

Lighting the fire

Hands-on investigation, play and outdoor learning in primary education



Education is not the filling of a pail,
but the lighting of a fire. William Butler Yeats

Community Playthings
with **Wendy Scott**
Foreword by **Mick Waters**



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Foreword

I often think that, if I had my time again, I would pretend that I couldn't write. Once teachers know that you can, they make you do more and more of it. The clerical burden takes over and other doorways to learning seem to close. Not that there is anything wrong with writing; it's just that it has to serve a real purpose.

Lighting the fire stimulates thinking about how best we learn and particularly how best young children learn. It is well referenced and researched, revisiting the work of Froebel, tapping into evidence from home and overseas, and highlighting case study examples that bring theory to life.

The three domains considered: play, using the outdoors and exploring first-hand experience are justified through their impact upon wider learning (the sort that the clerical, formal world tries to achieve) and their impact upon the child as a person. It looks at purpose in experience and how rigour in all aspects takes development forward.

Enjoy the pamphlet and play with the ideas, take yourself into the child's mindset and explore possibilities. It is called *Lighting the fire*; it will ignite your thinking. For the children's sake, it is worth it.

Mick Waters

Professor of Education and President of the Curriculum Foundation

Kindling interest

The question is not 'Are the children ready for school?' but 'Is the school ready for children?' **Wendy Scott**

The current emphasis on test scores and league tables induces many schools to rely on formal teaching methods. But is this how children really learn? The Guardian reported on the Cambridge Review of Primary Education (2009):

'More than 70 academics have produced 29 reports with thousands of children, parents, teachers and head teachers taking part in surveys across the country. It presents a damning view of the primary curriculum, which it suggests has failed generations of children... There is an over-emphasis on the skills of reading, writing and maths at the expense of other subjects, the report claims. This limits children's enjoyment of school and risks severely compromising their natural curiosity, imagination and love of learning.' (20 February 2009)

This is a wake-up call. The review reminds us that 'Childhood is a valuable time in its own right. It is a time to be relished...' (Hofkins and Northen, 2009) Teachers who are awed by the depth and complexity of what children already know, nurture and extend that learning as opportunities arise. They understand children's physiological need to move. They value the whole child – heart, head and hand.

England has an excellent internationally recognised early years tradition in its maintained Nursery Schools, where children's independence and delight in discovery are fostered. Fortunately some primary schools have chosen to build on that foundation, carrying this happy confidence forward in children's daily experience. The first Nursery School was founded in 1914 by Margaret McMillan, who was strongly influenced by Friedrich Froebel.

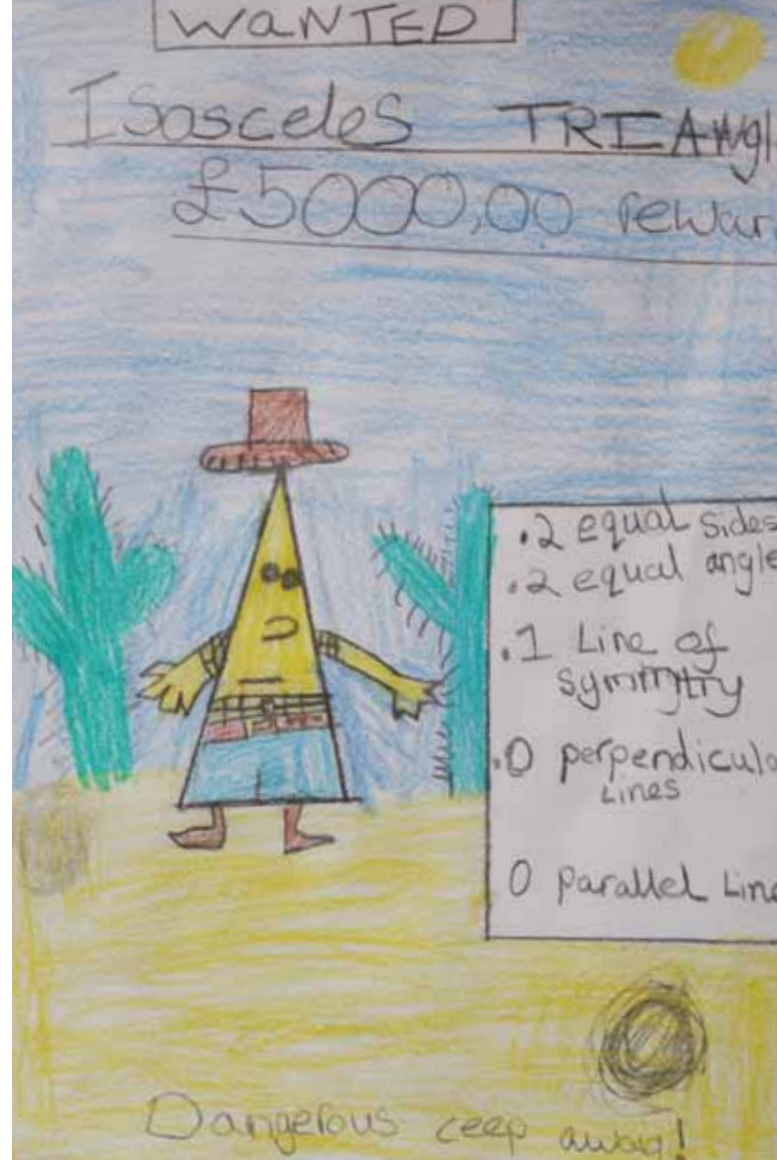


We had a student some years ago who struggled hard with the challenges of dyslexia. Remedial help only alienated him until he had a new SEN teacher with a different approach: she brought an incubator and some goose eggs. Nine-year-old Jed was fascinated. He monitored temperature and humidity and designed charts to document them. He asked questions and signed out books from the library, something he had never done. When the goslings hatched he cared for them, and the project expanded to include other creatures. Now a young man, Jed has found fulfilling work caring for people with disabilities.

Head teacher, East Sussex

Froebel (1782–1852) is known as father of the kindergarten, but his progressive school went through the primary years. His belief that teachers should help children make their own discoveries was revolutionary at a time when pupils were expected to sit still and obey orders in school; discipline and rote memorisation had been the goal. Froebel said, ‘To awaken the pleasure and power of the human being to effect his own education has always been the aim of my work’ and ‘The purpose of teaching is to bring out of children rather than to put more and more into them... To have discovered a quarter of the answer to his question by his own effort is of more value to the child than to hear it all, half-understood, from another.’

Froebel believed curiosity to be children’s leading intellectual asset; he therefore recommended that they invent problems, as this allows for more originality and leads to better comprehension than just solving problems. Froebel protested against any ‘stamping and moulding’ system that failed to acknowledge children’s individuality. And he pointed out that mere listening leaves children in a passive state – sustained interest requires some form of action on their part. (Hughes, 1897) Many current educators agree.



When I was in Year 4, I had a really creative teacher. Mrs Jory’s classroom was a paradise of terrariums, aquariums, gadgets of all kinds, clocks where you could move the hands, meccano sets... I loved it so much I played truant from break to experiment with all this stuff!
Former student,
Shropshire





‘Imagination does not only develop from what children see but also from the wide range of ways in which ideas can be represented. Singing and dancing, rhythm and rhyme, humour and narrative all have a role to play in developing imaginative thinking... All too often, the poetic connections and imaginative comparisons which children make are seen as frills, to be set aside in order to get on with teaching what are called basic skills. In reality, these forms of thinking and imagining are the real foundations of learning.’ Pound, 2009

Froebel realised that children are tremendously motivated for any task that is their own idea. He believed self-expression to be the most effective way of training children’s cognitive abilities, and his goal was for students to become ‘independent, thinking individuals.’ The teacher’s main task was to strengthen the power of choice and enjoyment of work, which are ultimately more important than a memory stored with facts.

Education must come alive! If interest is kindled, children take initiative and make the knowledge their own.

Play

In play, a child is always above his average age, above his daily behaviour; in play, it is as though he were a head taller than himself. **Lev Vygotsky**

One way children ‘make knowledge their own’ is through play. ‘Children are at the height of their powers when they are playing’. (Scott, 2008) In play a child expends energy voluntarily and develops physically, intellectually and emotionally. Play builds key communication and social skills such as negotiating, discussing plans and sharing resources.

Playwork is a discipline that began in the UK and is expanding abroad. Its first principles state:

‘All children and young people need to play. The impulse to play is innate. Play is a biological, psychological and social necessity, and is

fundamental to the healthy development and well-being of individuals and communities.

‘Play is a process that is freely chosen, personally directed and intrinsically motivated. That is, children and young people determine and control the content and intent of their play by following their own instincts, ideas and interests, in their own way, for their own reasons.’ **Playwork Principles, quoted in Wilson, 2010.**





Until the advent of screen activities, school-age children organised lively games of their own from hopscotch, marbles, conkers and skipping in the street, to cops and robbers in the playground or hide-and-seek, tree-climbing and den-building in the woods. Over the past decades there has been a surge in television and electronic games. Virtual play is removing youngsters from real play; many

are being moulded into an unnaturally sedentary lifestyle and becoming dependent on technological gimmicks. Boredom and obesity are problems. Actually the simplest materials facilitate the richest play because they fuel imagination – most adults can recall a wealth of childhood experience playing with whatever was at hand.



‘For children, play can be (and often is) a very serious business. It needs concentrated attention. It is about children learning through perseverance, attention to detail, and concentration – characteristics usually associated with work. Play is not only crucial to the way children become self-aware and the way in which they learn the rules of social behaviour; it is also fundamental to intellectual development.’ **Welsh Foundation Phase Framework for Children’s Learning, 2008**

Play is not just for after school but should be incorporated in the school day. At the Play Research Seminar at Leeds University in April 2008, Dr Justine Howard of Swansea University reported that when children practice a task playfully, they show superior problem-solving skills and higher levels of

motivation and are more deeply engaged than children who practice the same task in a more formal manner. (Howard, Thomas & Miles, 2006; McInnes, Howard, Miles and Crowley, 2009; Howard, 2010)

‘There is no evidence that a child who spends more time learning through lessons – as opposed to learning through play – will “do better” in the long run. In fact, research suggests the opposite; that too formal too soon can be dangerously counterproductive. In 14 of the 15 countries that scored higher than England in a major study of reading and literacy in 2006, children did not enter school until they were six or seven. And more children read for pleasure in most of those countries than do so in England.’ **Hofkins and Northen, 2009**





Describing the three-year Oxfordshire Transition Project, Julie Fisher (2010) writes, ‘Where high quality play has become a central process for learning in Key Stage 1, standards in many aspects of the curriculum have been raised. Having more opportunities to initiate their own learning gives children a greater stake in their education... Almost every teacher participating in the Project who introduced play as a major element of the learning day said that standards in writing had improved – especially for reluctant writers.’ She argues that ‘In play, no one gives boundaries to the learning, so children explore at the very edges of their own experience, reasoning and imagination.’

Presenting the findings of the TACTYC play colloquium in the House of Commons in 2008, Professor Pat Broadhead said, ‘Because the future is unpredictable, we must educate children to be adaptable and independent. There is evidence that play provides better for flexible and creative thinking and learning than closely prescribed teaching and testing.’ (Introduction in Wood et al, 2010) Of course this way of working does not remove the need for adult-led learning; what we are striving for is a balance. Suggestions for how to strike this balance can be found in chapter four of Julie Fisher’s book. (See references on page 24.)

Whilst playing, children experiment with words, developing language patterns and voicing ideas. Through listening, observant teachers gain windows into children’s logic, wisdom and whimsical wonderings.

Debra, age 6

“I wonder how the Gingerbread Boy felt when he was raw...”

Young children instinctively re-enact events they experience or witness, thus consolidating their understanding. Such re-enactment takes place through small-world play with miniature figures and in role play in which the children themselves are the actors. When space and time are allowed for this in Key Stage 1 classrooms, the transition from Foundation Stage is eased.

Alfie, age 5

“You can be my extinguished guest. Or do you have another invitement?”

Blockplay deserves a designated area of the classroom because Key Stage 1 children who might have difficulty in writing may show remarkable fine motor control with blocks – and of course ‘Children who feel empowered are more likely to be better and happier learners.’ (Hofkins and Northen, *ibid*) The blockplay area must be protected from traffic and have sufficient floor space for several projects to be under construction. Blockplay gives children hands-on experience in maths and physics: mass, length, width, shape, balance, symmetry, structure, design, proportion, counting, adding, subtracting... Even before children learn terminology, they internalise concepts. They may not have learned about fractions, for example, but they notice that one block is a quarter or half the size of another. (Gura, 1992)

Educators are realising blockplay’s connection with reading and writing. Not only do children develop fine motor skills and hand-eye coordination, but the confidence established as children communicate

ideas with blocks builds a foundation for further forms of self-expression, such as written language. Children frequently tell elaborate narratives while they create with blocks, often based on experiences they have had or stories they’ve been told. (Marin, 2004)

Jack, age 6

“Gravity is invisible but if it weren’t it would be green!”

Blockplay and small-world play are a natural combination in many classrooms. Shelves with wheels are helpful because the space can be easily altered to highlight different activities. And if these storage shelves have attractive backs, they can serve as room dividers and display surfaces as well.





The large hollow blocks are also a favourite in Key Stage 1 and 2. Using them, children combine construction with role play, and creative fun can be observed across differences in age and gender. Albert Einstein once said, 'Imagination is more important than knowledge'; to become innovative thinkers, children need to immerse in imaginative play like this.

'When Year 1 teachers are reinstating open-ended play in various ways, we see almost a regression at first as if children have to get used to it all over again. They tend to play as a younger child might; but as time passes and they realise play is a permanent fixture, they

create and settle into increasingly complex play scenarios. The developed language and wider experience of the world come to the fore.

Language becomes incredibly rich and a really important part of problem setting and solving.'

Pat Broadhead, 2010

Play has tremendous healing power. Society today bombards children with advertising, technology and adult pressures and then deprives them of the very play that would help them cope. Children's urge to play is like a spring of water; in some it has been obstructed by issues they are dealing with, but the spring is still within every child, waiting for release. (Almon, 2011)

Hands-on investigation

I am neither very clever nor especially gifted. I am only very, very curious! **Einstein**

'In 2006, we extended the foundation stage principles and practice through to Year 1, and now to Year 2 as well. We really value its experiential, investigative and hands-on learning which suits boys as well girls. It cost us quite a lot. We had to change the furniture, buy new equipment and retrain the staff because we were changing their practice completely. But it worked fantastically. The children are happier

and standards have gone up, particularly for boys...' **Lynn Wilson, Head teacher of Northfield Infants School, Hofkins and Northen, ibid**

To a high degree all humans 'think with our hands.' No wonder children are instinctively drawn to hands-on activity. Teachers who are willing to stray from textbooks to teach maths through cookery, for example, will be rewarded by children's enthusiasm. School subjects become meaningful when lively interest is sparked.





My Year 5 class has been learning the history and geography of the Weald. They were excited about the Long Man of Wilmington: Why can't we do something like that? Maybe we can! What shape could we make? How? We got permission from the farmer to use a field we see from our window and set to work. Of all our ideas – after much discussion – we chose a symmetrical pattern. The project turned into art and maths too as we had to lay out a grid first on the chalkboard and then on the field to map our design. We all learned a great deal and had terrific fun creating the Long Butterfly of Sussex!

Teacher, East Sussex





Year 6 just did a unit on Asia. As there are some Asian students in my class, we invited parents to share stories, art and songs. The kids got really charged, and results far exceeded my expectation: with parents' help, we prepared a cultural evening for all the families, including food, drama, singing and dance. None of us will ever forget it! **Teacher, London**

Arthur, age 6

"Does salt kill sugar?"

Communication skills grow tremendously through real-life investigation. Priscilla Vail writes, 'School-age children do not learn vocabulary by studying lists, looking up definitions, and writing sentences. They do learn those new words which "hover at the rim of experience." As we lead students into new realms and concepts, we can help them grasp the vocabulary which matches their explorations and new powers.' (Vail, 1996)

Froebel asserts, 'We must affirm a child's powers of expression by which he proves himself a creative being, part of the whole circle of life;' (1887) and Loris Malaguzzi, former director of the Reggio Emilia schools, said that children are not 'excessively attached to their own ideas, which they construct and reinvent continuously. They are apt to explore, make discoveries, change their points of view... Creativity should not be considered a separate mental faculty but a characteristic of our way of thinking, knowing, and making choices.' (Edwards et al, 1998) Like playfulness, creativity is part of a child's approach to life.



Art supplies – including natural and recycled items – should be presented as a smorgasbord to whet creative appetites. Simpson and Alderson (1950) wrote that ‘the medium itself should be the teacher’ and describe instances in which a child’s ability was stimulated by materials provided. They describe children modelling with cast-off bits like wood, corks or cardboard tubes, and state ‘Clay is a very satisfying material to handle and to experiment with... we have dug up our clay from adjoining fields’ – a reminder that some supplies need not be expensive. Open-ended materials like these allow children’s imaginations to guide their projects, providing practice in decision-making.

A child experiencing difficulties at home may find peace and satisfaction in making things. Some schools start the day with a creative period, giving the children freedom to experiment in their own ways, to work through any anxieties before settling into formal tasks. (Simpson and Alderson, and Fisher, *ibid*)

The art area must include space to display children’s work; revisiting their creations often inspires further involvement. For young children, the process is more

important than the outcome. As they mature, they become increasingly interested in perfecting techniques and taking pride in the result of their efforts.

Schools can support the creative urge by offering activities like drawing, painting and woodwork. As they grow, children may branch into further handcrafts – weaving, pottery, metal work, sewing or calligraphy for example – which not only provide constructive hobbies but may even determine future careers. Some who enjoyed woodwork have gone on to become joiners.

Even beyond their personal futures, through creative innovation children develop divergent ways of thinking essential for humanity’s future. If children are not familiar with the satisfaction of ‘messing about’ and trying new approaches, they may feel insecure in new situations, fearful of making mistakes, and never discover their full potential or learn to think outside the box. ‘Our task, regarding creativity, is to help children climb their own mountains, as high as possible.’ (Edwards et al, *ibid*)

Of course, creativity is broader than art and crafts. Boys particularly like to deconstruct and are intrigued by pulleys, ratchets, conveyor belts and other gadgets, which explains why David Macauley's book *The Way Things Work* (1988) remains a classic. Some become amazingly adept – one 12-year-old re-assembled a clock – and many know more about engines than their teachers simply because curiosity drives them to learn.

Ask the best mechanics what they enjoyed in childhood!

Tracy, age 9

"If someone splits wood all day, chances are he'll split an atom."

'High-tech industries such as NASA's Jet Propulsion Laboratory have found that their best overall problem solvers were master tinkerers in their youth. They have even altered their hiring policy to give high priority to this play background information.' **Brown, 2009**

There is an enormous difference between the question 'how does it work?' (as when children take things apart or experiment with water flow, gears, levers, etc) and the question 'how do I make it perform?' as with most ICT applications. It is easy to document when a child achieves 'how do I make it perform?' by clicking and dragging a mouse for example. But the 'how does it work?' query generates far deeper understanding.





Technology for children should help them understand mechanical properties and forces, whether simple – using a saw to cut wood – or complex. Using a cider press, children experience how their physical effort turning the crank rotates the shaft that chops the apples; then when they screw the press onto the chipped apples, they see the juice flow out the bottom – a clear progression of cause and effect.

My 18-year-old daughter just completed the International Baccalaureate course. She had never used a computer before but learned in no time and excelled in all subjects. Some people seem afraid of their children being digitally inferior or something. But let kids be children as long as possible! Why should they be bothered at six with what they need at 16? After all, electronic technology is only a tool. And childhood is so much more than preparation for adulthood. Parent, USA

Through such practical involvement, children gain knowledge that their young minds store and continually build on. This is so much more real than electronic technology where a child's actions, such as touching a whiteboard, may have little logical connection to the result, perhaps colourful swirls or a human voice.

'Facts may be acquired swiftly online, and shallow learning is easy to assess. Deep learning and a wisdom that lasts for life all come much more slowly – and I have yet to access the computer programme where they lie.'

Despontin, 2006

Why do many computer company executives send their children to computer-free schools? They want their sons and daughters to become imaginative thinkers, appreciating that young people master new skills – including computer skills – quickly if they have the foundation of confidence established through a childhood rich in direct experience and creative reasoning. (Alliance for Childhood, 2000)

Outdoor learning

At heart, all learning is about going from what is known and familiar to what is unknown and uncertain. So learning, growth and development depend upon risk. Outdoor environments offer the best opportunities for children to get to grips with the unpredictable, engaging, challenging world around them. **Tim Gill**

Outdoor activity helps children keep a positive outlook. There is no aspect of the national curriculum that cannot be taught outdoors at the Key Stage 1 level. (Dora Plant, Ashbrow Infant School) This approach is shared by Coombes Primary School where they state, 'We continue to develop our outdoor environment as our largest classroom.'

Froebel maintained that the capacity to struggle persistently lies at the foundation of character; children love to encounter challenge in play and work. Outdoor involvement provides such challenge.

Maureen, age 6

"There's more apples on this tree than years in a day!"





Some of our Year 1s were already ‘turned off’ of school. They found it terribly taxing to sit at tables and hold a pencil just so and write rows of numbers. Then the teachers went on a course; when they returned they took the learning outdoors. Now these children are doing maths with fir cones instead of worksheets, and the joy has come back into their eyes. In fact they spend most of the day outdoors. I was initially worried that parents might be upset by mud on children’s uniforms, but in fact the parents are happy because their children are happy. **Head teacher, Kent**

Children develop their vestibular sense (balance) through teetering, tipping, spinning, swinging, rocking, jumping, bouncing, sliding and fast forward motion. They have a biological drive for such experiences and use any opportunity to run, slide down banisters, roll down hills, hop from place to place... In order to develop perfect coordination of body and brain, children need action in which their muscles encounter resistance: pushing, pulling, stretching, carrying... They like to hang from bars, to dig and rake, to feel tension in their limbs. Skipping rope, climbing trees, pedalling bicycles and pushing wheelbarrows are actions that

fill this need and only happen outdoors. Significantly, movement is actually what allows children to sit still. (Jan White, 2011)

Heads wishing to create 'provocative environments' to support such activity might take inspiration from a Danish landscape architect who was commissioned to design playgrounds after World War II. When he later visited these playgrounds and saw almost no children, he learned that they preferred bombed buildings to play in – so he changed his approach and included areas where children could construct with loose parts and explore.





Our school was set up for boys from across the UK who've been expelled from school. We work intensively with them, largely outdoors. We have a farm, which is particularly important for these lads. The shepherd will ring and let us know when a ewe is about to give birth. It's amazing – a child who physically cannot sit still at a desk will sit on a hay bale for nearly an hour waiting for that cataclysmic moment of birth. In situations where a lamb cannot be cared for by its own mother, it is fostered by another; this leads to further vital conversations with the boys.

Teacher



In the great outdoors, children observe nature. It is more valuable for a child to learn directly about even one small creature than to spend the same amount of time collecting facts via internet about any number of exotic animals. Remote information gains meaning through direct personal experience; children are more likely to care about endangered frogs in the rainforest if they have observed the marvel of a frog's life cycle near home.

When taken to the woods, some children expect to see lions and tigers, because television has been their only reference! So the forest school movement is timely. Scotland has led the way as have several local authorities in Wales and England.



At our forest school, ten-year-old Bronwyn noticed movement at her feet and squatted down to observe a large beetle climbing backward up a miniature mountain of earth with a rabbit dropping clasped in its claws! She watched in fascination as the beetle pulled its load onto itself in a dented hole at the top. Bronwyn learned patience as she watched and was full of questions. I helped her find Jean-Henri Fabre's book, which spurred further observation of insects for Bronwyn and the whole class. **Teacher, Scotland**





We began our nature reserve several years ago. On three acres of wasteland outside our school we planted small islands of bird-friendly shrubs surrounded by wild grasses and flowers. Before our eyes, nature's web of life started unfolding. Flora and fauna of numerous species flourished and spread, came and went. Then this winter we made friends with the birds. First we made a dummy and dressed him in hat, coat and gloves, on which we sprinkled birdseed. Soon birds started coming. Next a child would put on the dummy's clothes with the seed, and birds continued to come. It was not long before tits and nuthatches were eating from the children's hands – what a thrill! **Head teacher, Sussex**

Connecting children with creation informs them about the world, supports their emotional well-being and teaches invaluable lessons for life. Biologist Rachel Carson wrote:

‘If a child is to keep alive his inborn sense of wonder... he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in.

‘Exploring nature with your child is largely a matter of becoming receptive to what lies all around you. It is learning again to use your eyes, ears, nostrils, and finger tips...

‘The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction.


‘Those who contemplate the beauty of the earth find reserves of strength that will endure as

long as life lasts. There is symbolic as well as actual beauty in the migration of the birds, the ebb and flow of the tides, the folded bud ready for spring. There is something infinitely healing in the repeated refrains of nature – the assurance that dawn comes after night, and spring after winter.’ **Carson, 1956**

Even at schools with no access to woodlands, surprising aspects of nature can be observed in the playground if there are areas of bushes, grass and woodchips or soil. A teacher need not know the answer to every question but simply be a companion in discovery. Children appreciate someone who helps find answers. And for the adult, it is a privilege to view life through a child's eyes.

Ruby, age 5

“There are a hundred grains of sand in this sandpit and God loves every one of them!”

A young boy with short brown hair is sitting on a large, mossy log in a wooded area. He is wearing a bright red jacket over a blue and green plaid shirt, dark blue pants, and green rubber boots. He is focused on carving a piece of wood with a knife. The background is filled with trees and foliage, suggesting a natural, outdoor setting.

Some sacred
memory preserved
from childhood –
that is perhaps the
best education.

Fyodor Dostoyevsky

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Community Playthings produces solid wood furniture and play equipment. Our products are developed to support play and creativity in the classroom. We design and manufacture at workshops in East Sussex and Kent. You can find free training resources and our full product line at: www.communityplaythings.co.uk

Community Playthings is a company that fully understands the needs of children. **Rob Stone, Head teacher**



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