14 TOP OUTDOOR LESSONS

THE MOST POPULAR LESSONS THAT WILL GET YOU OUT

LESSONS IN GRASS

WHO ARE WE?

We are Lessons in Grass. We help teachers teach outside. We strive to ensure that modern ways of teaching include learning outdoors in contact with nature and the real world. We want to establish outdoor learning as a common part of the learning process available to all children.

We have chosen our best lessons for you to „taste" the great variety of activities we offer.

ON OUR WEBSITE WE WILL SHOW YOU:

→ HOW TO GET STARTED AND EQUIPPED

→ WHAT CHILDREN CAN DISCOVER, CREATE AND LEARN

→ WHERE TO TEACH OUTSIDE, ALL YEAR ROUND

→ WHY GO OUT ON REGULAR BASIS AND HOW TO PERSIST

DO YOU WANT TO TEACH OUTDOORS?

? WHY?

Learning outdoors benefits children in many ways. Besides developing their mental and physical health, it helps them improve their attention span, learning outcomes, motivation to learn and classroom relationships. We have outlined all the benefits of outdoor learning in our book, The Secret of Outdoor Education, which is available for a free download from www.lessonsingrass.com/e-books/

? HOW?

Many routes lead outside. You can start with short activities, make simple tools, and use the experience of colleagues who are already out teaching or test a whole lesson covering a specific topic. Just choose which topic you want to start with!

LANGUAGES
Reading and writing outside awakens the imagination

LABORATORY 1 + 2
Outdoor exploration brings new discoveries and encounters

NUMBERS
Math you can touch and geometry at work

ARTS AND CRAFTS
Endless material resources and possibilities to create and an exhibition hall in one

LIVING HISTORY
First-hand history

WHERE AND HOW TO START
The largest interactive classroom starts at your door

CONTENTS

1 SQUARE METRE

GOAL	To measure and determine the difference between 1 metre and 1 square metre in practice. To create a square metre with your own hands using twigs, fabric or cardboard. To try and guess and then measure outside how many square metres areas around us have.
VIDEO	at www.lessonsingrass.com /video
TIME	40 minutes
AGE	6–12 years
WHERE	an outside area
WHEN	year-round
YOU NEED	a string or a ribbon at least 4 m long, longer twigs, a knife or garden shears, a tape measure or a retractable measuring tape or a big ruler, fabric, markers, a pencil, (chalk sticks), zest for measuring
NOTE	you can adapt the lesson easily for other units as well.

notes

→ EXTENSION

ISLAND

See how many people you can fit into one square metre – standing, sitting, lying down, etc. The current record is 10 children, but you will surely beat that number!

FRACTIONS

Children can divide their square metre into halves, quarters, thirds, etc. and repeat their fractions this way.

→ Did you like this lesson? Find more inspiration in Numbers e-book.

1 MAKING AN ESTIMATE

Let children try to outline an area of one square metre in the sand, in the soil, in chalk on the pavement, using branches or stones on the ground. How accurate will our guestimate be?

2 PERIMETER

Now, we're going to mark 1 square metre accurately. Using a long string, 4 twig pegs and a tape measure or a retractable measuring tape, create a square metre on the ground. Let children do as much of the work as you can. Let them figure out how to hammer the pegs in, how to tie the string, etc. Just help them keep an eye on the right angles in case their 'metre' gets too 'loose'. At the end, we can review briefly what we have created and what we have found. What is the perimeter of a square metre?

3 AREA

We are experienced now and we can take on a bigger challenge. On a larger piece of fabric, for example, an old bed sheet (preferably not too stretchy), draw one square metre. How to do it?

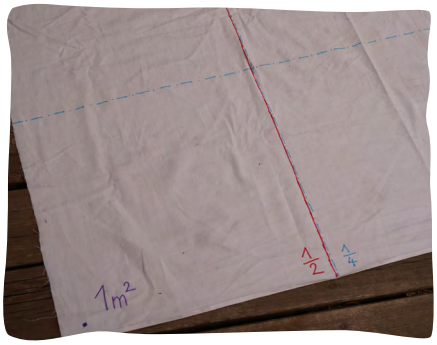
Again, let children lead the way and help them only if they ask or if there is no other way to move forward. Check the square drawn on the fabric and start cutting it out. Children have created a square metre, i. e. the area of a square with each side having 1 metre.

4 MEASURING

Let's get out and measure! How big is the sandbox? How many square metres is the flower bed? Always guess with children first and then check and verify. At places where you can draw, children will find it useful to use chalk to mark each square metre first and then add them up. If children can't think of it themselves, send them to measure tree trunks, one another, windows, etc.

5 REFLECTION

Finally, we will look back together at what we have been doing and what we have discovered. How accurate were your guestimates from the beginning? What did we discover when making 1 square metre? What did we discover when we measured? How did we work together and what was the greatest challenge? How could we measure an area (e.g. a sandbox) if we didn't have our square metre cut out of fabric with us? What other questions can we think of?


1m²
1/2
4/4

2 PIZZA FRACTIONS

GOAL	To practise dividing and adding basic fractions 'at work' by playing the pizzeria game.
VIDEO	at www.lessonsingrass.com/video
TIME	45 to 60 minutes
AGE	6–12 years
WHERE	an outside area where natural materials can be collected
WHEN	warmer parts of the year
YOU NEED	natural materials, cardboard from an old box, crayons, scissors, chalk sticks (a round object as a template), pizza boxes

My notes

1 HOW TO DIVIDE A PIZZA

Children have certainly divided a pizza or a cake sometimes in their life. It is a clear, tangible example of fractions for them. We can start by discussing how to divide a pizza between two people, among three or four people, etc. Let's open an outdoor pizza restaurant – this way, children can play with fractions and experience and absorb everything even better.

2 MAKING 'DOUGH'

The task is simple: cut out a few circles from cardboard. These will be the pizza bases. Children can work independently, but it is greater fun in a group. Something round (e.g. a bowl, a plate, a pot) can be used as a template. There should be at least five circles in each group, which children distribute among themselves (they can even colour code them) and they cut them into: two halves, three thirds, four quarters, six sixths, eight eighths. The very act of cutting the templates is a challenge and a way for children to understand fractions better. We encourage you to let children discover everything in a group. As an adult, you can help just a little, providing hints only so that children have the opportunity to experience the success of discoveries and break-through.

3 PIZZA BOX

Children often start playing with the cut pizza slices. It is a good idea that you support the game by making/colouring a pizza box for each group – a place where the pizza slices will be put together to make a whole pizza. Again, just trace something round on the cardboard or pizza box and perhaps colour a 'tablecloth' around it.

4 PIZZA SEASONING AND TASTING

What flavour will our pizza be? Each group/individual prepares their own 'menu'. They compile one whole pizza from different slices. Children can 'season' each slice – decorate it with natural materials they find around. Then comes the all-important 'tasting' when the pizzas are displayed and others can estimate/write down which slices make up which pizza.

→

5 REFLECTION

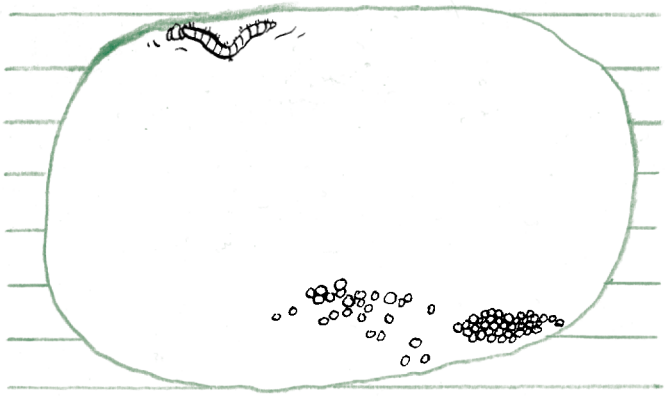
At the end, we can get together in a circle and talk about how we have enjoyed the game and what we have learnt. We can ask children various questions, e.g. What were the most common parts of your pizza? What was the production process in your pizzeria? How have you shared the work? If we have some extra time and we feel like it, we can link this game to other topics and write an article or an interview with children (in groups or together) titled The first fractional pizzeria in the world – write a short report on how everything went or interview the 'chefs' about what was challenging for them, what they enjoyed, how big their favourite pizzas were (see questions above). The article can be accompanied by photos or pictures and posted on a notice board or on a fence as an invitation for other classes to try out the pizza fractions restaurant as well.

IDEAS FOR THE NEXT TIME

! USEFUL TIP

PIZZA ON THE PAVEMENT

If you do not have enough time or cardboard, you can try a simpler version with children. Just chalk a circle-a pizza on the pavement, a patio or a deck, paving, etc. Divide it into some of the specified portions or parts – 1/2, 1/3, 1/4, 1/6, 1/8 and 'flavour' each pizza slice with different (locally available) natural materials. At the end, everyone tries to go through the pizzas on offer and estimate/write down how big the individual slices are that together make one whole pizza.



→ Did you like this lesson? Find more inspiration in Numbers e-book.


MENU


PIZZA

3 JUMPING FRACTIONS

GOAL	To experience fractions in motion. To try dividing a whole on the pavement or in the grass.
VIDEO	at www.lessonsingrass.com/video
TIME	20 minutes
AGE	6–12 years
WHERE	around your school where natural materials can be found
WHEN	year-round
YOU NEED	chalk sticks, ropes or strings, markers, branches/twigs

notes and ideas

1 DIVISION ON THE PAVEMENT

First, children draw large circles – pizzas/cakes on the pavement. They can use a string and chalk to make a regular circle. Then they find a few straight sticks in the surroundings. When everything is ready, we work together to figure out how to divide a circle into halves, quarters, thirds, etc., and mark everything with sticks directly into the circles. It is useful if we have more groups or circles and we can compare, confer and discuss together.

! USEFUL TIP

DIVIDING SHAPES

We encourage you to try dividing not only circles but also squares, rectangles, triangles, etc. Shapes can be drawn in chalk or made from natural materials.

2 ROPE FRACTIONS

If we have longer ropes, we can also make circles directly from them. We can make it easier for children to work with the rope by dividing it into 12 equal parts beforehand (with knots or a marker).

It is then easier and more accurate for children to find, for example, thirds and sixths – they can count off three or six pieces, etc. The method is the same as for the previous activity, but it also allows you to play in the grass, in the snow, anywhere where you can't draw on the ground in chalk.

3 JUMPING FRACTIONS

Once children have practised individual fractions using the previous activities, they can play a game full of movement. It will refresh the work pleasantly and relax their 'fried' brains. Groups or individuals mark 1/2, 1/3, 1/4, 1/6 in their circles and then the teacher or someone else prompts:

"Now jump to 1/2."
"Now jump to 1/6."
"Now go to 1/7." And so on.

The game is usually full of laughter and mutual support.

→

4 REFLECTION

Since this class was a lot about dividing and jumping, we will stick with that. Say various statements to children and let them jump to fractions based on how much they agree. E.g.

Statement 1
I have enjoyed today's jumping fractions (if a lot, jump into the 1/2 shape, if a little, jump into the 1/6 shape, for example).

—

Statement 2
I enjoy math full of movement.

—

Statement 3
I would rather sit in the classroom.

—

Statement 4
I am clearer about division into fractions now than I was at the beginning of the lesson.

—

Statement 5
I want to play jumping fractions again sometime...

Ideas for the next time

Children:

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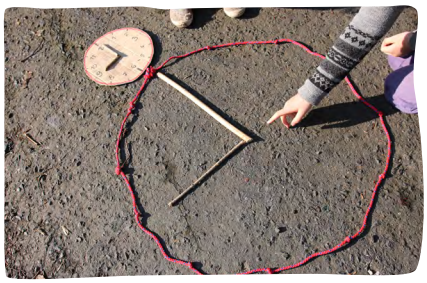
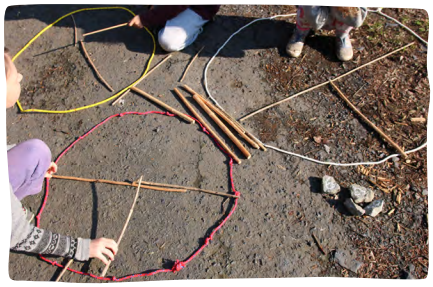
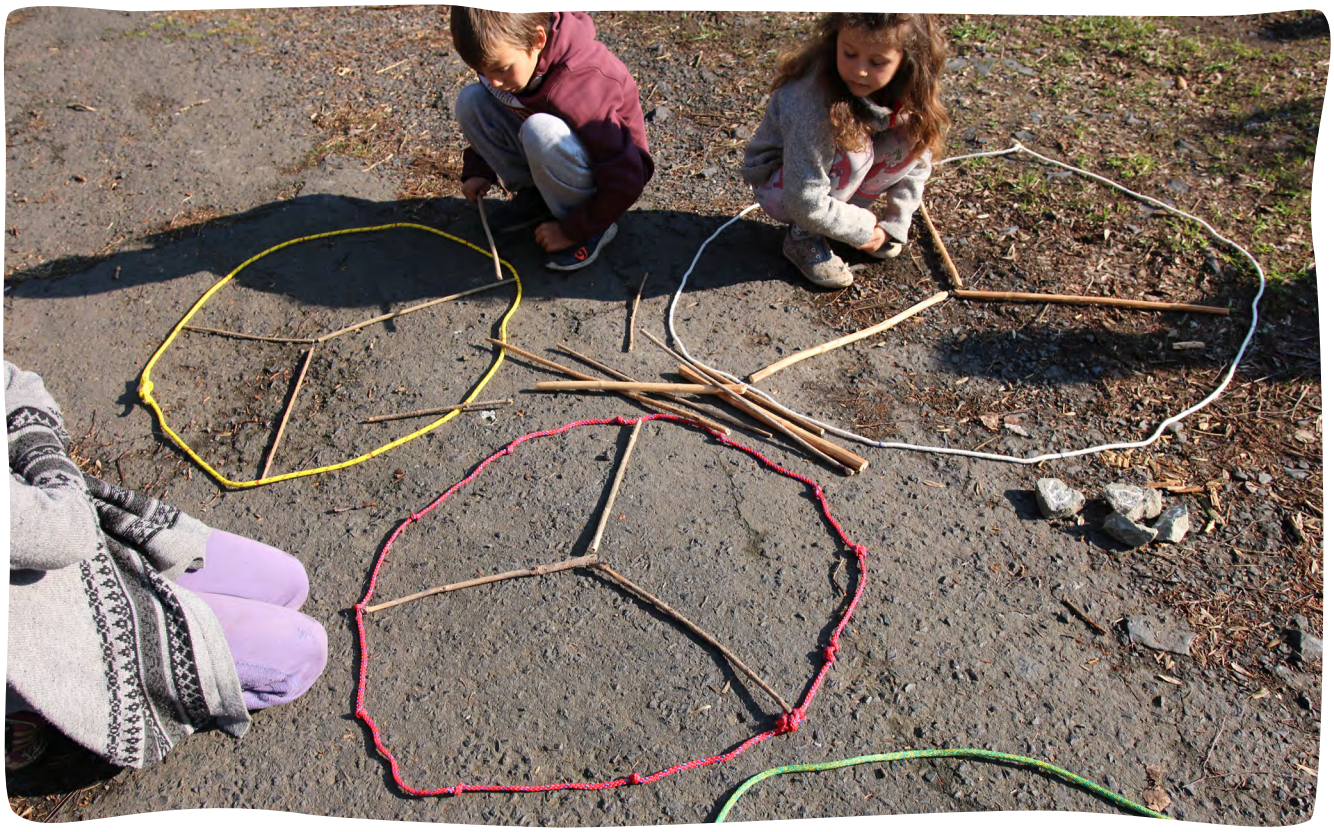
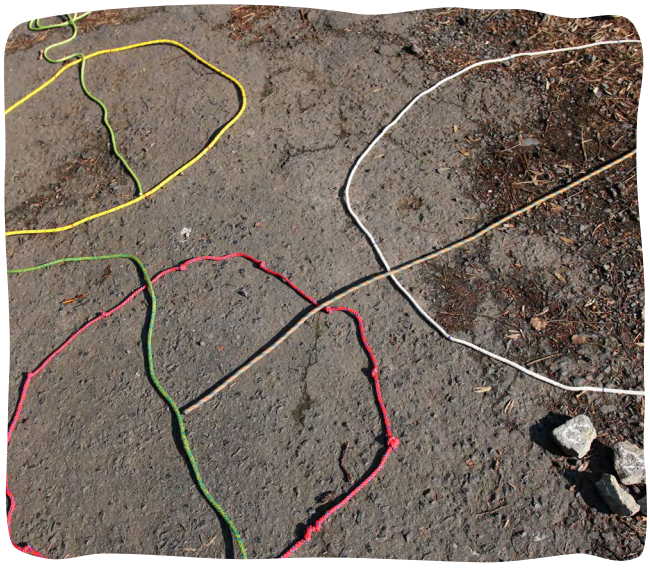
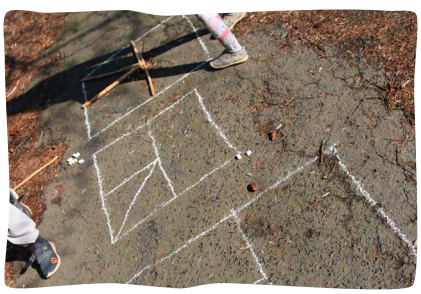
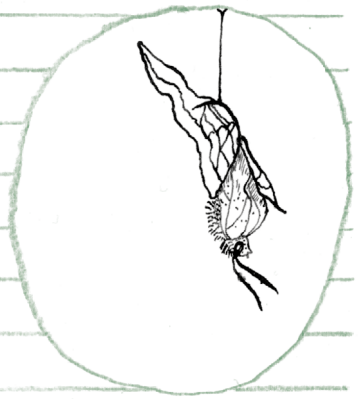





4 HUMAN BODY

GOAL	Discover our body with focus on bones and organs we have in our chest. Develop creativity by making models from natural materials.
TIME	40 minutes
AGE	7–13 years
WHERE	area with various common woody plants
WHEN	growing season
YOU NEED	T-shirts you can draw on with a washable marker (or a textile marker if you want to keep them), cardboard, sturdy paper, scissors, scotch tape or glue, markers, crayons, writing materials, writing pads, natural materials



→ BEFORE YOU START

Draw a child's silhouettes on a piece of cardboard (a large box is ideal). Using a drawing or a human body atlas, the teacher then draws the skeleton and internal organs inside the silhouettes (will be used in the second step).

1 MAKING A PREDICTION

Working in pairs, children guess WHAT is inside their bodies and WHERE. They mark it on their T-shirts. Tell them to use all their senses: feel their body with their hands, listen to the sounds their body makes, and observe where their body moves when they breathe deeply. Also, ask them to recall where it hurts when they overeat, etc.

Most groups will be able to identify the heart (by the heartbeat), the bones of the chest (by touching the ribs, the shoulder blade, the shoulder joint, the collarbone, the breastbone), the lungs (by movement when they breathe deeply). Some children manage to guess their stomachs. This task aims at sparking children's interest in their bodies. Do not insist on accuracy; getting just a rough idea is ok.

! USEFUL TIP

If you have time, try the following activity: tell children to choose two markers of different colours. They will use one colour for the initial guess and the other one for marking the actual place where they could feel or hear a bone or organ. This activity will help to increase their inner motivation.

Explain to children the importance of testing their guesses. What makes your heart beat stronger or your breathing faster? What happens when you run? Suggest jumping a few times and seeing what happens.

→

2 WOODEN SKELETON AND LEAF ORGANS

Divide the class in several groups of three to five children. Some groups will create wooden skeletons, other groups leaf organs. Let the children decide in which group they want to work.

The groups of "skeletons" will assemble a WOODEN SKELETON – a skeleton made of various natural materials (twigs, cones, stones, bark etc.). The human skeleton is complex and consists of many parts. You can tell the children to focus on the torso area first and to complete the rest (limbs, skull, pelvis, etc.) later if they have time. The task of the "organ" groups is to find as many diverse leaves as possible and choose different leaves to represent individual organs.

The children can use the cardboard silhouettes you made before. They can check what bones and organs are in our bodies and where they are. Or, if you managed to create more cardboard silhouettes, they can compose natural objects directly into the drawing. You can also use silhouettes on the sidewalk as described below. If it is windy, glue the leaves to the silhouette or load them down.

! USEFUL TIP

A SKELETON ON THE PAVEMENT

If you are working with a large group (or if you are short of time), ask children to work in twos or threes and draw their silhouettes on the pavement with a piece of chalk. Then tell them to fill the silhouettes with twig bones and leaf organs.

Children are good at using their imagination – they can play with the skeletons and pretend to feed them with berries.

3 LABELS

Ask each group to prepare a set of labels (names of bones or organs). They can write the names on stones or cards. Adjust this activity to the age and knowledge level of your class.

4 LABELS AND REFLECTION

The groups swap the labels and place them in the appropriate places. Mistakes do not matter much at this point. The discussion that follows is more important.

Ask questions such as: Are you able to tell the names of the organs and where they are? What material did you use for particular organs and bones?
What was difficult, and what was easy to remember?
What surprised you?

If the class is interested, get back to the T-shirts. Let them compare and contrast what they drew at the start of the lesson and add any missing parts.

→ VARIATION

MUSCLES

If you have time, try to make muscles with your class. First, let the children feel their muscles with their hands. They can touch their arms, shoulders or neck and find out where they feel muscles and where bones. Then tell them to arrange the muscles on the wooden skeleton. The best material for this is dry grass.

Make sure that the children understand how the muscles work and attach to the bones. Tell them to consult an atlas or show them some pictures of muscles on the body.

Let the children ask questions and discuss while working.

→ CLASS TIPS

WALL PICTURE

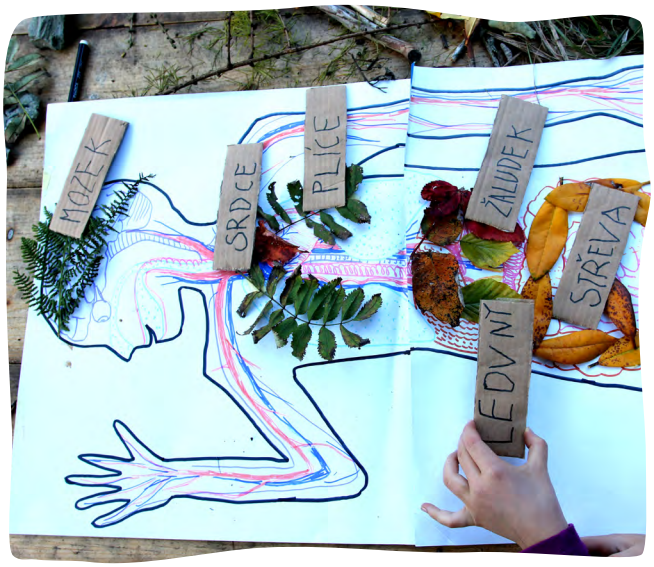
Hang the WOODEN SKELETON and LEAF ORGANS in the classroom.

BONE SET

Keep the twigs that children used for bones (e.g. from elderberry) to be able to assemble the skeletons another time in class or outside.

Ideas for the next time

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory autumn/winter e-book.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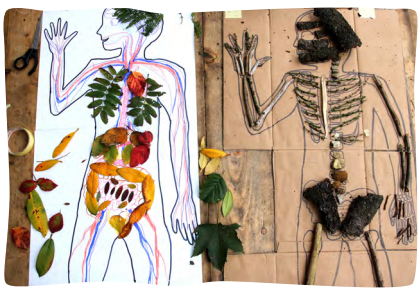
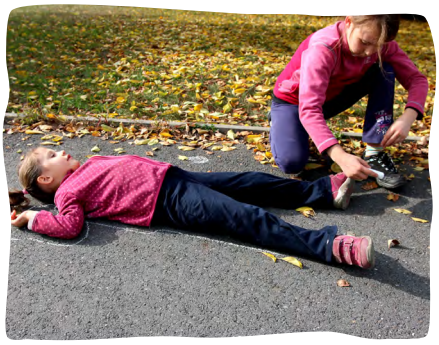




5 THE SOLAR SYSTEM

GOAL	Make a Solar System model using natural materials. Examine the orbits and speed of the planets.
TIME	40 minutes – 2 hours (depends on the choice of activities)
AGE	6–13 years
WHERE	somewhere with a wide variety of natural materials
WHEN	all year round (colourful autumn is the best)
YOU NEED	natural materials, the Planets worksheet, coloured pencils, markers, scissors, glue sticks or scotch tape, writing pads

MY NOTES

1 MAKING A PREDICTION

Divide the children into groups or pairs. First, they will try to make a solar system model using different natural materials (stones, chestnuts, flowers, etc.) Let them recollect the information needed on their own (e.g. the number of planets in the solar system).

The children will then try to draw the planets on a sheet of paper and label them. Do not evaluate at this point – this activity aims to encourage internal motivation and interest in the topic.

2 MILKY WAY MODEL

Start with making a Milky Way model. Tell children what the Milky Way is, what shape it is, and how we can observe it at night. Use leaves, pinecones, or sticks (twigs are great for forming leaves into spirals) or draw the Milky Way on the pavement with a piece of chalk.

3 SOLAR SYSTEM MODEL

Let's leave the Milky Way and fly off to explore the Solar System! It's time to make a big model. First draw the Sun in the centre, then introduce the individual planets and sketch them around the Sun (with their orbits).

4 RUNNING AROUND THE SUN

Children love pretending to be the planets orbiting the Sun. Let individuals or groups run or walk around the Sun (a group of children holding hands can represent the giant planets).

Find somewhere with plenty of space for this activity and let the children run around and relax before doing more work. Now is a great time to discuss the speed of the planets. Some children experience a great "Aha!" moment when they realize that the planets have years of different lengths.

→

5 SOLAR SYSTEM FORMATION

It is time for a quick game. Find a spot where the children can stand in one big crowd. Explain how the accumulated material expands and let the children start moving away from each other. The Sun is in their centre – this could be the teacher, a tree, or a pile of backpacks. Children run around the Sun and gradually make clusters of eight planets. The bigger the planets are, the more children there are in one group, e.g. Mercury and Mars can be represented by one child, Venus and Earth by two, Jupiter by 8–11, Saturn by 6–9, and Uranus and Neptune by 3–4 children.

6 COLOURFUL PLANETS

Colouring the planets (on the Planets worksheet) is a great challenge, too. You can mention scientists' ideas of what colours the planets are.

It is useful to show children a picture of the planets on a poster or in a book. If they are interested, explain why the planets are the colours they are. The children will get a better idea of what colours to use on their worksheets using natural materials (or coloured pencils, if necessary).

7 GALAXY AND REFLECTION

Close the lesson by making one last model of the solar system. The children will compare their latest model with the one they had made at the beginning. Go through the "Gallery of Solar Systems" together and discuss what you have learnt today. Share the greatest discoveries, surprises and what they remember most.

! USEFUL TIP

If you work with smaller groups, adjust the numbers of children making the large planets. The goal here is not absolute accuracy, but to enjoy the experience and have fun learning.

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory autumn/winter e-book.

→ VARIATIONS

LEAF PLANETS

If you have time, the children can try to make a leaf model of the planets. They will cut the planets out of leaves and glue them on the reverse side of the worksheet. Once again, focus on the diversity of colours of the planets (and thus their composition), and search for suitable colours and structures.

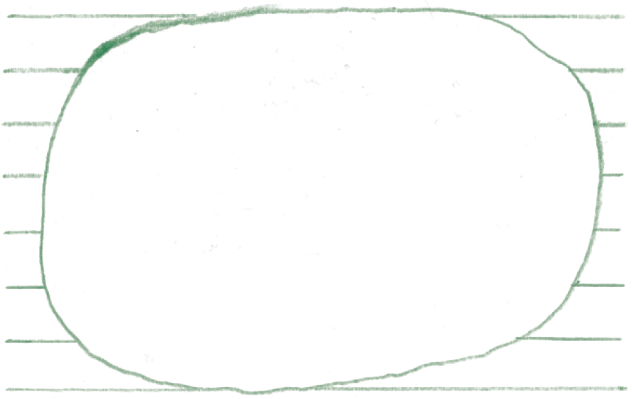
STONE PLANETS

Find a suitable spot for making a stone solar system model. Children work in groups and use coloured pencils and markers. Then the groups present their models to the rest of the class.

LEAF ROCKETS

You can also make brightly coloured pictures with the space theme using colourful leaves.

How did the children enjoy the lesson?







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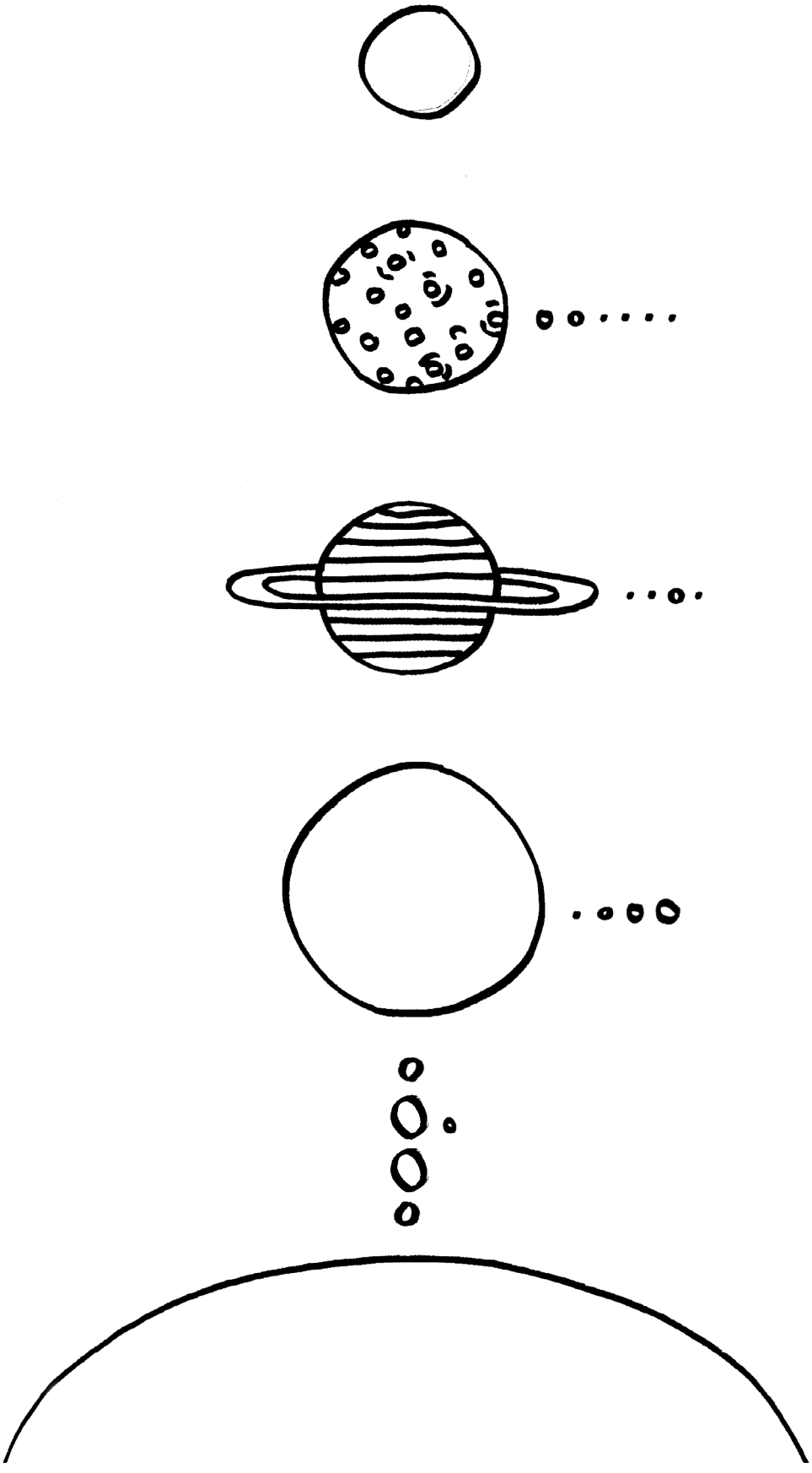
5 THE SOLAR SYSTEM WORKSHEET
THE PLANETS



6 BIRD MASKS

GOAL	Experience bird life by pretending to be one. Make up stories about birds and act out the behaviour of various bird species.
VIDEO	at www.lessonsingrass.com/video
TIME	20 minutes
AGE	4–11 years
WHERE	somewhere suitable for running
WHEN	year-round
YOU NEED	paper, coloured pencils/crayons/ watercolours, brushes, bowls for mud paint, rubber band, scissors

Children's ideas

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory autumn/winter e-book.

1 WATCH

First of all, go outside and watch birds in their natural habitats; how they behave, their colours, shapes, movements, listen to their songs. If you cannot watch them outside, consult a favourite book about birds. Then let children choose a bird they like to use it as a model for their mask.

2 BIRD MASKS

This is an opportunity for children to imagine and try out (at least for pretend) what it is like to be a bird. Draw a simple shape of a bird on sturdy paper. You can also use the attached templates. Have children colour in the masks. They can use the birds they watched outside as an inspiration, consult an atlas, or simply use their imagination. Coloured pencils, crayons and water colours are popular, although many children will enjoy painting with mud. In wet weather, simply swipe the brush in wet grass and birds of prey and owls will immediately get an interesting texture.

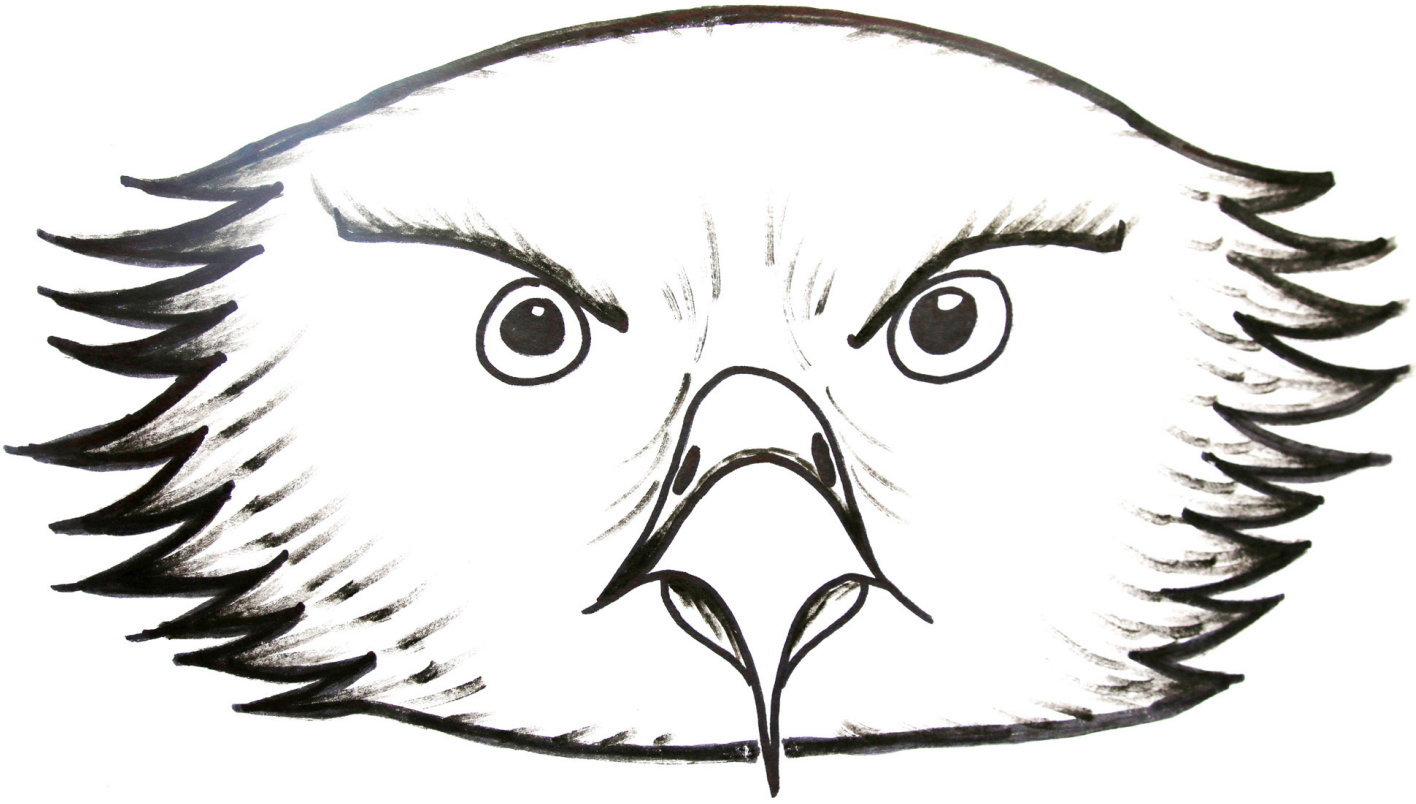
3 IN THE BIRDS' SKIN

When the masks are coloured in and dry, have the children hold them up to their faces to mark where to make the eyeholes. Afterwards, put them on by pulling a rubber band over the child's forehead to secure the mask. This is quick, holds the mask well and the mask does not tear. Then children take off to play. Let their imaginations run wild. Sometimes you will hear questions such as: Where does a tit hide from a bird of prey? What does a nuthatch feed on? Where does an owl sleep? These are excellent opportunities to talk with children over a book, atlas or the internet and to learn more about birds.

4 REFLECTION

Briefly discuss with children what it was like pretending to be a bird. What bird characteristics do they like and why? Would they like to have those characteristics too? What are the disadvantages of being a bird? You can also talk about making the masks. What was easy or what was difficult? Did they find something inspiring in it? And finally, children can write a short text (a story, a poem or a comic strip) in which they describe a day in the life of a bird. They can include information about what the bird does in the morning, where it sleeps, where its family lives, where it looks for breakfast, and if it has to look out for any dangers. When they finish the texts, children are welcome to read them aloud, but do not force them.

6 BIRD MASKS WORKSHEET



7 ALL ABOUT SNOW

GOAL	Observe snow and think of research questions. Find answers to these questions by means of simple experiments. Sum up the properties of snow in a presentation.
TIME	30–90 min (depends on the choice of research questions)
AGE	4–15 years
WHERE	a snow-covered spot
WHEN	when there is snow outside
YOU NEED	markers, containers, box of matches, tissues or filter paper, twigs, string

My notes

I see

I hear

1 MAKING A PREDICTION

When it is snowy, go outside and have some fun with the snow – observe it, smell it, press it, or have a snowball fight (be careful not to get too wet). Ask children if they want to ask any questions about snow and write them down. Choose questions you are able to answer (i.e. what you have time and suitable conditions for). Assign the questions to groups or let children choose (if you have time for free research). Make checkpoints for the questions – all groups take turns and answer the questions. Here are some sample questions: How much does the snow weigh? How much water does it contain? Which is more resistant: snow or ice? Let children discuss these questions and note their guesses and answers.

2 SNOW WEIGHT

Which is heavier – a glass filled with water or snow? Does it make a big or small difference? How can we find out if we have no scales outside? Take along two jam jars, scissors, string, and a straight twig or coat hanger. Make simple scales using the twig and string. Hang the empty jars on the scales, balance them out, then add water in one and snow in the other. It is better to close the jars. What do you think will happen?

! USEFUL TIPS

If you have enough time and children enjoy the research, you can let the children make the scales themselves.

3 WHICH WILL DRIP FIRST?

Try another simple experiment with a snowball and a piece of ice. Let the children guess what they think will drip first if placed above a candle – ice or the snowball? Note down their ideas and start the test. Light two candles (if you are working outside, find a place with no wind). Children hold the snowball and the ice above the candle and wait for the first drip. Surprisingly, it's ice. How is that possible? (Snowflakes make pockets of air that work as insulators, while ice does not. That is why ice starts melting first.)

→

4 HOW MUCH WATER DOES SNOW CONTAIN?

This is another simple experiment. Children put some snow in a transparent container. Tell them not to press the snow too much, but fill the container with "fluffy" snow. Once the container is full, children mark the anticipated level of melted water. Move the container to a warm place and watch how the snow melts. It is usually a big surprise to see how little water remains after the snow melts. Then compare your guesses to reality.

! USEFUL TIP

Guess and observe how fast the snow melts in different conditions depending on the temperature, insulation, etc. This may inspire new questions and connections.

5 HOW CLEAN IS SNOW?

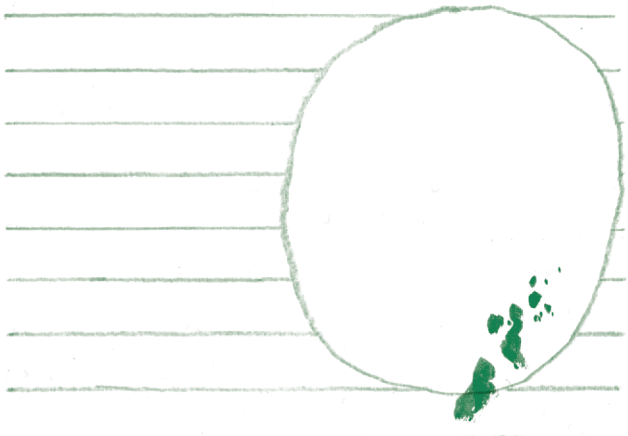
Try to find out how much dirt there was in the snow by filtering it through a filter or tissue paper. Take samples of snow from different locations near the school (by the road, in the garden, by the pavement, on a tree, etc.) Then compare the how clean the samples were.

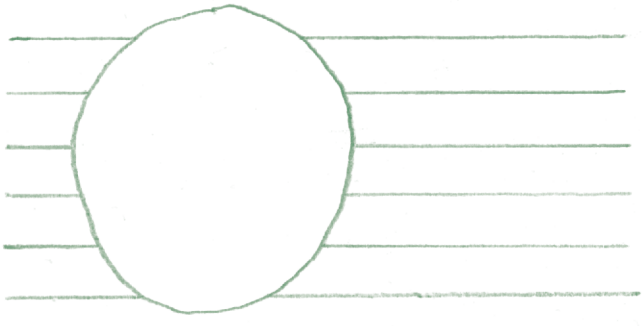
6 REFLECTION

Towards the end of the lesson, it is good to get back to the initial guesses and questions (however many tests you did). Go through them with the children once again and evaluate – which did you manage to find answers for? Which remained unanswered? Did you discover anything new? What other experiments would you like to try? What do you need to carry them out? Sum up your "snow experiments" in a poster, article, comic, lecture, tour, or another form of outcome. Informing others about the results of their work will be a great experience for the children. They can present the experiments and discoveries to another class, their parents, students from a lower grade, your colleagues, or the elderly from your neighbourhood. It can be enriching for both parties.

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory autumn/winter e-book.

IDEAS FOR THE NEXT TIME





8 INVERTEBRATE MODELS

GOAL	Get to know invertebrates better, explore their shapes, colours and details. Deepen understanding and affinity to invertebrates. Develop creativity when using available natural materials.
TIME	10–40 minutes
AGE	4–13 years
WHERE	area with a variety of natural materials
WHEN	year-round
YOU NEED	sturdy paper, writing pads, pencils, coloured pencils, clay, play-dough, air dry clay, glue, scotch tape

observe and make notes

→ NOTE

If the children come up with questions and ask for more information about invertebrates, it is a sign of growing interest. This could potentially snowball, where children will want to get more information about the particular species or other species in that group of invertebrates.

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory spring/summer e-book.

1 CHOOSING AND SKETCHING A MODEL

Children can work individually or in groups. They will choose one or two invertebrates and explore their shape and colour. Next they will try to sketch them. This step will be the basis for the creative process to come.

2 2D MODEL

Children will now attempt to make a 2D model using natural materials. They can either place the model on sturdy paper or glue it on the worksheet. Finally, put the models on display or take pictures.

3 3D MODEL

Children will make a 3D model of an invertebrate using clay (or any other similar material) and other natural materials. While working on a 3D model, they observe the animals closely.

Some interesting questions may arise at this point, e.g.: What difference will we see between a side view of a centipede and a millipede? This is a great way to boost children's creativity and inventiveness while working only with a few supplies.

4 EXHIBITION

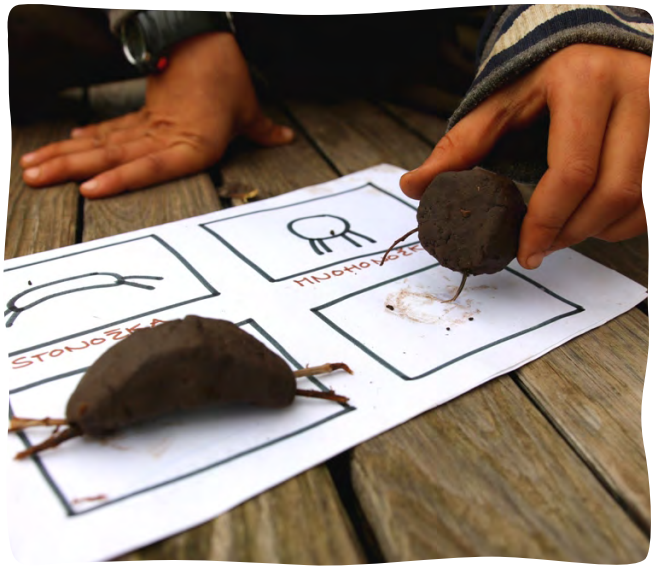
When everybody has finished, put all the models on display. Have children choose a suitable spot for their model, somewhere that species would occur naturally and find food and shelter.

5 REFLECTION – THE LIFE OF AN INVERTEBRATE

At the end of the lesson, leave some space for learning experience games. They can be spontaneous: children can play with their models and come up with their own stories.

Such games are thought-provoking and children may come up with more questions: what does a millipede hunt for, how often does a backswimmer need to come up for air, can a freshwater snail survive on the ground, how does the diving beetle hunt?

Before you finish, reflect on the lesson and have a discussion with the class. Ask questions such as: How did you enjoy the creative process? Where did you search for natural materials? Did you discover anything new/unexpected?



9 WHY SO EARLY?

GOAL	Using your own ideas and a worksheet, discover why some plants flower so early in spring and what enables them to do that. Explore springtime flowers and the context outside. Reveal relationships and interactions between plants, trees, and animals in springtime.
TIME	30 minutes
AGE	8–15 years
WHERE	around your school (anywhere you can find trees, shrubs and plants)
WHEN	late winter and early spring
YOU NEED	worksheet, (magnifying glass), coloured pencils, pencil, paper, fact sheet (for teachers only at first – to allow children to find the information by themselves)

My notes

I need...

I see

→ THE LESSON'S THEME

Yellow, yellow daffodil,
dancing in the sun,
oh yellow, yellow daffodil,
you tell me spring has come.

But why is it that some plants bloom so early in spring? Does it benefit them in any way? Maybe we could answer these questions right in the fields. Let's go out to explore springtime flowers and the context!

1 QUESTIONS

How come certain plants and trees bloom so early in spring? Why do they take the risk of freezing to death or getting devoured? While children explore plants that are blooming around their school, many questions might pop up in their heads. It is a good idea to write them down and return to them later if you have the time and inclination. But for now, focus on a single question together: Why do certain plants bloom so early in spring? Alone or in groups, have the children make some guesses (call them ideas or hypotheses if you like). Then have them write down three guesses in the worksheet.

2 THE SCIENTIFIC APPROACH

Once you have your hypothesis, as scientists you can:

1. go out to the field and observe;
2. set up and run an experiment; or
3. study sources describing how your question has been examined by others and what has already been figured out by scientists. Ideally, combine various approaches – if you have enough time, have a go at all three. If your time is limited, give the children the worksheet to complete. This will give them information they can test hands-on.

3 UNRAVELLING TIES AND RELATIONSHIPS

The worksheet contains several captions, pictures and explanations. Let children work in groups to make the CAPTION-PICTURE-TEXT matches. Then comes the sharing part: What new things have they discovered through the text? Do they agree or not? It's best to go test everything outside. Where do herbs bloom? Do trees above them already have their foliage?

→

→ RECOMMENDATION

It is worthwhile to draw the children's attention to the following:

1. Do not test how toxic spring herbs are on your own skin! Instead, you can observe if certain parts of the herbs might have been nibbled on.

2. Most spring herbs are protected species. So we must not disturb their underground parts or even their above-ground parts. You can examine the structure of the plants (to find out whether they have underground storage organs or not) in atlases, field guides, or on the Internet.

4 SCIENTIFIC CONCLUSION

Wrap up your scientific exploration with the children by letting them write an evaluation in the worksheet. Use one of the hypotheses (predictions). Children can share the connections they managed to uncover with others (on a notice board, on the Internet, or otherwise).

5 REFLECTION

We recommend that you also reflect upon the lesson itself. This can take the form of a discussion or making notes on the blackboard, index cards, etc.: What was the work like for me? Who found what outside? What was challenging? What was easy? What would I do differently next time? What were my original assumptions and how did things turn out at the end? What did I discover in this activity? What surprised me?

It is also good to collect and write down other questions that children think of (it's an excellent basis for the next lesson).

→ Did you like this lesson? Find more inspiration in Outdoor Laboratory spring/summer e-book.

→ WHAT CAN YOU EVALUATE? (EVIDENCE OF LEARNING)

Children

—

write down at least 2 guesses (hypotheses) and an evaluation of each (which of them was closest to / furthest from reality) in the worksheet.

—

describe at least 1 relationship or connection (between herbs, trees and shrubs and animals in spring) they discovered in the worksheet.

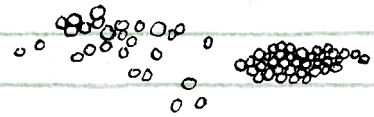
—

find at least 2 flowering plants outside and examine them (e.g. what species they are, what they look like, where they grow, whether they serve as food for animals, etc.).

! USEFUL TIP

Spring herbs offer a great opportunity to explore and find relationships and links in nature. Children can discover interactions and connections on their own through observation and a few pieces of information. If this is successful and children really figure things out for themselves – and outdoors, too – all the new information and experiences will be very powerful, as they are connected to emotions and stories. Not only is this kind of information easy for the brain to retain, but it is also easier to work with afterwards. We recommend that those interested should read the fact sheet revealing all the contexts.

Children's ideas




GO AND FIND

9 WHY DO CERTAIN PLANTS BLOOM SO EARLY? WORKSHEET

CHALLENGE 1

List all the ideas you come up with. It's OK if they seem very unlikely, but be sure to stick to the topic of the question.

CHALLENGE 2

Pick the 3 most likely guesses for the question: Why do certain plants bloom so early in spring?

1.

2.

3.

CHALLENGE 3

At the very end of your investigation, look back and see how accurate your guesses were, which guess was the closest, and which was most inaccurate.

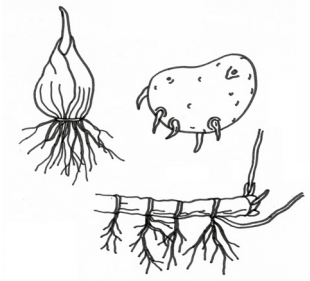
MOST INACCURATE GUESS

THE CLOSEST GUESS

9 MATCHING INFORMATION ABOUT SPRINGTIME PLANTS WORKSHEET

DRAW LINES TO MATCH: CAPTION + PICTURE + DESCRIPTION

GROW QUICKLY WHILE THERE IS ENOUGH SUNLIGHT



Spring herbs bloom in bright colours to attract insect pollinators. This ensures their sexual reproduction – transfer of pollen from flower to flower. For insects, the first spring flowers are a valuable source of food.

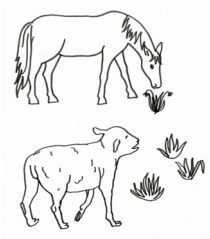
NUTRIENTS IN STORAGE

The herbs that bloom in spring benefit from plenty of sunlight before leaves appear on deciduous trees. In spring, there is not as much shade on the ground under the trees. With plenty of sunlight, the green leaves can store energy for the following spring in their storage organs (bulbs, corms, rhizomes, tubers). Later on into the spring, the leaves wither away.

FLOWER AS AN INVITATION

Springtime plants can grow and bloom early thanks to their reservoirs of nutrients. These are underground in bulbs, corms, tubers or rhizomes. The plants have stored nutrients from the previous spring in their underground parts.

POISON AS DEFENCE



The above-ground parts of springtime herbs are usually slightly poisonous; they work as defence against herbivores (to avoid being eaten in spring when green fodder is scarce).

AFTER YOU MATCH THE INFORMATION ABOUT PLANTS, COMPLETE THESE UNFINISHED SENTENCES:

MY DISCOVERY IS...

I REALISED THAT...

I NOW KNOW WHY...

10 AIR-CONDITIONED BY TREES

GOAL	Discover the effect of a tree on the temperature around it. Identify the benefits of trees on hot summer days.
TIME	30 minutes
AGE	9–14 years
WHERE	area with direct sunlight and under a tree
WHEN	warm sunny days
YOU NEED	parasol or umbrella, thermometer (or hygrometer), water spray bottle, the Air-conditioned by Trees worksheet, pencils and paper; also, scotch tape to hold the thermometer might prove useful

notes

Children:

1 MAKING A PREDICTION

To begin with, have children think about how a place under an umbrella is different from a place under a tree. What are their advantages and disadvantages? What do both places have in common? Children can guess how the temperature will be different in these two places. Have children write down their thoughts and guesses in the Air-conditioned by Trees worksheet.

2 EXPLORING THE RESEARCH AREA

In front of the school, in the park, in a meadow, etc., have groups find two suitable sites for comparing their measurements; both sites should be roughly 1 metre above ground and shaded. One site will be shaded by an umbrella, the other by a tree canopy. (We recommend that you pick a larger deciduous tree if you can – the difference from the umbrella is more obvious then.)

3 MEASURING

Groups measure the temperature (and humidity if you like) under the tree and under the umbrella and enter their measurements in the worksheet (preferably, using a different colour than the initial prediction). If you have the time and inclination, try to influence the third measurement under the umbrella by spraying some water around it. Will the temperature change? Enter the readings in the worksheet, again in a different colour.

4 COMPARING

After you finish with the measuring, get the groups together and compare their results. Try to answer this question together: What effect does the tree have upon the ambient temperature? And what is the effect of the umbrella? In what ways do they differ? Children can make a chart with the results on a common sheet of paper and calculate the average temperatures. It is a good idea to use different colours to distinguish the average temperature and humidity.

→

5 OTHER DIFFERENCES – OPTIONAL ACTIVITY

Give the groups a bit of free time to think about this research question: Can you discover anything else that might suggest that the temperature (or humidity) differs between the two places? Examples could include vegetation cover, soil moisture and the like. You can write your findings in the worksheet again.

6 REFLECTION

At the end, provide space to evaluate the lesson. What 'aha' moments have the children experienced? Look back at the flow of the lesson, too. What have children enjoyed, what has worked, and what would they improve? At the very end, the lecturer or teacher can add his/her evaluation of the lesson. If you have the time and inclination, you can prepare a fact sheet containing data you have discovered and put it on the tree or on the notice board at school. Brining discoveries into practice is always more powerful for children than just ending the lesson with a discussion.

WHAT CAN YOU EVALUATE? (EVIDENCE OF LEARNING)

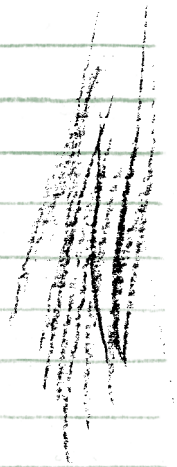
Children

—

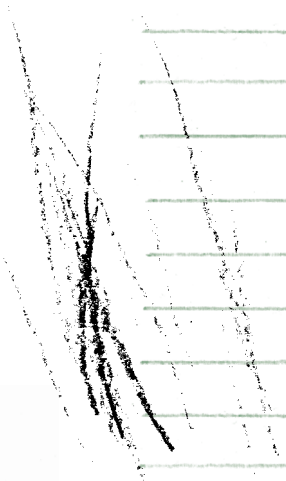
compare the temperature measured under a tree and under an umbrella.

—

describe the effect of a tree on the temperature around it, through comparison.



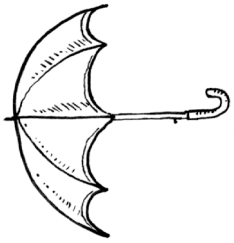
IDEAS FOR THE NEXT TIME



→ Did you like this lesson? Find more inspiration in Outdoor Laboratory spring/summer e-book.


°C °C
50 50
40 40
30 30
20 20
10 10
0 0
10 10

10 AIR-CONDITIONED BY TREES WORKSHEET



11 NATURE CODES

GOAL	Test our encryption and detecting skills. Create a secret code using natural materials, code and decode words.
TIME	20–30 minutes
AGE	8–15 years
WHERE	area with a variety of natural materials
WHEN	all year round
YOU NEED	natural materials, flat ground or paper, pencil or chalk and imagination

My notes

! TIPS

—

Try encryption using natural materials in different environments and at different times of the year. By doing so children will discover how the spectrum and availability of natural resources change from spring to winter.

—

First try encrypting outdoors with natural materials and then add other items you find outdoors or indoors. Where is it easier to compose? Where do we need to apply more creativity?

—

Give children plenty of time to encrypt if they enjoy it; they always come up with something new such as another way of encrypting or another game with the natural materials that they have collected.

—

You can also try other encryption or coding methods such as Morse code (which can be laid out quite easily with sticks and acorns or chestnuts or other materials) or runes. You can compare which and for whom was easier /harder: encryption or decoding.

→ Did you like this lesson? Find more inspiration in Languages.

1 GATHERING NATURAL MATERIALS

Encourage children to look around and explore their surroundings. What natural materials can we find? And what letters do they start with?

If it's cold or windy we can go for a walk with a bag or basket, collect the natural materials and make the coded words somewhere more sheltered.

2 ENCRYPTING WORDS

Next the children should come up with a word that they can encrypt and "write" using the natural materials they collected to represent letters in the word.

Missing letters can be written in with a pencil, if using paper, or chalk, if on the ground.

3 GUESSING

Finally, we present our encoded messages and let everyone else try to guess them. Everyone can compose one or several encrypted words depending on time and interest levels. We recommend playing at least a few rounds as subsequent rounds tend to be more challenging and fun as the children develop their skills.

4 FOREIGN CODES

Those who dare can try to encrypt a word with natural materials but in a language different from their own. What about using the names for your natural materials from a foreign language? And from what language will your word be put together?

5 REFLECTION

We can come together for a short review at the end. What was the creative process for everyone? Did we search for the natural materials first and then think up a word or the other way around? What letter was difficult to find (and how did we solve it)? Did all the messages get decoded? We can look at them together if not. Which messages were the longest, most difficult, most interesting … and why?


IN ENGLISH
WILD
WOOD
LEAF
DANDELION


IN ENGLISH


IN ENGLISH
NUT
APPLE
TEA
ROOT
EGG


SH:


SH:
UNICORN
SHELL
NUT

12 ALPHA BOX

GOAL:	Try to find how many letters of the alphabet you can find outside – in nature, in town, in a garden or on a playground. You practice not only the alphabet but also the different ways you can name natural materials or things around us.
TIME:	20–30 minutes
AGE:	6–12
WHERE:	area with a variety of natural materials
WHEN:	all year round
YOU NEED:	big sheet of paper (an old calendar for example), or large piece of light fabric, chalk/crayons/markers, natural materials and possibly even plastic toy animals

notes

ideas

I see

→ Did you like this lesson? Find more inspiration in Languages.

1 CAN WE FIND THE ALPHABET IN NATURE?

Concentrating on the alphabet, we ask children to think about how many letters of the alphabet they might find represented outside. Are all the letters present in nature? We can keep track of the guesses of children for later.

2 ALPHA BOX MADE OUT OF NATURAL ITEMS

Write the entire alphabet in small squares on the ground using chalk, or on a large surface such as a big sheet of paper or piece of fabric. The task for the children is to find natural items to put inside the squares and fill as many of them as possible. Afterwards we check it and try to find items for the remaining squares.

3 ANIMAL ALPHA BOX

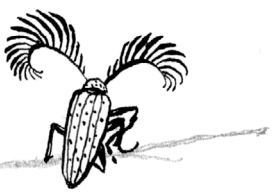
We can use toy animals or other objects to fill the squares that remain empty.

4 COMPARING PLACES

Try to fill in the Alpha box at different locations – in nature, on a playground and inside if that is an option. How did the items used for the letters differ? Where was it easiest to fill the Alpha box?

5 REFLECTION

While still outside or after returning to the classroom we review the guesses of how many letters children thought they would find. How were their estimates compared with their experience? What helped with finding harder letters? Was there an item that children used for multiple squares?



13 FRAMED STORIES

GOAL	Use paper frames or windows to find a theme for a story outside. Elaborate upon the theme you found with a free-style story or with a five-line poem using the cinquain* form (see below for a description of the method).
TIME	30 minutes
AGE	10–18 years
WHERE	any outdoor space where suitable themes/topics/ideas can be found
YOU NEED	papers with frames, writing pads, pencils (clothes pegs for fixing papers / frames)

My notes

* CINQUAIN

is a five-line "poem" that compels the author to express a topic, and his/her knowledge or opinion on it according to the following scheme. The first line consists of a one-word title for the subject (usually a noun). On the second line, he or she adds a two-word description of the topic, its essential characteristics as the writer sees them (the answer to the question, "What is the topic?"). The third line is made up of three words expressing the plot component of the topic, that is, what the "subject" does or what happens to it. On the fourth line the writer writes a sentence of four words that relates to the topic (the verb may be missing). In the fifth line, the writer writes a one-word summation that conveys the essence of the topic.

The cinquain is a method of RWCT or Reading and Writing for Critical Thinking. This is a comprehensive educational programme that consists of practical techniques and methods to develop creative, intuitive and independent thinking that helps with the understanding of the material presented.

→ Did you like this lesson? Find more inspiration in Languages.

1 THEME

Find a suitable location with agreed-upon borders (might be situated near the school) and hand out frames to students. Each student's task will be to find their vision; an outdoor theme (landscape, grass, a tree, a piece of rock, etc.) that they want to focus on and to write a story or a cinquain about.

! USEFUL TIP

See the photo guide for advice on how to cut out frames for the whole class quickly.

2 CREATING THE STORY

Each student should create a story or a cinquain about their chosen outdoor theme within an agreed-upon time.

→ VOLUNTARY TASK

AN ATTRACTIVE DETAIL

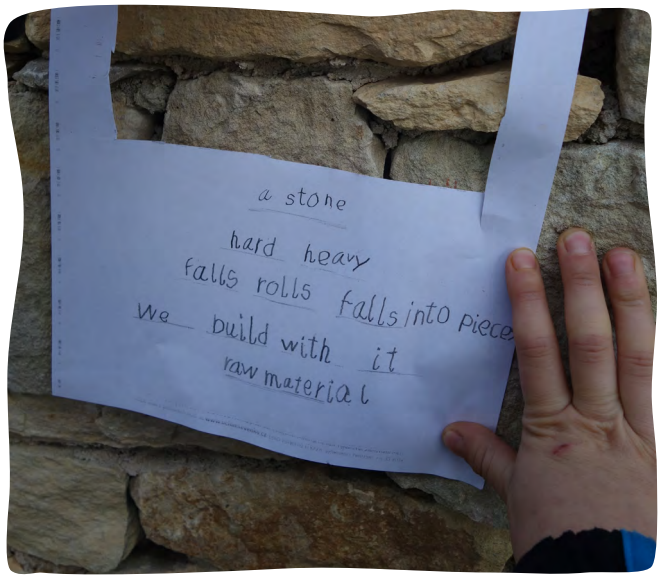
Those who have completed their story can walk around, alone or in a group, and find an interesting or attractive detail to point out to the others. The details can be marked with another paper frame to become part of the upcoming exhibition.

3 EXHIBITION

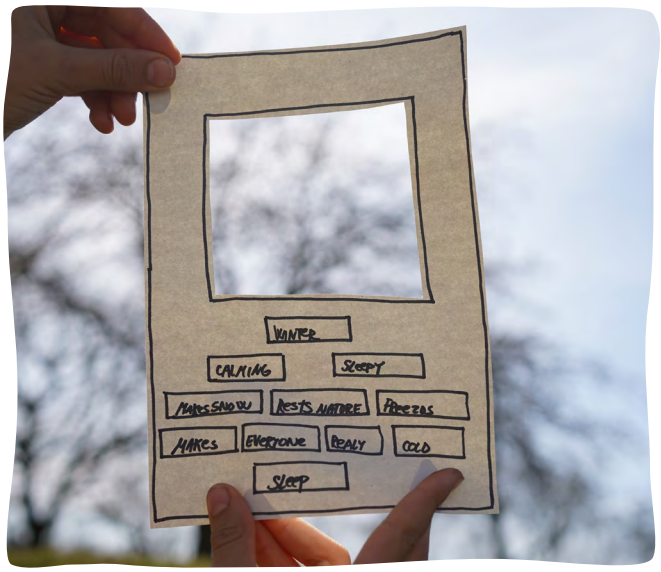
Those who have completed their stories can display the story or the cinquain so that it is clear what topic or theme it describes. The whole class goes through the gallery of stories, browsing, reading and finding the stories or cinquains that most interest them.

4 REFLECTION

At the end of the lesson we discuss with students how they feel about creating outside and whether they think of stories and themes differently than in class. What story caught their attention as they browsed the gallery and why? We can also plan where students would like to go next and what themes they would like to work on (concrete city, playground, park, wilderness in the city, etc.)


a stone
hard heavy
falls rolls falls into piece
We build with it
raw material


BUTTERFLY
BEAUTIFUL
FRAGILE
POLLINATE


WINTER
CALMING
SLEEPY
MAKES SNOW
RESTS ANYWHERE
FREEZES
MAKES
EVERYONE
REALY
COLD
SLEEP


SCHOOL
BORING
LONG
BORD YOU
TEACH
TO SLEEP
FRIENDS
PLACE
TO ME
MEET
PRISON

13 FRAMED STORIES WORKSHEET

14 LEAF SUNCATCHERS

GOAL	An outdoor art lesson making use of autumn leaves and other natural materials together with sunlight.
TIME	20–40 minutes
AGE	4–15 years
WHERE	convenient school surroundings
WHEN	autumn is the best but this activity can be done throughout the whole year though the choice of colours and materials should be taken into consideration
YOU NEED	sturdy paper, cardboard or double ply of common printer paper, scissors, paper adhesive tape, clothes pegs

My notes

1 ILLUSTRATIVE EXHIBITION

Make a collection of sample leaf pictures for the children to see how the leaf technique works. You can prepare an illustrative exhibition before the start of the lesson. It may help inspire the children to understand the theme.

2 THEME AND MATERIALS

Once the children choose the theme, shape and colours of their picture, they have to collect leaves and other suitable materials (in groups or individually) in the given area.

3 CUTTING OUT SHAPES

At the beginning of making the suncatcher, the children have to cut out shapes from the card or paper where the sunshine will shine through the leaves.

Begin by folding the paper then sketch shapes on the paper and cut them out.

Common printer paper is the easiest to cut, however, the tape might show through. To avoid this, use two layers of paper or it might be better to use sturdier paper or cardboard.

→ TIPS

Young children can have a difficult time cutting cardboard and so we recommend using common printer paper or sturdy paper when working with them.

4 COLOURS

Fill out the cut-out shapes with colourful leaves. Attach them to the paper frame with the adhesive tape. Larger empty spaces can be filled easily by using the adhesive tape to stick the leaves together as well.

5 GALLERY

The children can display their pictures on a tree (using a clothes peg) or at any other place that was previously agreed on when they are finished.

Now you can walk around the "gallery" and admire the suncatchers as they brighten up in the sunlight and observe the changing intensity of colours at different angles.

→

6 SHARING

After visiting the gallery it is time to look back and talk about the project with the group. You can start with simple questions such as: How did you enjoy walking around the gallery? What impressions did the suncatchers make on you? How did you enjoy making them? Which trees have the most colourful leaves? What was easy / difficult for you? How did the sunlight change the pictures? Would it make any difference to do this project indoors? What would be the difference?

→ VARIATIONS

SHAPES

It is best to start with basic shapes that allow the children to try the new technique out. You can also do other activities, such as sorting out the shapes (a rectangle, a square, a circle etc.) This can be done with younger children in their mother tongue or in a foreign language with the older ones.

ANIMALS AND ACTIVITIES

Let the children draw their favourite animal or activity. They then cut out the part which is going to be colourful and go out to collect and tape the leaves. This variation allows you to talk about the topics that were interesting for the group again and again.

Such pictures can be used for decorating the classroom, children's notebooks or lapbooks.

MAPS AND PLANETS

Making maps and planets is a huge challenge but it is worth trying. Children are incredibly creative and make beautiful pictures. On top of that they reuse and apply previously gained knowledge.

CHARACTERS AND STORIES

This is great if you have enough time (e.g. at the school's club, on a trip etc.)

First, children sketch their favourite character. Then they cut out some parts and dress their character in a leaf outfit.

You can make up stories about the characters during their creation. Children can take turns adding to the story. It is great fun!

For young children, this activity is great for developing their speech skills in their mother tongue. With older children this can be done to practise their conversational skills in a foreign language.

→ TIPS FOR SAVING

—

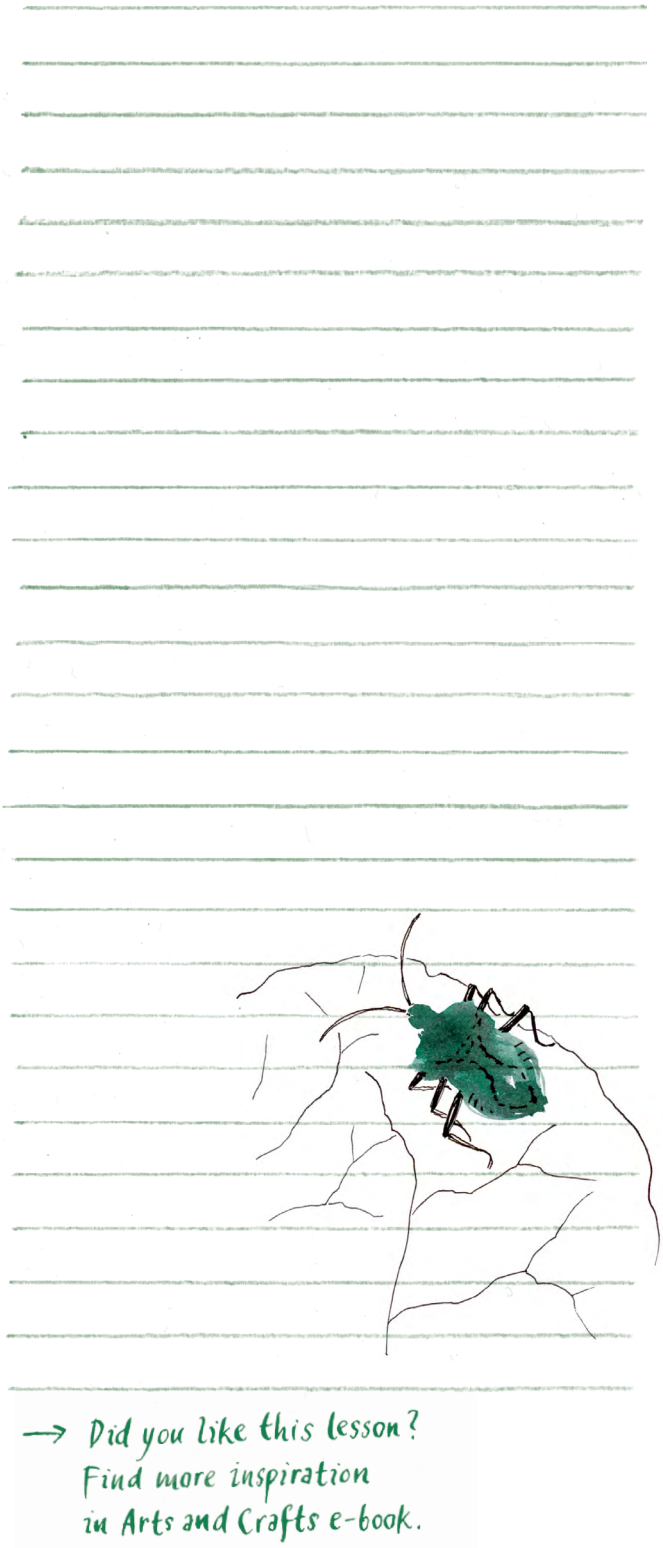
PRESSING – if you want to save the pictures or use them as presents, sandwich the leaves between sheets of newspaper and place them in a heavy book.

—

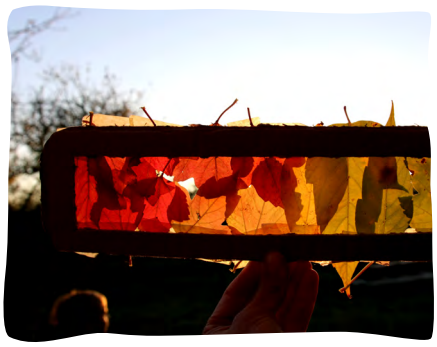
The suncatchers can also be made with leaves that had already been pressed. These are, however, fragile and one has to be very careful when working with them.

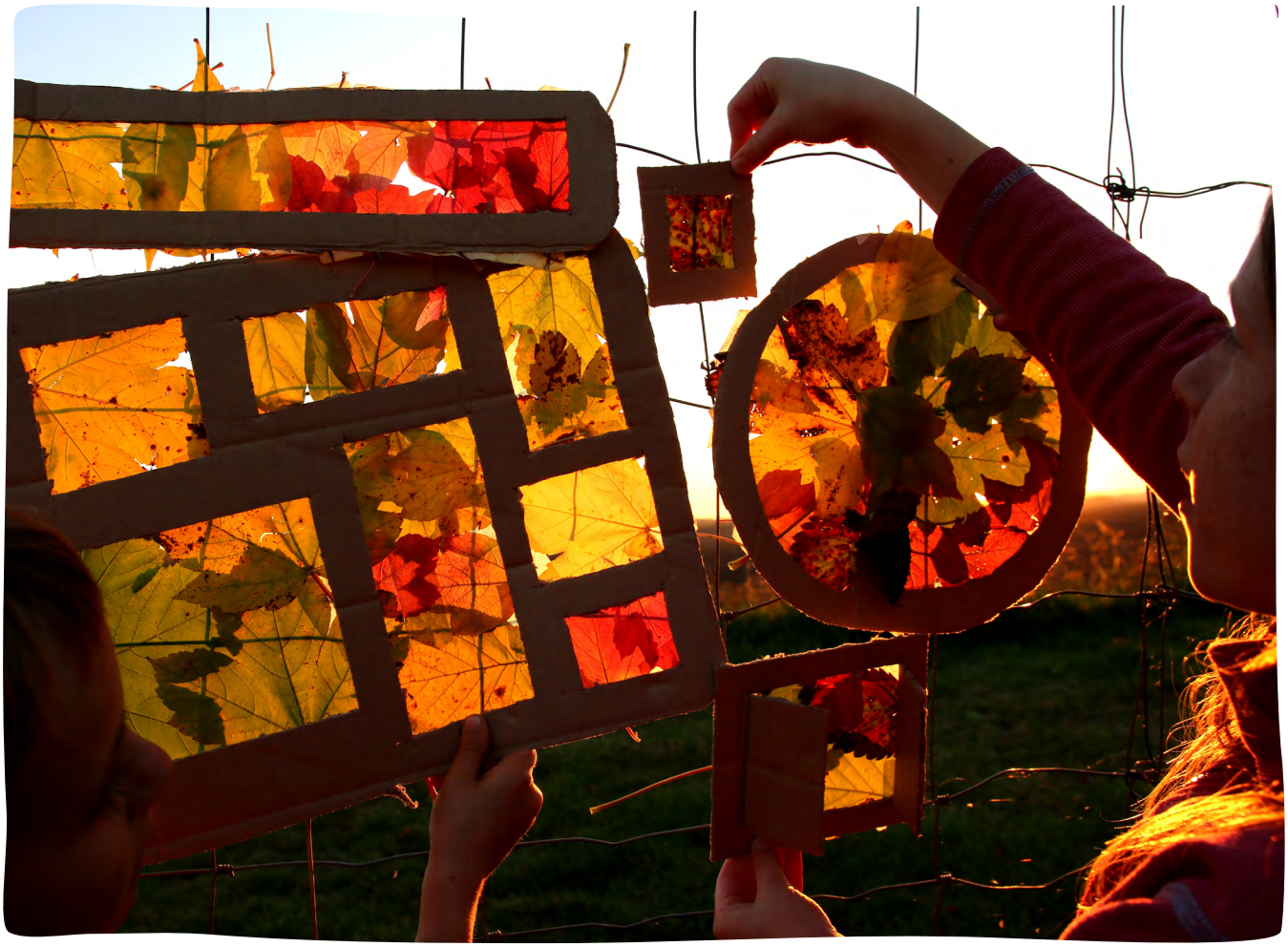
—

DISPLAY – once the pictures are pressed you can hang them in a window to enjoy the colours.



→ Did you like this lesson? Find more inspiration in Arts and Crafts e-book.





! THIS PAGE IS YOURS!

MAKE NOTES, SO THAT YOU CAN START TO TAKE YOUR LESSONS „TO THE GRASS“ SOON.

We propose several questions, you add whatever you consider important!

→ When can I start, what will I do first?

→ The most interesting lesson for me was...

Why?

→ What do I need to take with me outdoors:

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