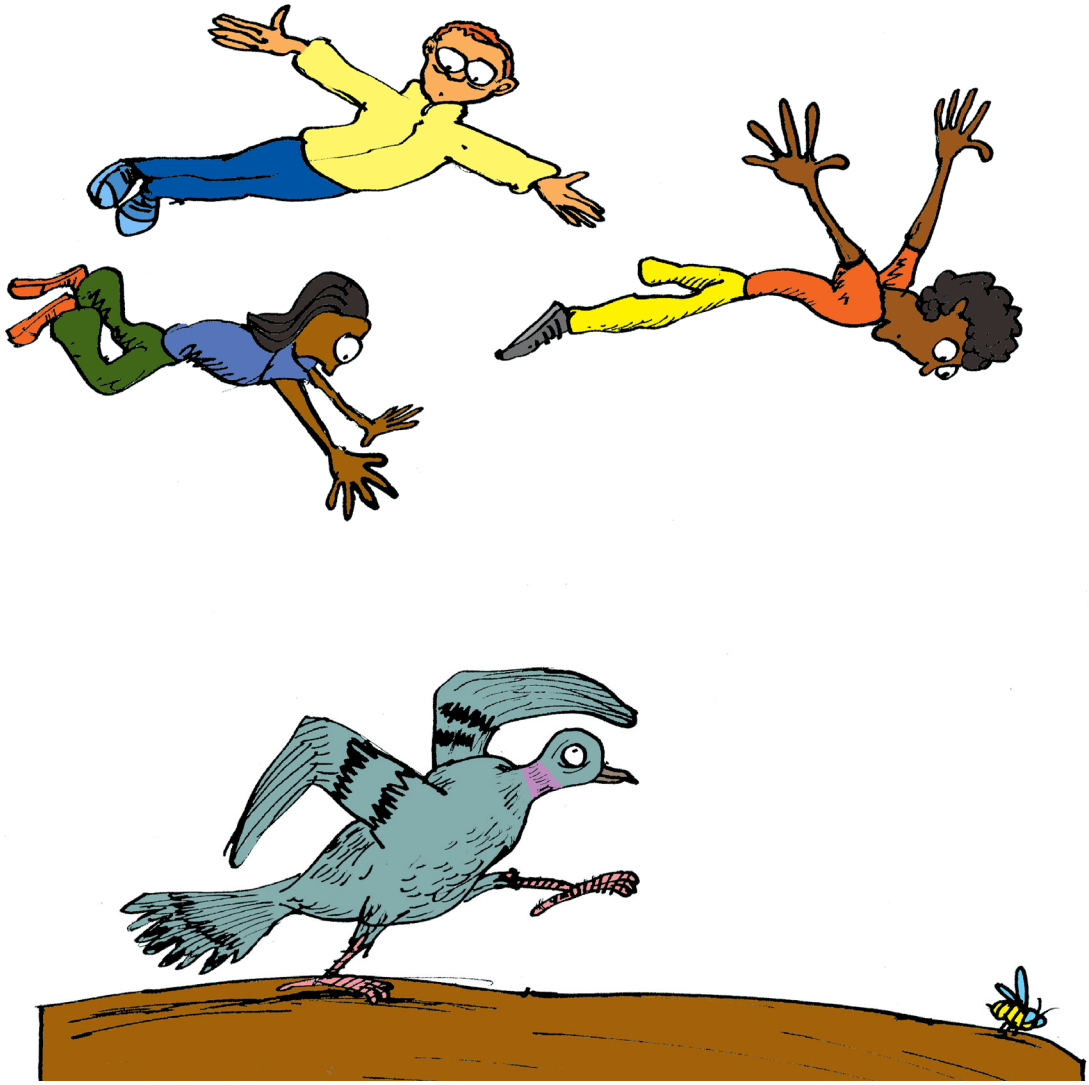
Curriculum Linked Resources

Lesson plans linked to core curriculum areas



EMPTY CLASSROOM DAY

By Learning through Landscapes

Learning through Landscapes is the UK charity dedicated to enhancing outdoor learning and play for children.

Our vision is that every child benefits from stimulating outdoor learning and play in their education.

We aim to enable children to connect with nature, be more active, be more engaged with their learning, develop their social skills and have fun!

Where possible we encourage young people to have a say in the way their grounds are used and improved. As a result, they learn to create and look after something valuable, their self-esteem grows and their behaviour improves, along with their potential to learn and achieve.

We hope you enjoy trying out some of the activities in this section of the Empty Classroom Day bookshelf.

Membership of LTL is free to anybody across the world and can give you access to all sorts of additional resources and case studies as well as a 6 weekly e-newsletter with fundraising hints and tips and latest sector news. Find out more here: http://www.ltl.org.uk/membership

Learning through Landscapes

Front cover image from Mission:Explore Outside the Classroom.
Find out more at www.missionexplore.net

out&about

Electronic treasure hunting

January 2010

Schoolgrounds-UK

School grounds focus:

- Where are we now?
- Where do we want to be?
- How can we get there?
- Making the changes
- Using your grounds

Curriculum focus:

- Geography
- ICT
- English

Purpose of this activity:

- To use ICT to find information
- To use field techniques outside the classroom
- To begin to understand scale and basic grid references

Equipment and materials:

- Access to google maps for satellite images of the school grounds or maps of the school grounds.
- Six 'geocaches' (small containers in which the children have stored treasure items such as small world toys), one per group of six children.
- One or two hand-held GPS units (an alternative might be mobile phones with a GPS facility or a satellite navigation system).

Preparation:

- Introduce younger pupils to this activity using the mini man treasure hunt (see over page).
- Using google earth, get the children to find their school and print off an aerial-view satellite image.
- Using this image walk around the school grounds with the children getting them to identify key landmarks. Mark any other important landmarks/features on their satellite image that may not already be there.
- Get each group to hide their geocaches around the school site and mark on their satellite image where they have left them.

What to do:

The idea is for the different groups to try and find each others' hidden geocaches, having exchanged maps/ satellite images.

Extensions:

- Rather than a printed satellite image, get pupils to find the longitude and latitude references (right-click on their google map). These can then be programmed into a GPS unit to find the geocaches.
- Develop a treasure trail: in each geocache put a clue (or a longitude/latitude reference) that takes the treasure hunter on to the next geocache. These could be in the form of picture clues (photos or illustration), riddles or poems.
- Develop treasure trails for family fundraising events and extended school activities, including open evenings.
- Having practised in the school grounds, take these activities to the local park.

Further resources:

- National geocaching website **www.geocaching.com**
- Ordnance survey maps **www.ordnancesurvey.co.uk/oswebsite/education**

Mini man treasure hunt

This activity is designed to help younger children understand the concept of treasure hunts. Make a series of mini men out of modelling clay, each one slightly taller than the previous one. Hide the mini-men in different but easy to find locations around the school grounds and mark these on an aerial-view satellite image of the school grounds. Over the course of a day or a week, get the children in groups to find the mini men, starting with the smallest. Each time a mini man is found, the group needs to measure how big he is. They then feed him some cake to help him grow. When they find 'giant' man, everyone sits down and eats some cake to celebrate!

On Monday

Mini man was hiding .....

and he was ..... cm tall.

I fed him cake and he began to grow.

On Tuesday

Mini man was hiding .....

and he was ..... cm tall.

I fed him cake and he began to grow.

On Wednesday

Mini man was hiding .....

and he was ..... cm tall.

I fed him cake and he began to grow.

On Thursday

Mini man was hiding .....

and he was ..... cm tall.

I fed him cake and he began to grow.

On Friday

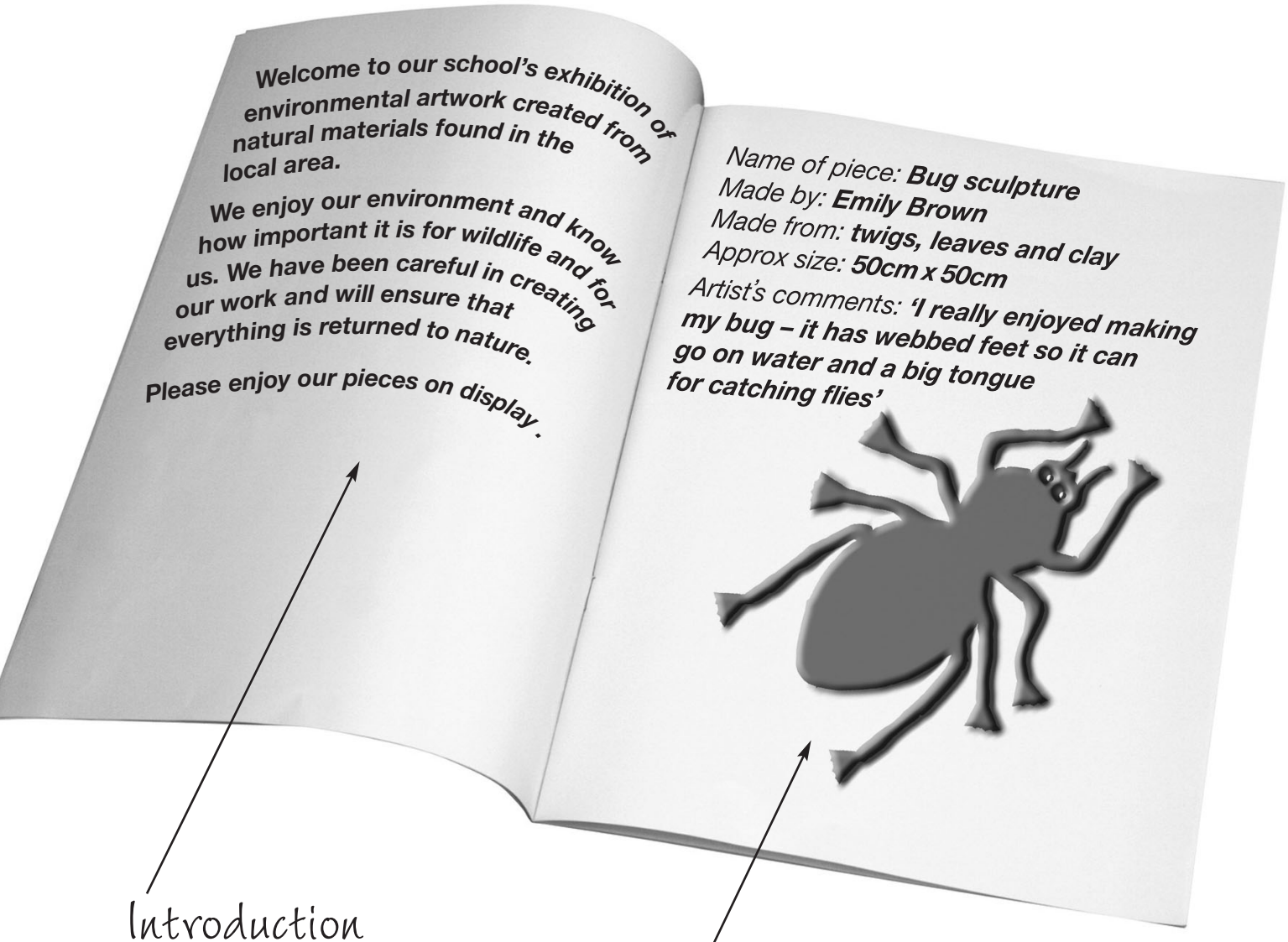
I found a giant man hiding .....

and he was ..... cm tall.

We all ate cake to celebrate!

Exhibition catalogue

Why not create an exhibition catalogue for your environmental art gallery to help parents and other pupils enjoy the art work on display? Here's an example to inspire you . . .



out&about

Creating an outdoor art gallery

September 2008

Schoolgrounds-UK

School grounds focus:

- Where are we now?
- Where do we want to be?
- How can we get there?
- Making the changes
- Using your grounds

Curriculum focus:

- Art and Design
- Design and Technology
- Geography/environmental studies

Purpose of this activity:

- To create a gallery of outdoor environmental art
- To understand more about local surroundings

Equipment / materials needed:

- Examples of work by environmental artists such as Andy Goldsworthy
- Containers for holding collected materials
- Secateurs, strong scissors
- Other useful resources found off site such as dried seed heads, pebbles, composted bark, leaves, clay to mould, add into the piece and to help hold together collected materials (your own soil may have enough clay content to do the same job)
- A large sheet of white plastic (and tent pegs for holding it down if it's breezy)
- Pieces of white card for 'mounting' artwork
- Cut logs for using as 'plinths' (optional)

Preparation:

- If you have visited an art gallery recently use this experience to talk about how artists create work for exhibiting and how the space in which they display their work is important. Look too at displays around your own school.
- Discuss with pupils the work of environmental artists such as Andy Goldsworthy. Show them examples and talk about how they were made, how long they might last and why they are sustainable.
- Bring into the classroom some of the natural materials you know are to be found in your grounds at this time of year (leaves, stems, petals, grasses etc).
- Experiment with these – talk about their colours and textures, grind them up to make powders of colour, make drawings of potential ideas.
- Discuss designs of exhibitions and how best to see art.

What to do:

- Explore your school grounds as a potential gallery space in which to make and exhibit environmental art. You may want to limit this to a particular part of the grounds – for example, where you know the art will be safe from trampling, or where parents will see it when they arrive to drop off or collect. Discuss the best places to exhibit work.
- Organise small groups to collect natural materials. You may want to add to these other items found off-site such as larger branches, pieces of bark, rose petals or pebbles.
- In your chosen 'gallery' area, ask each group to create a piece of artwork using their found objects. Where necessary, the artwork should be arranged on white card so it can be repositioned for exhibition.
- Lay out a white plastic sheet as your gallery 'floor' and talk about how best to arrange the pieces for other people to view. Carefully position the pieces of artwork accordingly.
- Organise a gallery tour for the class. Talk about each piece and ask for comment. Use vocabulary that helps to describe these pieces of artwork.

Extension:

- Take photographs of all the work, both individually and as a whole, and design a catalogue recording the name of the piece, the artist, the materials used, the size of the artwork, and some comments from the artist (see over page).

Teaching and learning outdoors

schools

Maths – position and movement

Photographs right and below © Malcolm Cochrane

Position and movement are a fundamental part of the mathematics curriculum throughout all key stages. Children are expected to understand the key language associated with this topic, how to use a grid, plot coordinates and follow compass directions, as well as the practical applications of understanding right angles.

Many children find it difficult to understand mathematical concepts like this until they are given an application in real life. This is why getting outdoors is so vital. It provides children with the perfect opportunity to have hands-on experiences that by their very nature are often more memorable than lessons indoors. Lessons like these are especially valuable for kinaesthetic learners and those children who are usually disengaged in lessons.

Outdoors also offers extra space which helps with the teaching of the larger scale elements of position and movement. Compass directions are one example where outdoors children benefit from having a larger area to explore. Outside children also get a better sense of scale, and there are fantastic opportunities to build position and movement into problem-solving activities.

Up, over and under

Incorporate positional language into everyday activities. For example, when taking children across the school site use words like 'right', left', 'over' and 'around'. Or play 'Simon says': 'Simon says take two steps forward and stretch your hands up in the air'. Use familiar landmarks and ensure lower ability pupils are supported by other pupils or by staff placed at key points.

Right... or wrong?

Your school grounds offers lots of opportunities for exploring right angles. For example:

- how many right angles can the children spot when looking around the school grounds? Make sure they look up (window frames, brickwork etc) as well as down (paving slabs, drain covers etc). Lower ability children could use a large set square to check the angles. Higher ability children could look for other angles too – 180 degrees and 270 degrees.
- why do you find so many right angles in buildings? Try and create homemade structures using natural materials such as cardboard and straw to find out which angles are best at bearing weight.
- mark out an area of paving stones in your school grounds (if you don't have any, draw a grid on the school playground instead). Ask the children to work out how many right angles the marked area contains. Can they find a quick way of working this out? For example, how many right angles does each paving stone have and how many paving stones are there?

Five ways to be inspired

From hide and seek to hopscotch, children have always naturally explored position and movement in their school grounds. Here are some other fun ways of getting to grips with these important concepts.

1 Find the treasure

Dot various objects around the school grounds and give clues written on a 'treasure map' for reaching the objects. Children should work in pairs or small groups. If you position the objects in a circuit you can get the children to start at different points while using the same instructions. Use language that is appropriate to the age and ability of the children in the class. Examples might include, 'walk forward until you reach…', 'turn 90 degrees to the right' or 'walk six metres south west'. You can also use this opportunity to talk about standard and non-standard measures and why you would use metres instead of paces. Trundle wheels are often helpful here if you have completed a lesson on measuring.

2 Mirror mirror

Gather natural objects from around your school grounds and look at using rotation and symmetry to create natural artwork. Use the work of Andy Goldsworthy as inspiration (see 'Further resources'). Explain that the children can use rotations through 90 degrees or 45 degrees, or symmetry of one or multiple objects.

3 Giant battleships

Prior to the lesson, on a piece of paper with 10 x 10 square grid get each child to shade in the squares representing battleships or a boat. Each player needs the same number – for example, aircraft carrier, 5 squares; battleship, 4 squares; destroyer, 3 squares; submarine, 3 squares; patrol boat, 2 squares. Draw two large 10 x 10 square grids opposite each other on the playground in chalk – or adapt existing grids on your school playground. Children should work in teams of two, with one person calling out the coordinates and the other placing markers to show whether there is a 'hit' or 'miss' when the other team call out their coordinates. The team that destroys all of the opposition's boats is the winner.

4 The world around me

Talk through the basics of compass directions with the children and demonstrate how to use one. Put the children into groups and get each group to walk to a point within the school grounds and chalk the correct compass directions – north, south, east and west – on the ground. From there they have to note down what they see in each direction. For example, 'When I look north I can see the big oak tree'. As an extension the children could then look at the notes made by others and guess where the group was standing. You could make the activity more difficult by adding in another four compass directions (NE, SE, SW, NW) or asking the children to estimate or measure the distance between where they are standing and what they can see.

5 Follow the leader

Divide the children into an even number of small groups. Each group walks through the grounds and writes instructions on how to reach a given point (without saying what that point is). Two groups then swap their instructions and follow the new instructions. When they finish they have to write down where they think the end point was supposed to be. This can also be adapted to support whichever topic you are working on – for example, a bear-hunt activity with one group acting as the bear and writing instructions on how to reach the picnic.

FAQ How can we develop our grounds to support exploring position and movement?

Try these simple and cost effective ideas:

- when adding to or refreshing the markings on your school playground, include a large grid and compass directions
- use signs – laminated labels or carved posts – to reinforce positional language. For example, where children can move around the site in different ways – using large logs, boulders, tunnels and steps – position signs that suggest children go over, through, round or under. You could also label areas in the grounds that show right angles and 45 degree angles.
- have loose-play directional arrows available that children can place to mark routes around the grounds
- create a sundial in the grounds to teach children about compass positions, or a weather vane showing which direction the wind is moving in (see 'Further resources')
- leave an area of grass to grow and then mow a maze into it.

Top tip

Teach the points of a compass with a mnemonic. For example: 'naughty elephants squirt water' or 'never eat shredded wheat'

Subject links

Almost every subject can incorporate explorations into position and movement. For example:

- **Science** Develop an understanding of compass points by exploring shadows. Draw round the shadow of a chosen object outdoors at different times of the day and see how it changes (see 'Further resources').
- **Design and technology** Make your own compass. For example, you can magnetise a large needle by stroking it repeatedly with a magnetic bar. Then fill a bowl half full with water and float a milk carton top in the water. Lay the needle centred on top of the this. Watch the needle spin slowly and then stop. The needle tip will be pointing north.
- **English** Incorporate positional language into a diary describing the travels of mini-beasts through your school grounds. Get the children to sit and watch an ant or butterfly and then write about its journey.
- **History** Recreate Roman or Greek military formations and use commands relating to position: 'Turn 90 degrees left' or 'March forward 12 paces'.
- **ICT** Use GPS positioning equipment to follow directions and reach points within the school grounds.
- **Geography** Draw maps of the school grounds – or parts of the grounds – and add the compass points. Draw a map on a scaled grid, too.
- **PE** Warm up activities can involve the use of lots of positional language. For example, place various pieces of equipment/objects out on the playground and ask the children to go round, over, under, through, to the left, to the right etc.

Get topical!

Whatever your topic this term, exploring position and movement can enhance knowledge and understanding.

Mini-beasts Supporting biodiversity in school grounds adds lots of opportunities for positional language. Explore your grounds looking for mini-beasts, and then use positional language – 'in' trees, 'under' leaves, 'at the bottom of' plants, 'in-between' branches, etc – to capture important information about habitats. Talk about why different creatures have different habitats. Why, for example, do spiders live in-between plants on a web? Why do birds stay up high in the trees? The children can then use their findings to encourage more wildlife into the school grounds with bug hotels, bird boxes, hedgehog houses, solitary bee houses and new plants.

Traditional fairytales As a cross-curricular problem-solving exercise, place various objects at one end of the school site and explain that the three little pigs in their haste to escape from the big bad wolf forgot to take the materials they needed to build their house. It is the children's job to work out how they are going to transport each of the items safely to the building site. Children should walk the route they will be taking and write the instructions of how to get there. They must include details like walk 'through' and 'over' or 'under'. Get them to consider the size and weight of the objects and whether narrow alleys are the best routes to take for larger items. Selecting appropriate tools is obviously an important part of this topic too – is it possible, for example, for wheelbarrows to go up or down steps?

The Greeks While studying Greek myths and legends read the children the story of the Minotaur – the mythical monster with the head of a bull and the body of a man who lived in the centre of the Cretan Labyrinth. Draw a large grid in chalk on the playground (or use a grid already there) and place small positional tasks along a set route. Tell the children that they have to follow the directions given to complete the tasks along the route and beat the Minotaur. If they complete all of the tasks successfully then they will have beaten the Minotaur and can leave. If they don't follow the correct route they might miss a task and will be lost in the labyrinth forever! This task is best completed in small groups one at a time and with a helper placed in the centre of the maze as the Minotaur.

‘Some of the clues use simple language like “turn left…”; others involve using a compass’

Exploring maths through role play

Each year, **Holy Trinity School** in Guildford use their grounds to deliver an inspiring lesson designed to reinforce positional language and introduce their topic – ‘explorers’ – for the coming weeks. On the first day of term the Year 4 assembly is thrown into chaos when a man dressed as an explorer bursts into the hall holding a map. After a brief explanation the children learn that the man is indeed an explorer, that he has found an ancient text, and to stop anyone from uncovering its secrets before he can make sense of them, he has hidden his learning around the local area. Unfortunately for him, he isn’t a great explorer, is hopeless at following directions and needs the children’s help. Both classes in the year group are given an area to explore and information to find the first clue. One class searches the local area with parent helpers and the other focuses on the school grounds.

A series of directions lead them to their first location. When they arrive, the children are presented with a code (eg d = a, y = f, a = s) to help them decipher the text when they find it, and a directional clue to get to the next area. Some of the clues use simple language like ‘turn left at Mr Rowe’s office’ or ‘climb over the fallen tree’; others involve using a compass and getting the children to ‘walk north’. Elements of measuring – non-standard measuring (paces) and standard measuring (using trundle wheels) – are also part of the challenge. When all clues are found the children join together to set about deciphering the text. The text talks about the discovery of an unknown land and hints at the nature of the coming term’s topic on explorers.

The session is always a huge success. Children of all abilities can participate as the teachers are able to easily differentiate the work by altering clues and carefully selecting groups.

Following on, the children use their creative writing skills to explain how it felt to be an explorer discovering a new land. As one of the teachers comments: ‘The children really get into the activity and immerse themselves in the temporary world we have created for them. The also enjoyed the element of competition – being the first to solve the clues.’

Further resources

- *Making a sundial, Exploring micro-climates (this includes how to make a weather vane), Creating a home for mini-beasts, Creating and using a labyrinth.* All available to download for free from our website **www.ltl.org.uk**.
- *Mathematics in the School Grounds* by Zoe Rhydderch-Evans (for Learning through Landscapes). Available from Southgate Publishers. Visit **www.southgatepublishers.co.uk** or call 01363 776888.
- **www.goldsworthy.cc.gla.ac.uk**

Outdoor museum

Outdoor lesson

primary

Telling local history through an outdoor display

Great for...

- **History** historical enquiry/local history
- **English** writing explanatory texts
- **ICT** researching information

Activity

1. Take the theme of outdoor toys for your outdoor museum. The children should research how outdoor toys and games have changed over time. They should ask their parents and grandparents and carry out research using books and the internet. Discuss which is likely to be the most accurate source of information.
2. Collect examples of these items together (or pictures if the toys or games are not available) and think about how they could be displayed outside in the grounds. Objects could be placed according to where they would be used, or by decade.
3. The children should then write a commentary or explanation for each of the items on display. These could be produced as a booklet to guide visitors around the tour or created as a commentary to be displayed with each object.
4. Invite the rest of the school community to visit the museum.

What you need

- **Either pictures or examples** of old outdoor toys and games
- **Equipment for displaying your items** – they could be hung from a fence or trees, or placed on stands made from cardboard boxes

Preparation

- Visit a local museum to look at how objects are displayed.
- Talk about how toys have changed over the years, looking at examples from different eras before focusing on outdoor toys.

Less challenging

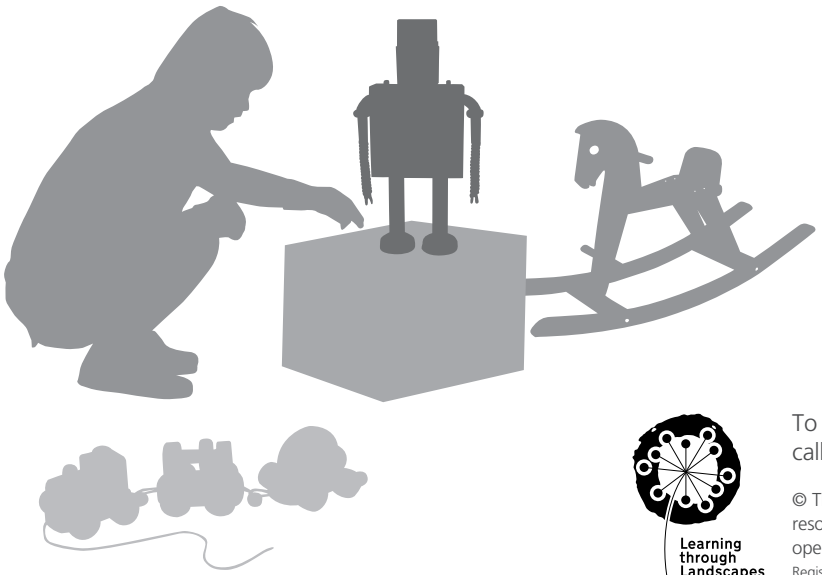
- Provide children with questions to ask parents and grandparents about their toys and games so they have information for the commentary for the museum.

More challenging

- Get the children to talk to their parents and grandparents about playground games and how these have changed. The children could then recreate these games outdoors as part of their museum of toys and games.

Your notes

Use this space to evaluate the activity



out&about

Making a mini water wheel

September 2010

Schoolgrounds-UK

School grounds focus:

- Where are we now?
- Where do we want to be?
- How can we get there?
- Making the changes
- Using your grounds

Curriculum focus:

- Science
- Design and technology
- History

Purpose of this activity:

- To find out about hydropower
- To understand forces
- To introduce ideas of renewable energy

Equipment/materials needed:

- Sheets of cardboard
- A round object to use as a template (a dinner plate, for example) or a supply of sturdy paper plates
- Ruler and pencil
- Length of dowling
- Scissors
- Straws or similar
- Sticky tape
- Plastic cups
- Stapler
- Stanley knife
- Watering can
- Water source

Preparation:

- Introduce the idea of the water wheel with pictures. Talk about how a flow of water makes the wheel turn, and how this energy can be harnessed via the shaft of the wheel.
- Look at pictures of watermills through history and discuss how the energy they created was used – for example, to grind corn, supply drinking water to villages, irrigate crops, power textile mills.
- Talk about water as a renewable energy source – what does this mean? What other sources of energy are renewable? What are non-renewable sources of energy?

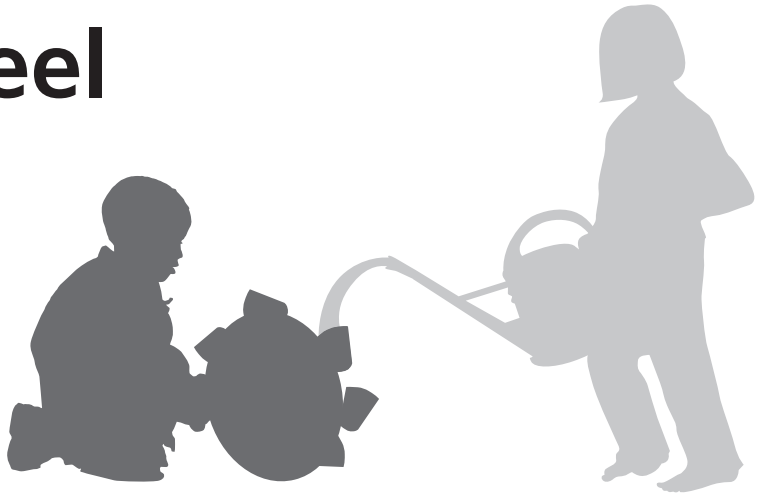
What to do:

- In pairs and using a template, get the children to draw two large identical circles on their piece of cardboard and cut them out.
- Using their ruler they need to measure and mark the centre point of each circle, and at this point – under adult supervision if necessary – push through a hole with a pencil.
- Get the children to place a piece of dowling through the holes in the centre of the cardboard circles.
- They then need to staple plastic cups (minimum three) between the cardboard circles. These should be evenly spaced to ensure the water wheel turns properly.
- Fix a coloured straw to the wheel so it sticks out like an arm.
- Fill watering cans up with water.
- In pairs, one child holds the wheel by the ends of the dowling while the other pours the water from the watering can in a steady flow into the cups. Switch over so each child has a turn pouring the water.
- Get the children to measure how many rotations their wheel achieves for each watering can of water – they can do this by counting how many times the straw arm appears at the top of the rotation – and to gather their information on the sheet over page.
- Experiment by changing the height and speed of the flow of water. For example, if they stand on a chair to pour the water does the wheel rotate faster? What difference does a faster flow of water make?

Extensions:

- Design and construct a larger water wheel – using plywood, buckets and a broom handle, for example.
- Investigate ways of harnessing the energy from the water wheel – for example, by attaching a string and bucket, to find out how much weight the mechanism can lift, or by connecting the water wheel to a small light source.

My water wheel



Use this chart to record your findings.

	Test 1 Number of rotations	Test 2 Number of rotations	Test 3 Number of rotations
Fast flow			
Slow flow			
From a height of ..... cm			
From a height of ..... cm			
From a height of ..... cm			
From a height of ..... cm			

Storytelling on the move

Outdoor lesson

primary

Create a storytelling trail around your grounds

Great for...

- **English** speaking and language

Activity

1 Choose a story that can be told outside – take an existing tale and adapt it to your site.

2 Divide the class into groups and the story into sections, and give each group one of the sections. Read through the sections out loud to determine the order in which to create the complete story.

3 Each group goes outside to decide where they can perform their section of the story. They should think about what makes a good setting, how the setting enhances the story, how they can add to their chosen location in terms of scenery, props or costumes.

4 Get the groups to rehearse their section of the story in their chosen location then perform each section in order, with the whole class following the story around the site.

What you need

- **Copies of each section of your chosen story** for the members of each group within the class
- **A range of resources** that could be used to develop the scenes or used as props (optional)
- **Ideas and images of outdoor theatres** to inspire the class

Preparation

- Select a suitable story with the children.
- Divide the story into sections that can be performed by individual groups in different areas of the ground.

Less challenging

- Choose which groups are going to perform each section of the story – some sections are likely to be more challenging than others.
- Work with the children to help them choose the space they are to work in.

More challenging

- The children could write their own story or develop their own versions of well-know tales such as *The Three Little Pigs, Little Red Riding Hood* or *Hansel and Gretel.*

Your notes

Use this space to evaluate the activity

Learning through Landscapes

To find out more about membership call 01962 845811 or visit **www.ltl.org.uk**

EMPTY CLASSROOM DAY

Empty Classroom Day is a UK campaign to celebrate and inspire learning and play outside the classroom. The campaign is backed by Persil, led by Eco-Schools England and supported by Project Dirt.

On the day schools across the world will be taking at least one class outdoors, teaching essential skills and raising awareness of the importance of play. We hope this will inspire schools everywhere to make outdoor learning and play a part of their school every day! With everyone's support, we can make sure children everywhere enjoy their childhood and have the foundations they need for the life they want to live.

Play for today, prepared for tomorrow!

Find out how you can get involved and access all the resources at: www.emptyclassroomday.org.uk

/emptyclassroomdayuk

@emptyclassroom

Do be aware you get involved at your own risk! Be prepared to be amazed...

Persil #dirtisgood

PROJECTDIRT
CONNECTING COMMUNITIES FOR GOOD

Eco-Schools England