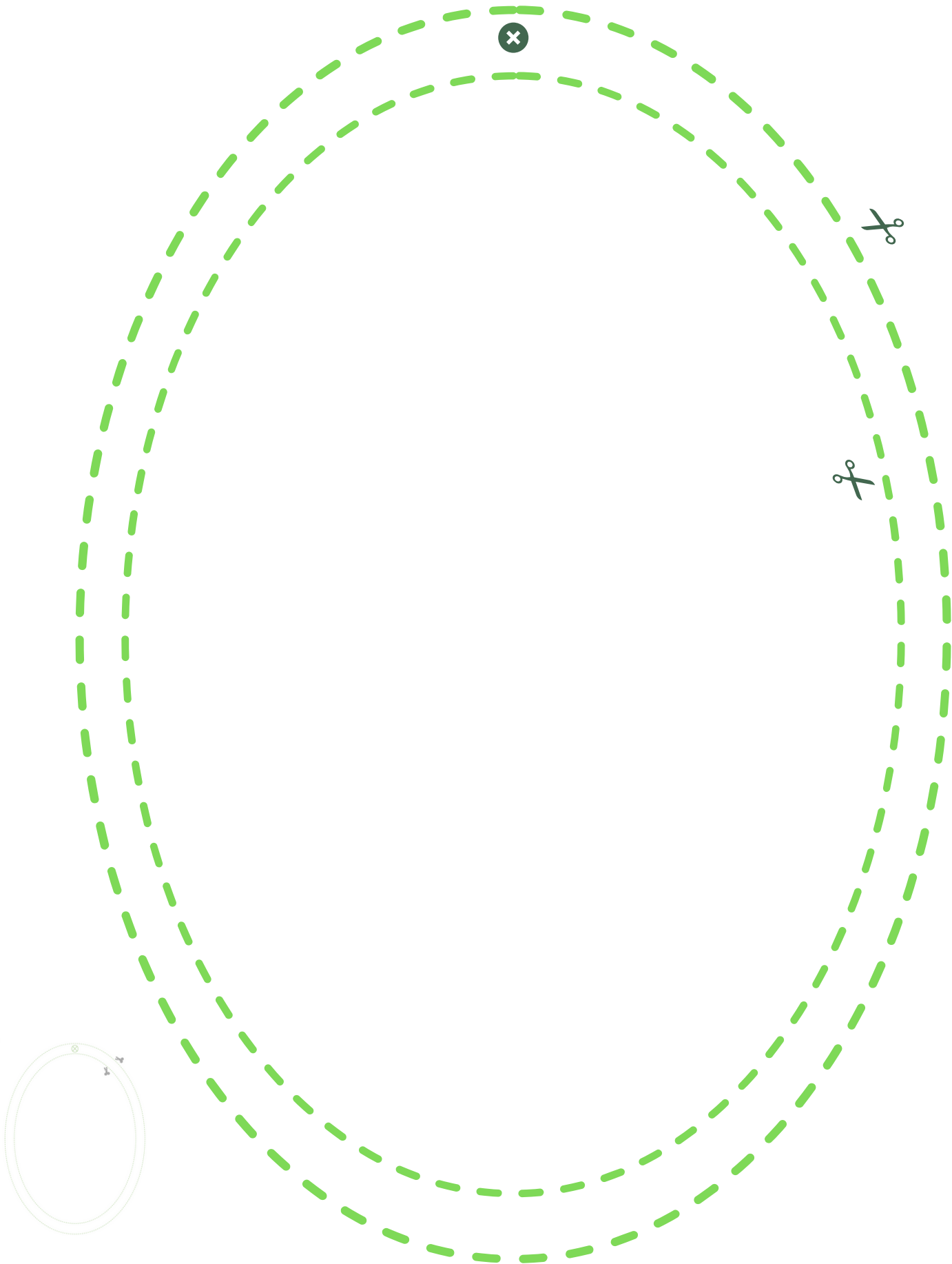


Colors

THINKING ABOUT INCLUSION

This activity favors the exercise of fine motor skills when handling small objects, such as removing petals from flowers and sticking them to the light catcher using fingertips. Fine motor skills are responsible for the ability to hold a pencil, and activities like this can help children exercise and strengthen their hand muscles. This is crucial when learning how to write.









DECORATING BUTTERFLIES

Materials:

- Cardboard box
- Scissors or paper puncher
- Pencil
- Leaves and flowers 🌿

Procedure:

Using a pencil, ask youngsters to draw butterflies on the cardboard box so that both sides of the butterfly are symmetrical. They can cut out the butterflies and make small and symmetrical holes in their wings with a paper puncher or scissors where they will add decorations. Have them decorate the butterflies with flowers and leaves by placing them in these small holes. This activity aims to improve the perception of space, shapes and symmetry.



Beautiful

THINKING ABOUT INCLUSION

For some children with disabilities and hypotonia (meaning decreased muscle tone, which is present for example in children with Down syndrome), performing an activity that requires greater control of muscle tone can be challenging. Therefore, the support of an adult may be needed to hold the butterfly and fill the holes with flowers or leaves. This activity helps to develop motor coordination. It also stimulates concentration through fun and through the sensory appeal of the colors of flowers and leaves.





PAPER BODIES WITH NATURAL MATERIALS

Materials:

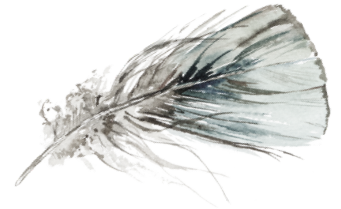
- Kraft paper or wrapping paper
- Pens
- Scissors
- Glue
- Natural materials such as leaves, flowers, and sticks 

Procedure:

Divide the youngsters into small groups of 2-3. Cut a piece of kraft paper or wrapping paper for each youth - it should be a bit longer than they are tall. Then, taking turns, each person will lie down on the paper while the other person draws the outline of their partner's body. Have youngsters cut the paper around the drawn outline, and decorate the paper bodies using natural materials such as leaves, sticks, flowers, or stones.

THINKING ABOUT INCLUSION

Activities like this can be a great inclusive pedagogical tool, especially when there is a student in the group with reduced mobility. If the youth is unable to lie down on the floor, you can use a chair and place the paper behind them on the wall. Alternatively, you can use a light in a dark room to draw the silhouette. Adapting activities to include all students promotes respect and acceptance of diversity. However, it is important to keep in mind that the youth must feel comfortable doing this activity in this way. Always communicate with your youth to determine how to best include them in any activity.



Drawing



MOSS TERRARIUM

Materials:

- Glass jar
- Spoon
- Some small stones
- Dirt
- Moss



Grass

Procedure:

(see next page for an illustration of the layers)

Step 1 – Clean the glass surface well.

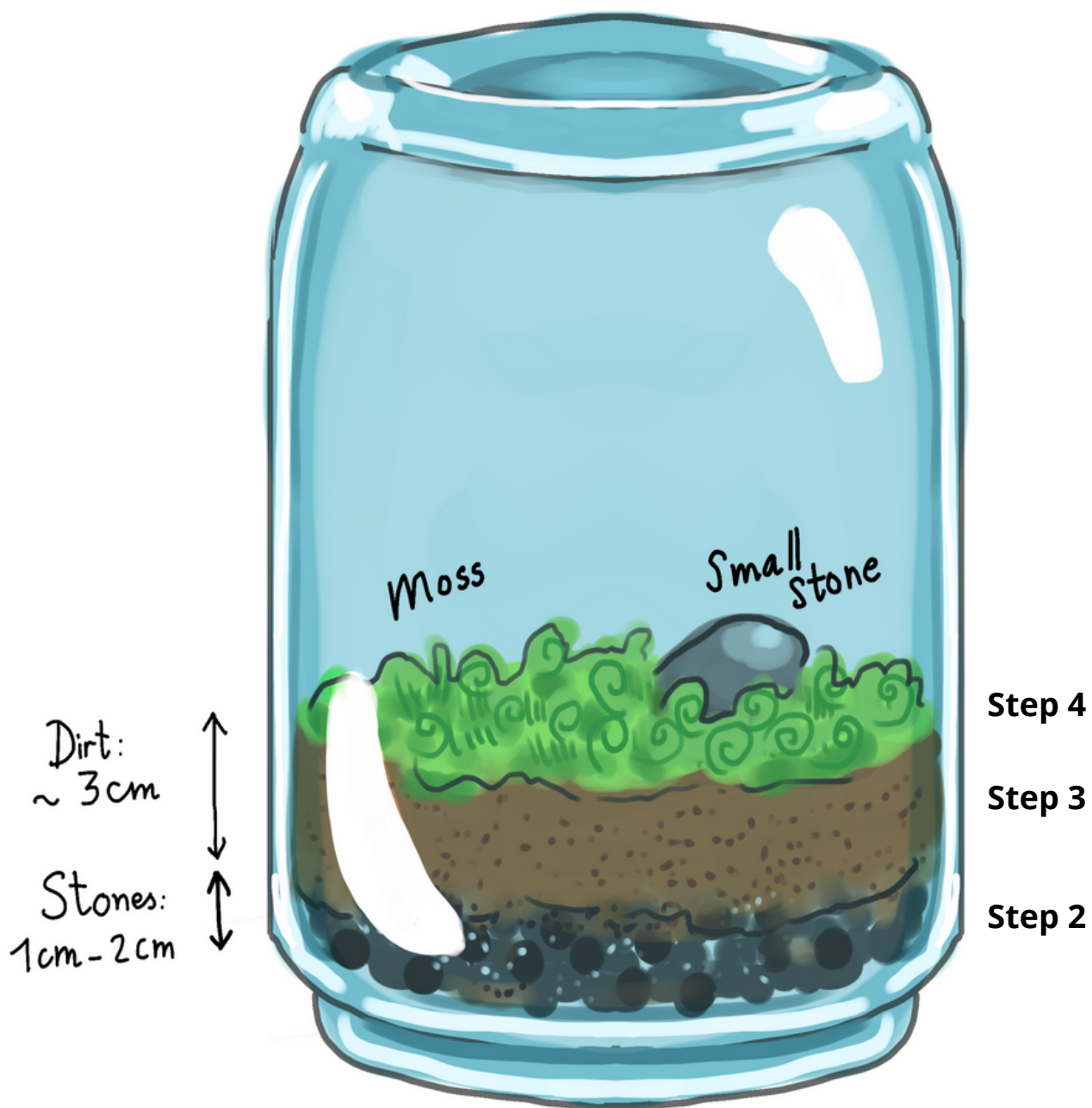
Step 2 – Place small stones up to 1 cm - 2 cm in the bottom of the pot to facilitate water filtration.

Step 3 – With a spoon, gradually place dirt so that it covers all the stones at the bottom of the pot and creates a sufficient layer of dirt for the moss (about 3 cm).

Step 4 - Place the moss little by little in small pieces so that it covers all the dirt. When you are done, gently press the moss into the dirt.

Step 5 – You can decorate your terrarium with stones or small decorative objects. With younger children, this activity can be done as a continuation of storytelling activities about fairies, elves, or gnomes. In this context, children will have to create their own home from these mythological beings.





THINKING ABOUT INCLUSION

This activity is a sensory experience for children through contact with different textures, smells and colors. In addition, when building the terrarium, young people exercise their fine motor skills as they need to handle different materials. Calm background music can be used to encourage concentration while they work.

FAIRIES AND GNOMES



Materials:

- Pinecones 🌲
- Natural or synthetic felt
- Additional decorations (optional) such as small buttons, googly eyes, sticks, etc.

Procedure:

Collect pinecones in a nearby forest or park. If this is not possible, you can sometimes find them in craft shops. The pinecones will serve as the body of fairies or gnomes. Youth should cover the upper part of the pinecones with felt to form a hat. The rest of the pinecone will be the body. You can make the fairies or gnomes' faces by adding details like a felt beard, googly eyes, a seed or button nose, etc. You can also add some arms and legs made out of sticks.

Note: The production of wool in Iceland is very common and it may be easy to access it. You can make your own natural felt at home and there are some great resources online. Natural wool can be dyed with natural dyes using leaves, fruits, earth, and flowers.

THINKING ABOUT INCLUSION

This activity benefits sensory development. Ask youngsters to notice the differences in textures between the objects. Encourage them to check out the difference in scents between each element. This will favor the perception of smell and textures of the different materials used, particularly if you choose to make your own felt with your youth.



Tree







EGG BOX SCAVENGER HUNT

Materials:

- Egg boxes (one per child)
- Printer



Procedure:

You will need a table showing as many small objects as there are spaces in your egg boxes (usually 6, 10, or 12). You can use or modify the table with pictures of the objects available on the next page, or you can create a new table with other objects. You can choose objects with different textures and colors, for example: a soft object, a yellow-colored object, a hard object, an object that can fly in the wind, something pink, etc.

For each egg box, print one of these tables and glue it inside the lid. Give one egg box to each youngster. The pictures represent the objects that the children should look for and collect outside. The table will guide them on where to place each object in its corresponding space in their box, as shown in the photo above.



Forest

THINKING ABOUT INCLUSION

This activity allows youngsters to practice gross motor skills, as they are encouraged to perform different movements such as running or squatting while searching for objects. This is important for the development of muscles and body control. In addition, the activity requires cognitive exercise such as visual and mental planning to decide which objects to collect and where to place them. Collecting objects and exploring their properties, such as color or texture, also exercises fine motor skills.



Objects hunt

	Dandelion		Moss
	Dry leaves		Stick
	Stone		Pine
	Feather		Purple flower
	Yellow flower		Grass
	Leaves		Berries

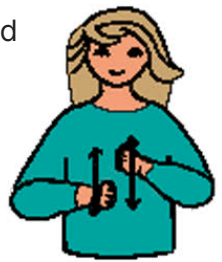
COLLECTION RACE

Materials:

- Stopwatch (or the stopwatch function of your smartphone)

Procedure:

This activity is good for both small and large groups. For large groups, divide the youngsters into smaller groups who will work together to find items. Inform the youth that they must collect a certain object from the environment (e.g. pinecones, flowers, berries, stones, sticks, etc.). They will have a few minutes to complete the task. The group that manages to collect the most objects will win. You can use this activity to work on math by counting the number of objects and categorization skills by grouping the objects into categories. This activity is easy to adapt according to the needs of the group. For example, young children may need more time to organize themselves, explore the environment, and collect objects.



THINKING ABOUT INCLUSION

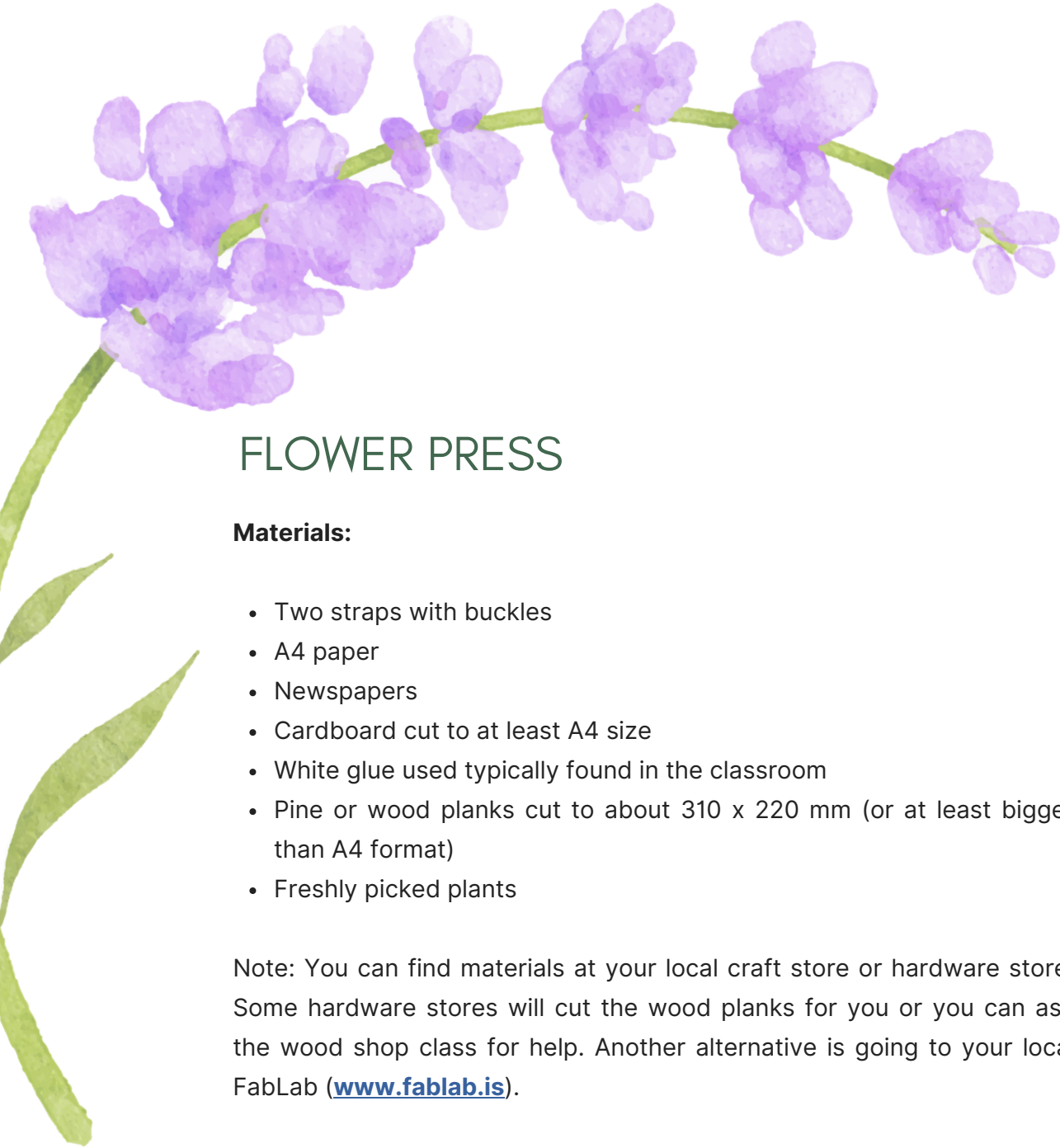
Inclusive physical activities provide opportunities for youth with diverse abilities to participate together in a meaningful way, developing physical and social skills as well as fostering inclusion. Participants with limited mobility may need some encouragement and adaptations of this activity. Walk through the area together first to explore uneven areas or objects that might get in the way while running to find objects.

Playing

After the activity, you can explore the textures, colors or smells of collected objects. With multilingual individuals, you can explore names in their native and local language. Use this opportunity to reinforce the learning of words such as "run", "catch", "play", and many others that you can relate to the activity.







FLOWER PRESS

Materials:

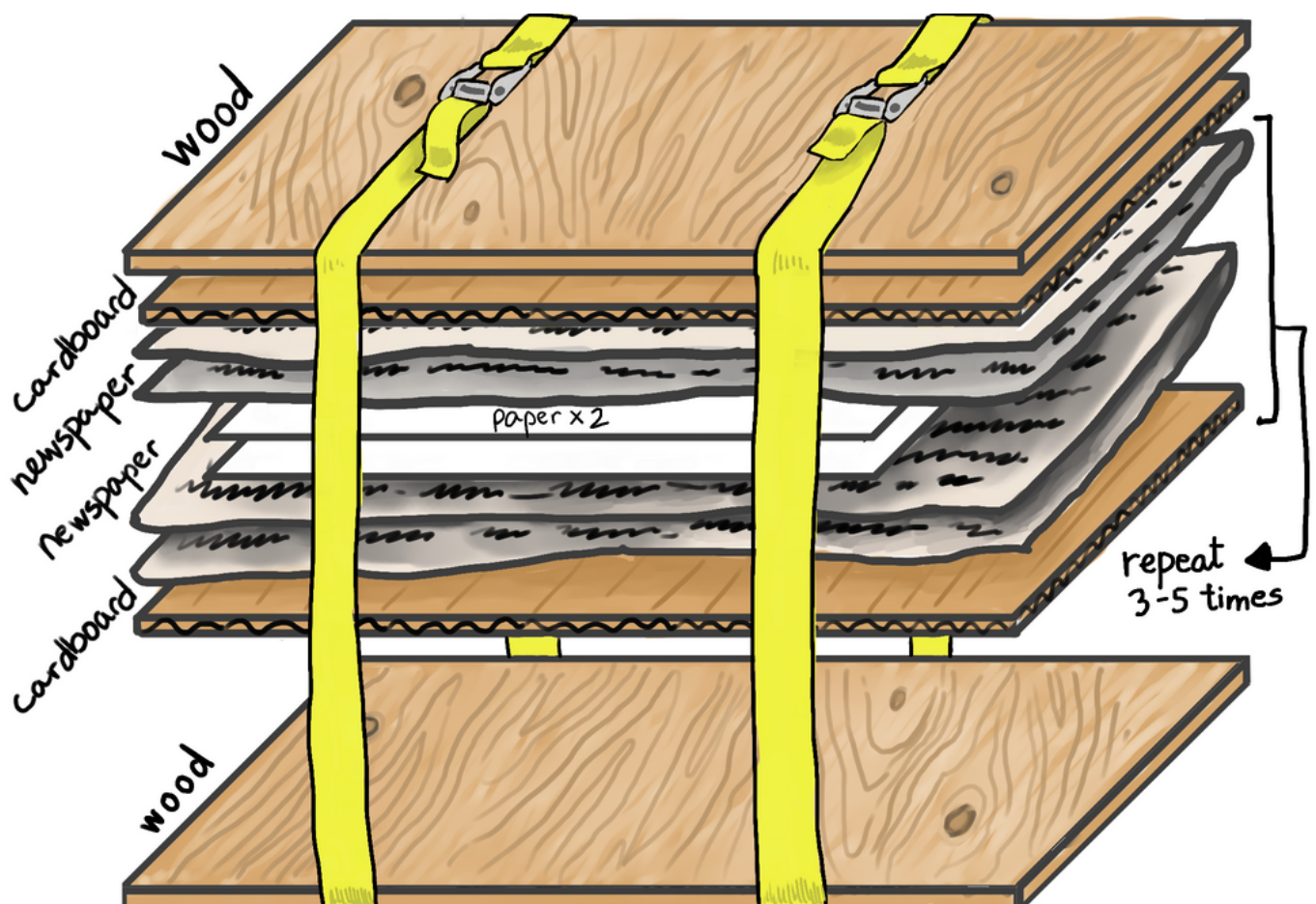
- Two straps with buckles
- A4 paper
- Newspapers
- Cardboard cut to at least A4 size
- White glue used typically found in the classroom
- Pine or wood planks cut to about 310 x 220 mm (or at least bigger than A4 format)
- Freshly picked plants

Note: You can find materials at your local craft store or hardware store. Some hardware stores will cut the wood planks for you or you can ask the wood shop class for help. Another alternative is going to your local FabLab (www.fablab.is).

Procedure:

Assemble the pieces by first placing the wood plank on the table. Next, put these items in this order on top of the wood plank:

1. Cardboard
2. Newspaper (one large sheet folded in half or to fit)
3. Two sheets of paper
4. Newspaper
5. Cardboard
6. Repeat 1-5 until you have 3-5 sections.
7. Place the final wood plank on top.





Time to harvest and dry the plants:

Step 1 - Go out and find some leaves and flowering plants, or even seaweed. You can use a guide book or go to www.arcticnature.org and try to identify the plants that you find. Please do not pick endangered or protected plants, and do not over harvest - only cut small portions of the plants leaving the rest to grow. Some national parks or public parks may not allow you to collect plants, so obtain permission when needed.

Step 2 - If using seaweed, wash it gently in freshwater then pat dry with paper towels.

Step 3 - Place the plants in the press in between the two sheets of white paper. You can place one or several cuttings of plants on the same paper but be careful not to crowd the plants.

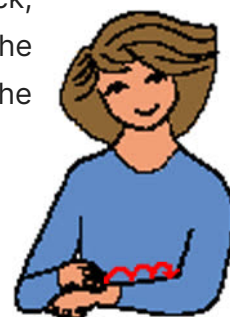
Step 4 - Write the name of the plant next to each cutting.

Press down onto the plant press and use the straps to keep it closed tightly. You can also use a heavy book to weigh it down. Leave the plants to dry for several weeks. Seaweed may require more time to dry.

Be careful not to rip the plants when you open the plant press. Once the plants are dried, place them on watercolor paper, cardstock, or any acid free paper to frame. You can use a bit of glue on the underside of the plants to make them stick to your paper. If the flowers or leaves are thick, use a little more glue and some pressure when gluing them. Label the plants by name, date of collection, collector, and location of the collection. Store it in a cool, dry place to display.

THINKING ABOUT INCLUSION

Working with flowers and dry leaves is a sensory activity that connects youth with nature. This activity provides an opportunity to experiment with different textures and colors. Harvesting the plants in nature also provides exercise. Place the dried flowers and leaves on a window, or under a microscope or magnifying glass to see plant cells, colors, and texture. Light tables for classrooms are also a great learning resource.



Learn







RECYCLED PAPER WITH FLOWERS

Materials:

- Scrap paper
- Water
- Electric blender
- Mold (screen over which the paper sheet will form)
- Deckle (paper recycling frame which will fit around the mold)
- Cotton cloth or other absorbent materials (which should be at least twice the size of the deckle)
- Plastic storage tub (large enough to fit the deckle flat)
- Flowers and leaves 

Procedure:

Step 1 - Place the shredded paper in the tub with enough water to cover the paper and soak for 3 days to loosen the paper fibers.

Step 2 - After 3 days of soaking, the paper is very malleable. Carefully place the paper in an electric blender to form a dough. Add small amounts of paper little by little so as not to damage your blender.

Step 3 - Place the shredded paper back into the tub. Fill with water up to 10cm. This will help dip the mold and deckle to form the sheet of paper. Place flowers and leaves inside the container.

Step 4 - Place the mold and deckle in the water, stirring from side to side so that the paper mass spreads out well. Try to capture leaves and flowers as well, which will make the paper decorated. Then just lift the frame and it will have the sheet of paper that will need to be dried.



Paper



Step 5 – Place the piece of cloth on top of the wet sheet of paper, so that the excess cloth could be folded and double cover the sheet of paper. Gently press the cloth onto the damp paper for better grip. Gently turn the frame over so that the paper is transferred to the cloth. Then, fold the rest of the cloth over the paper.

Step 6 – Place the paper wrapped in the cloth flat in an airy place to facilitate the drying process of the sheet, which can last up to 24 hours. After drying, the sheet of paper will be ready to use.

Going through the process of making paper is a great way to explain to youngsters the chemical process in this activity. The paper has cellulose molecules that act as a glue that will bind together to form paper again. During the recycling process, these molecules are released, but in the drying process they come together again.

THINKING ABOUT INCLUSION

For children, cutting paper with scissors, tearing paper with their hands, or picking up flowers and leaves with their fingertips to decorate the recycled paper, are all motor activities that stimulate concentration, fine motor coordination, and the pinching movement. Acquiring these skills is very important for their development.



Create



CONFETTI WITH DRY LEAVES

Materials:

- Dry leaves 🍃
- Hole puncher with various shapes

Procedure:

Collect dry leaves outside with your youngsters. Back inside, invite them to punch holes of different shapes through the dry leaves with the hole puncher. This creates confetti of different formats which can be used, for example, to decorate cards.

THINKING ABOUT INCLUSION

Performing an activity using a hole puncher exercises fine motor skills, hand coordination, and upper-body muscles. However, it is important to be aware that for children with hypotonia (decreased muscle tone, which causes greater muscle flexibility), this activity requires a greater effort in motor coordination. It may be difficult for them to hold the hole puncher and the leaves, and to exert even pressure on the hole puncher. Therefore, some children may need help to complete the task.



Leaf



PRINTING TOTE BAGS

Materials:

- Tote bags or any cotton fabric
- Water-based paint (make sure that this is suitable for use in the environment)
- Paint roller
- Cardboard
- Baking sheet
- Clothing iron

Procedure:

Manhole covers have different and unique geometric patterns. It is possible to use them to create prints on tote bags or any cotton fabric by transferring these patterns to the fabric.

Step 1 - Cut a piece of cardboard to the same size as the inside of the tote bag, and place it flat inside. This protects the inside from accidental paint transfers, and the sturdiness of the cardboard helps to get a better transfer of the image.

Step 2 - Choose a manhole cover and paint it with a paint roller in the desired color.

Step 3 - Position the fabric over the manhole cover and press it gently in order to transfer the ink to the fabric.



Step 4 - Remove the tote bag and wait for it to dry. During a sunny day, you can hang it in the trees or on a clothing line to dry.

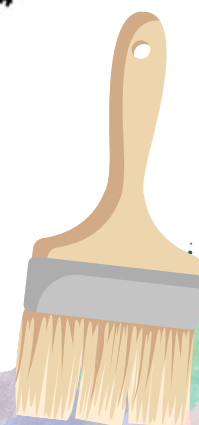
Step 5 - Once dry, place a baking sheet on top of the fabric with the image and lightly press using an iron on medium-high heat (or to the specifications of the fabric). The baking sheet will protect your iron from the paint, and the heat will help to set the paint.

THINKING ABOUT INCLUSION

This activity helps to learn colors, motor coordination, and artistic expression. Art creation is also known to help with self-esteem and well-being. The educator should be present to help the youth decide on the placement of the fabric in relation to the image. Older youth can help youngsters once properly trained in the activity.



Fun





MOVE LIKE ARCTIC ANIMALS

Materials:

- Printer
- Scissors
- Glue

Procedure:

Print, assemble, and glue together the cube with pictures of Arctic animals which is available on the next page. To play, roll the cube, and the animal that appears on the top is the animal that everyone gets to act out. Ask the youth the try to imitate the movements or sounds this animal makes. As needed, you can adapt the activity by choosing other animals to imitate and creating a new cube.

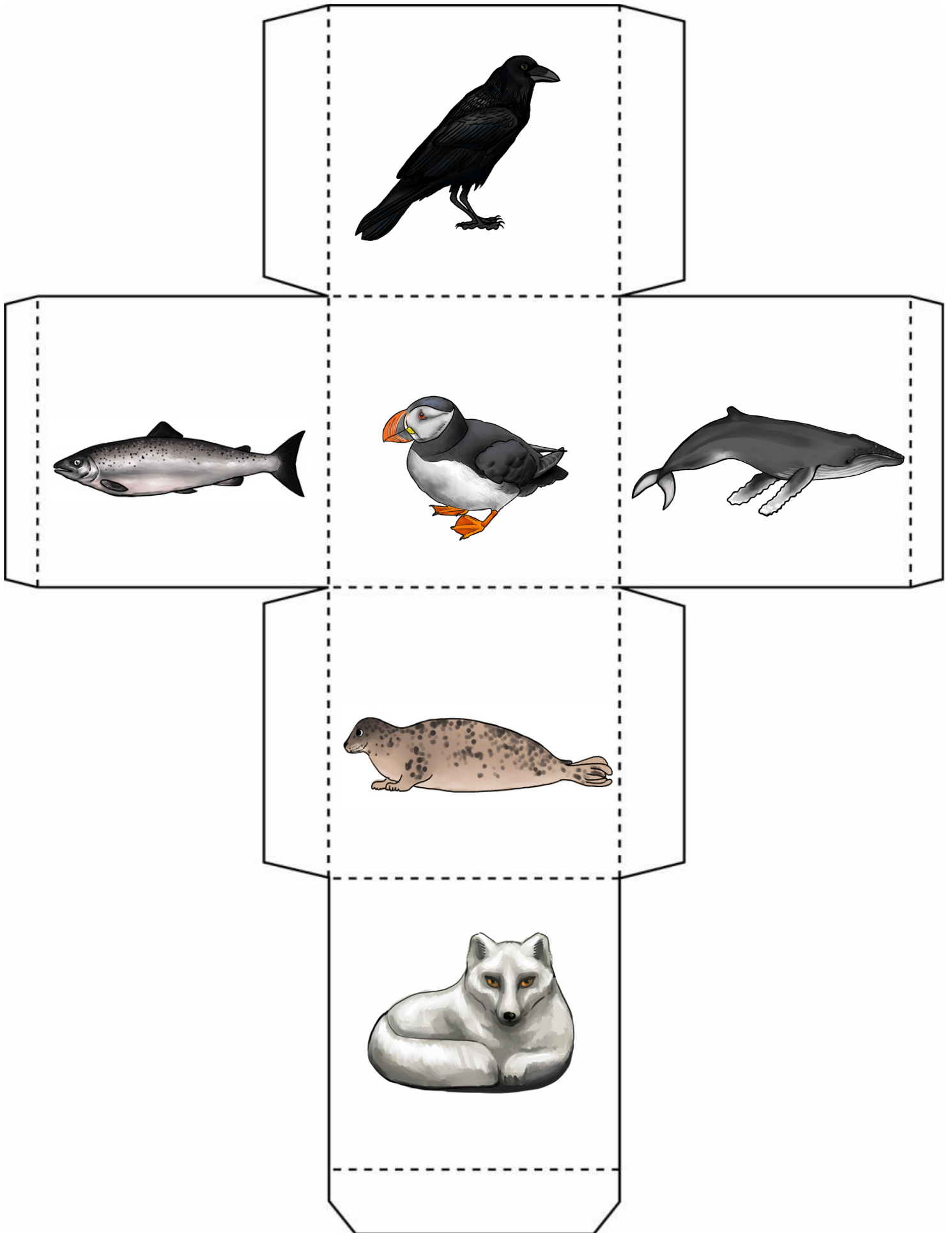


Cube

THINKING ABOUT INCLUSION

Playing by imitating animals is an activity that involves fine and gross motor skills, autonomy, and creativity. Identify potential barriers that may prevent youngsters from participating and learning. A good alternative is to make use of technologies to facilitate learning, such as using sites that make animal sounds available online. For example, you can play Bird Song Hero from the Cornell Lab Bird Academy at <https://bit.ly/3YgV>









PEACE GARDEN

Materials:

- Beach sand
- Stones
- Wood-framed tray (measuring approximately 30 cm x 20 cm x 8 cm)
- Wood or bamboo sticks, or forks, to use as garden rakes.



Procedure:

Go to the beach to collect sand and stones. Together, place just enough of the sand collected on the beach in the tray to cover the bottom of it. Then, place one or two of the stones in the tray. After placing the sand and stones, youth can use this peace garden to draw in the sand, for example by making abstract shapes, or outlining the stones in the sand with the rakes.

THINKING ABOUT INCLUSION

Children learn through play and it helps them to develop emotional, cognitive, and physical skills. This activity exercises fine motor coordination, mobility and hand dexterity. Consequently, it promotes attention, concentration, and self-regulation. The peace garden can also be used to discover mindfulness - the practice of self-regulating attention on the present experience with curiosity, openness, and acceptance (Bishop et al., 2004).



Sand



The practice of mindfulness is known to improve youth's academic and social skills, as well as emotional wellbeing (Erwin & Robinson, 2016). You can invite youngsters to practice mindfulness by taking deep and calm breaths before starting to work on the sand. Suggest that they focus on what they feel or perceive through their senses, such as how they feel when they rake the sand to make beautiful shapes; or how the sand feels when using sticks or fingers. Do not ask too many questions during the activity itself, as this might distract them. Another approach is to ask your youth to treat their thoughts as passing clouds - they should acknowledge them as they pass through their mind, but not try to catch them or focus on them. Being mindful is difficult in the beginning, especially for youth with attention issues such as ADD or anxiety, so reassure the youths if they are having trouble with letting their thoughts go. Mindfulness takes practice.

See also the next activity, Literacy Sandbox, for a similar activity but with a focus on multilingualism, language acquisition, and writing skills.



LITERACY SANDBOX

Materials:

- Beach sand 🌿
- Stones 🌿
- Wood or bamboo sticks
- Wood-framed tray (measuring approximately 30 cm x 20 cm x 8 cm)
- Flashcards with the letters of the alphabet

Procedures:

Go to the beach to collect sand with your youngsters. Together, place just enough of the sand collected on the beach in a tray to cover the bottom of it. To encourage the development of writing skills, show students different letters of the alphabet using the flashcards, and ask the youth to trace the letters with their fingers or with the wooden sticks.

THINKING ABOUT INCLUSION

This activity stimulates fine motor skills, concentration, pre-writing, and recognition of the letters of the alphabet. In addition, working with sand favors sensory touch, as sand has color, texture, temperature, etc. This activity can be carried out inside with small groups of two, or as an individual activity with the help of an adult. Using a multi-linguistic approach (Pollock et al., 2017), this activity is also good for young children and youth who are learning the local language. Use the flashcards to say the alphabet in the local language and then ask the youth to repeat both in the local language and their native language. This helps with language acquisition and cultural pride.



Smart



ART WITH STONES

Materials:

- Pebble stones 🌿
- Multi-surface markers or paint with brushes



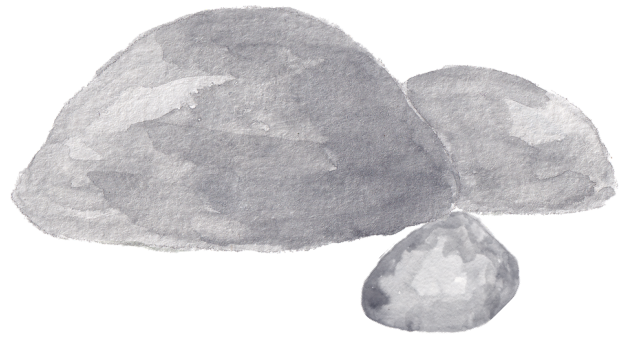
Procedure:

Go for a walk to the edge of a stream or beach, and ask youngsters to collect stones with circular and oval shapes. Next, invite them to use the art supplies to paint or draw on the stones. Use this activity to encourage children's creativity and imagination. The stones can be used as gifts or decoration of a room or classroom.

This activity is best done with pebble stones as they have a rounded shapes due to the friction generated by water in streams or on the shore. Have a conversation about how this process occurs, and explain how different types of rocks are created in nature (sedimentary, igneous and metamorphic).

This activity explores creativity. Drawing and painting by using different materials, and using hands and fingers instead of a brush, are ways to promote creativity, fine motor skills, organizational thinking, and knowledge of colors.





THINKING ABOUT INCLUSION

This activity can be adapted to the needs of youngsters depending on their motor skills and interests. An alternative activity that stimulates the creative process is free play with stones. They can be stacked or used in imaginary play. This encourages reflective processing and logical reasoning.

Stones are natural conductors of heat and cold and can be used as a tool to develop sensory perception of temperatures. Heat the stones in hot water at a temperature comfortable to feel the warmth, but without getting too hot. Other stones can be placed inside the refrigerator or outdoors during the winter to be cooled. This offers an opportunity to explore the stones' varying temperatures and textures.



Stone





STICK STARS

Materials:

- Wooden sticks 🌿
- String or wool thread



Procedure:

Outside, the youth should collect five sticks of the same length and approximately the same diameter.

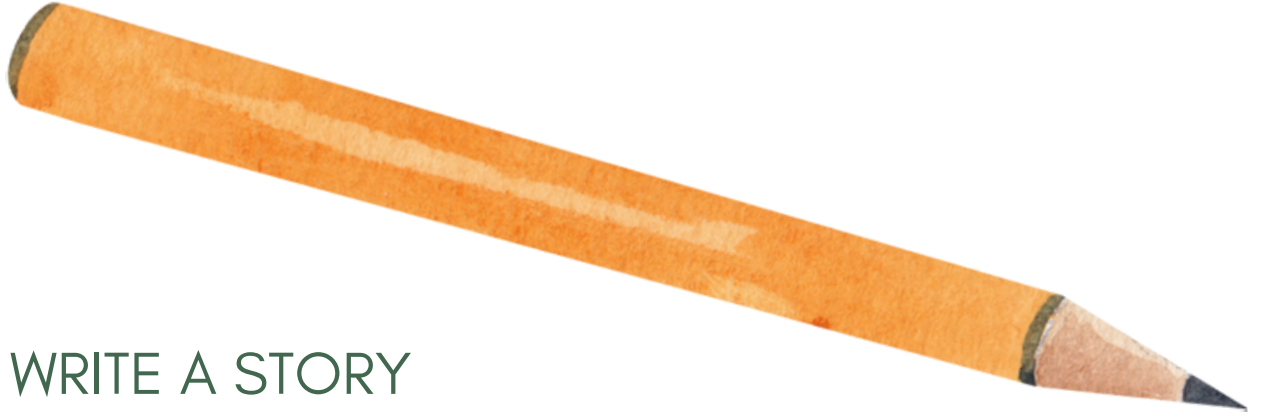
First, show them what a pentagram is, and ask them to form this shape with the sticks they collected. Then, they should tie the ends with string, joining two branches at a time and thus forming a star. To ensure that the star holds together, an adult can place hot glue on all the ends of the star. Then, it will be ready to hang as a decoration.

THINKING ABOUT INCLUSION

Using an element of nature and transforming it into art stimulates the consciousness of creation and transformation. To encourage creativity and imagination further, the educator can tell a story about stars and connect it to the activity. The sense of touch is also stimulated through this activity by working with the textures of wood and string. This activity requires concentration, and the student may need support and supervision to carry out the activity.



Star



WRITE A STORY

Materials:

- Paper
- Pen

Procedure:

Ask youngsters to write a story inspired by the nature around them by giving them an introductory phrase on the basis of which they develop the text. For example: "A group of friends found mysterious footprints in the middle of the forest, so...". You can also start the activity by reading a story together. If you would like to read out loud stories that happen in nature, you can use the book "The Natural Storyteller" (Keable, 2017).

THINKING ABOUT INCLUSION

Oral storytelling promotes reflective thinking, shared experiences, and the interrelatedness between place and people (Gersie et al., 2021). The process of developing and creating stories encourages organizational thinking and the expression of ideas in written form. It is possible that some children with cognitive disabilities will have some difficulty creating the story, so adapt the activity to the students' needs..



Writing



FROZEN GLOBES

Materials:

- Balloons
- Different colors of food coloring
- Water

Procedure:

Give each student a balloon. Ask them to fill the balloon with water, put a few drops of food coloring in it, and then tie the balloon. If this activity is carried out during the cold winter days, you can leave the balloons outside to freeze. Otherwise, place the balloons in a freezer.

After leaving the balloons to freeze for approximately 24 hours, open them up. Children will discover colorful frozen globes. This is a good opportunity to talk to the youth about the three physical states of water (solid, liquid, and gas).

THINKING ABOUT INCLUSION

Making frozen globes helps in creative expression, reinforces social relationships and autonomy, exercises motor skills, and teaches youngsters about changes that occur in the states of water. Using food coloring in the water allows for further exploration of colors.

An alternative to this activity is to use unfrozen balloons filled with a small amount of water. These balloons will have an interesting texture, and can be carefully explored as fidget toys by letting the children squeeze them gently.



Cold



FROZEN BUBBLES

Note: For this activity, it is important that the day is cold with temperatures around minus 10° Celsius and no wind. The activity should be kept short because of the cold, and may be more suitable for older youth. Always make sure everyone wears warm clothing.

Materials:

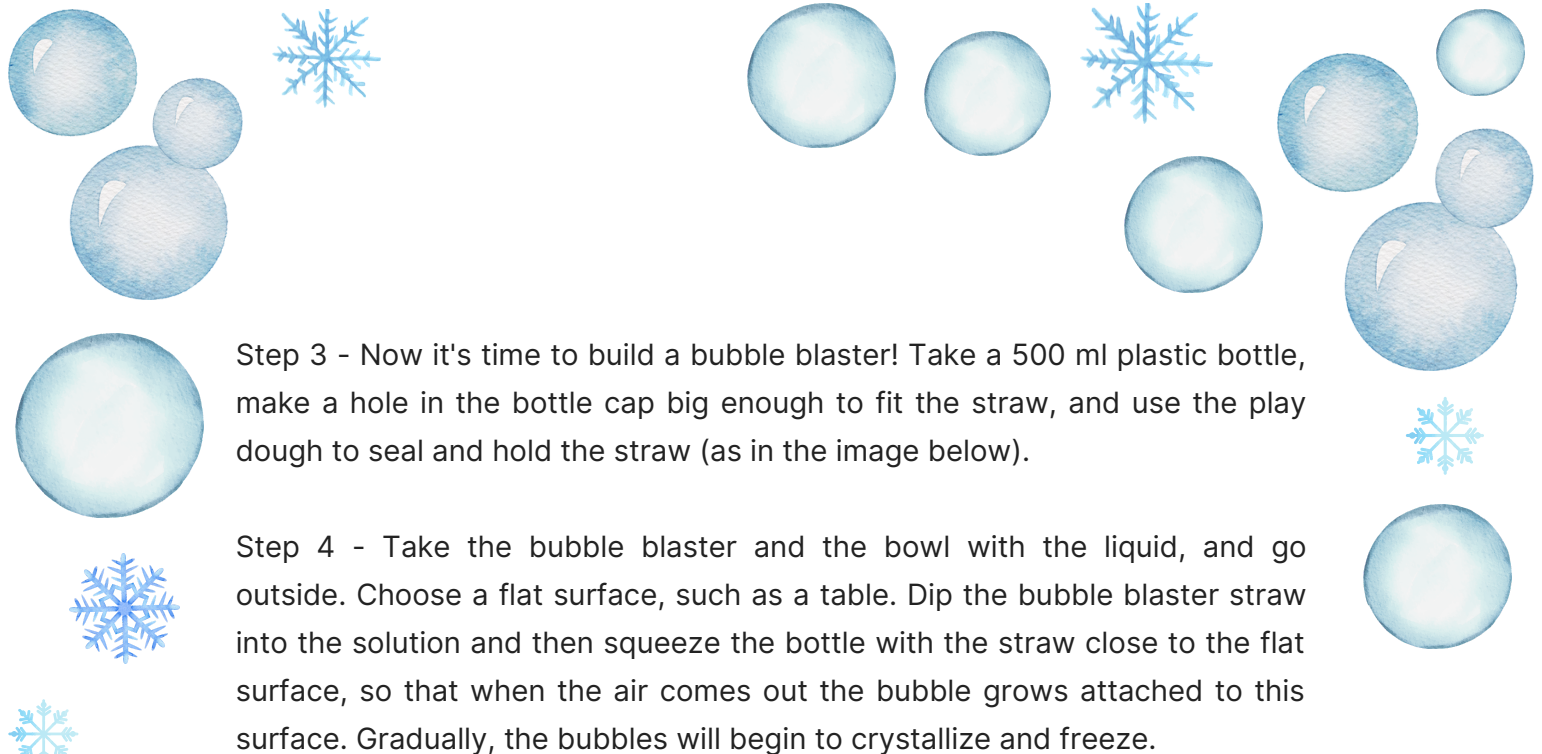
- Bowl
- 200 ml of warm water (32 to 43 degrees Celsius)
- 2.5 tablespoons of corn syrup (this will help to thicken the bubbles)
- 2 tablespoons of sugar (helps with crystallization)
- 2.5 tablespoons of dish washing detergent (helps with bubble formation)
- Wood, metal, or paper straws
- 500 ml plastic bottle
- Play dough

Procedure:

Step 1 - Gently mix all the ingredients in a bowl, taking care not to form bubbles in the liquid.

Step 2 - Leave the solution in the freezer for only 30 minutes (do not let the solution freeze).





Step 3 - Now it's time to build a bubble blaster! Take a 500 ml plastic bottle, make a hole in the bottle cap big enough to fit the straw, and use the play dough to seal and hold the straw (as in the image below).

Step 4 - Take the bubble blaster and the bowl with the liquid, and go outside. Choose a flat surface, such as a table. Dip the bubble blaster straw into the solution and then squeeze the bottle with the straw close to the flat surface, so that when the air comes out the bubble grows attached to this surface. Gradually, the bubbles will begin to crystallize and freeze.



THINKING ABOUT INCLUSION

All children find bubbles magical, and activities with bubbles are a great opportunity to be outside. This activity also offers special opportunities for language development. Through conversation, take the opportunity to help students explore and question what they know about bubbles, how they are made, why they burst, and what is most interesting about them.



Soap

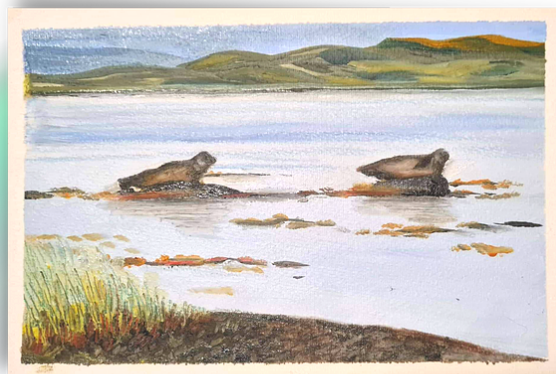
OBSERVING THE NATURAL LANDSCAPE

Materials:

- Paper
- Pencil
- Watercolor paint
- Brushes
- Water

Procedure:

The aim of this activity is to encourage reflection and discussion about youths' experiences through painting and drawing, which engages them in inclusive dialogs and emancipatory practices. Youths' perspectives and experiences are valued and this activity offers opportunities to practice reflection, helping to increase youths' ability to express themselves. You can start this activity by showing them works of art related to nature developed by artists from diverse backgrounds and cultures. Next, go for a walk or a hike and encourage youngsters to observe the landscape around them for a few minutes. During the hike, invite them to observe the details of the natural landscape such as relief, shapes, colors, light, etc. Reflect with the group about their experiences in nature. Finally, when you are back inside, give the youth art supplies to create works of art that reflect their experiences with nature through their own perspective.



THINKING ABOUT INCLUSION

Encourage youngsters to draw according to what they see. Ask them to notice how much pressure they are using with the paint brushes by experimenting with what happens when they use lighter or heavier pressure. Let the youngsters know that the aim of the activity is not to build perfect shapes, but to reproduce what they see through their eyes, like aspects of the landscape that make them feel good and happy. Asking reflective questions helps to increase self-awareness and is a building block for learning reflective skills. Reflecting on the movement of our bodies through art, and how our emotions can be connected to nature, can have a positive impact on our ability to learn. This helps to reinforce youths' capacity and potential.



Painting



FROZEN SUNCATCHERS

Note: For this activity, the weather should be cold enough for water to freeze outside.

Materials:

- Paper plate or other container to decorate
- Water
- Materials found in nature (such as flowers, berries, leaves, sticks)
- String

Procedure:

Ask the students to collect different types of natural materials such as flowers, berries (if available), leaves, and sticks outside. Back inside, offer everyone a container (for example a paper plate). They should decorate the interior with the materials they collected. Make a hole in each plate big enough to pass a string through. Then, let students pass a piece of string through the hole, and tie it to form a ring. This will allow you to hang the suncatchers.

Next, add enough water to the container to cover the decoration. Then the containers should be out in the open long enough for the water to freeze and then form the suncatchers. After freezing, the suncatchers are ready to be hanged as decorations outside, for example on trees.



Sun

THINKING ABOUT INCLUSION

Through this activity, youngsters learn by observing and exploring the transformations that occur when water ceases to be a liquid and becomes a solid object with different colors and textures.

Some youngsters may have difficulty socializing and can feel isolated. To encourage a climate of respect in the classroom, the activity can be carried out in small groups of 2-3, stimulating student involvement and bonding with peers.





BOOKS THAT CONNECT WITH NATURE



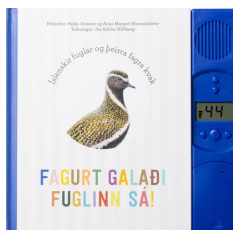
The Tree Book: Discover the amazing world of trees.
by Hannah Alice



Our Planet: The official children's companion to the
Netflix documentary series with special foreword by
David Attenborough



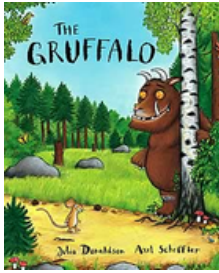
Maya and Her Friends: A Story About Tolerance and
Acceptance to Support the Children of Ukraine by
Larysa Denysenko



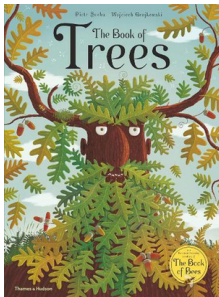
Fagurt galaði fuglinn sá (Book with the sounds of
Icelandic birds) by Anna Margrét Marinósdóttir, Helgi
Jónsson and Jón Baldur Hlíðberg



A Bear and a Tree by Stephen Michael King.



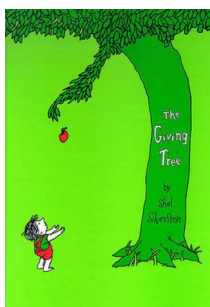
The Gruffalo by Julia Donaldson



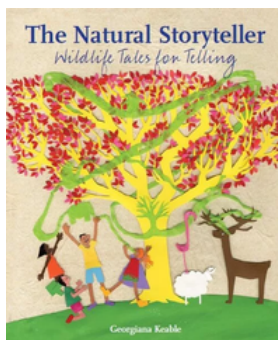
Book of Trees by Piotr Socha



Immi's Gift by Karin Littlewood



The Giving Tree by Shel Silverstein



The Natural Storyteller Wildlife Tales for Telling by Georgiana Keable





REFERENCES

Ainscow, M. (2020). Promoting inclusion and equity in education: Lessons from international experiences. *Nordic Journal of Studies in Educational Policy*, 6(1), 7–16. <https://doi.org/10.1080/20020317.2020.1729587>

Aquino, J. F. (2019). Being in nature together: Photovoice of an Icelandic youth nature club. *Matkailututkimus*, 15(2), 58–67. <https://doi.org/10.33351/mt.88272>

Armstrong, D., Armstrong, A. C., & Spandagou, I. (2011). Inclusion: By choice or by chance? *International Journal of Inclusive Education*, 15(1), 29–39. <https://doi.org/10.1080/13603116.2010.496192>

Barron, E. S., Hartman, L., & Hagemann, F. (2020). From place to emplacement: The scalar politics of sustainability. *Local Environment*, 25(6), 447–462. <https://doi.org/10.1080/13549839.2020.1768518>

Bassot, B. (2020). *The Reflective Journal* (3rd ed.). Bloomsbury Academic.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A Proposed Operational Definition. *Clinical Psychology: Science and Practice*, 11(3), 230–241. <https://doi.org/10.1093/clipsy/bph077>

Chiesa, A., Calati, R., & Serretti, A. (2011). Does mindfulness training improve cognitive abilities? A systematic review of neuropsychological findings. *Clinical Psychology Review*, 31(3), 449–464. doi:10.1016/j.cpr.2010.11.003

Cree, J., & Robb, M. (2021). *The Essential Guide to Forest School and Nature Pedagogy*. Routledge.

Dewey, J. (2007). *The school and Society*. Kessinger Publishing.





Erwin, E. J., & Robinson, K. A. (2016). The joy of being: making way for young children's natural mindfulness. *Early Child Development and Care*, 186(2), 268–286. <https://doi.org/10.1080/03004430.2015.1029468>

Fisher, C. (2019). *Mindfulness & Nature-Based Therapeutic Techniques for Children: Creative Activities for Emotion Regulation, Resilience and Connectedness*. PESI Publishing and Media.

Freire, P. (2014). *Pedagogy of autonomy: Knowledge necessary for educational practice*. Rio de Janeiro: Paz & Terra.

Gersie, A., Nanson, A., Collinson, C., Schieffelin, E., & Cree, J. (Eds.). (2021). *Storytelling for Nature Connection: Environment, Community and Story-based Learning*. Hawthorn Press.

Jasper, M. (2003). *Beginning Reflective Practice*. Nelson Thornes.



Keable, G. (2017). *The Natural Storyteller: Wildlife Tales for Telling*. Hawthorn Press.

Leland, M. (2015). Mindfulness and Student Success. *Journal of Adult Education*, 44, 19-24.

Magnúsdóttir, B. R. (2016). Skóli án aðgreiningar: Átakapólar, ráðandi straumar og stefnur innan rannsóknarsviðsins. *Skóli Margbreytileikans: Menntun Og Manngildi í Kjölfar Salamanca*, 67–94.

Moriña, A. (2017). Inclusive education in higher education: challenges and opportunities. *European Journal of Special Needs Education*, 32(1), 3–17. <https://doi.org/10.1080/08856257.2016.1254964>

Parker, A. E., Kupersmidt, J. B., Mathis, E. T., Scull, T. M., & Sims, C. (2014). The impact of Mindfulness Education on elementary school students: Evaluation of the master mind program. *Advances in School Mental Health Promotion*, 7(3), 184–204. <https://doi.org/10.1080/1754730x.2014.916497>





Pereira, P.G. and Castrogiovanni, A.C. (2020). Possibilities of Place-oriented Outdoor Education in a Brazilian context. *Para onde!?*, 14(1), 90–109. <https://doi.org/10.22456/1982-0003.102177>

Pollock, D. C., Van Reken, R. E., & Pollock, M. V. (2017). *Third Culture Kids: Growing Up Among Worlds* (3rd ed.). Nicholas Brealey Publishing.

Shannon, D. (2017). Teaching on the Farm: Farm as Place in the Sociology of Food and Sustainability. In D. Shannon & J. Galle (Eds.), *Interdisciplinary Approaches to Pedagogy and Place-Based Education*. Cham: Springer International Publishing. <https://doi.org/10.1007/978-3-319-50621-0>

Smith, G. A. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 83(8), 584–594. <https://doi.org/10.1177/003172170208300806>

Sobel, D. (2017). Place-based education: Connecting Classrooms and communities. *Orion Magazine*.

Tákn með Tali. (n.d.). Retrieved June 21, 2022, from <http://www.tmt.is/index.htm>

Thomas, C. (2013). Role of mindfulness in reducing challenging behaviour. *Learning Disability Practice*, 16(10), 33–37.

UNESCO. (2017). *A guide for ensuring inclusion and equity in education*. Paris: UNESCO. Wilson, S. (2000). Schooling for democracy. *Youth Studies Australia*, 19(2), 25–32.

