Woodwork

IN THE EARLY YEARS

By **Pete Moorhouse**

community playthings

Preface

"Woodwork is active learning at its best!"

Tina Bruce CBE
Professor, University of Roehampton

"Woodwork is popular and provides a rich source of enjoyment as well as learning. It helps develop children's imagination and creativity as well as practical skills. The impact is long term. For some children, working with wood was the key which unlocked the barriers to learning. Pete's enthusiasm is clearly apparent as is his commitment to encouraging children's creative thinking. Working alongside Pete, I have seen children learning at the deepest level. I encourage you to introduce woodwork in your setting, and I'm sure you will find this book an invaluable resource."

Rachel Edwards
Head teacher, Park School and Children's Centre

Why woodwork?

It is more important than ever for the new generation to be able to think creatively and develop problem-solving skills. Woodwork exercises such skills as children make their own choices and learn through trial and error. It sparks creative thinking and imagination, qualities that are at least as important in our changing world as the practical skills gained. Woodwork encompasses all aspects of learning and development, supporting maths, scientific investigation, physical coordination, language, and vocabulary, so it can be central to your curriculum. Initially, children are taught how to use the tools safely and given opportunity to try techniques in appropriate ways. As they gain mastery, delight and pride give their self-esteem a visible boost. Learning progresses at each child's individual pace. Once they have mastered the basic skills, they move into open-ended exploration, making unique creations. Now their creative thinking and confidence in problem-solving flourish as they meet and resolve their own challenges.

Anyone who has witnessed young children tinkering away with tools will know how deeply engaged they become for sustained periods of time. Teachers who visit our setting always comment on these deep levels of concentration, and are further surprised to find the same children still completely

"As children make with wood they are learning skills that will empower them to shape their world"

Pete Moorhouse, Artist educator
St. Werburgh's Park Nursery School

focussed on their creations an hour or two later. In fact, it is not unusual for children to spend all morning at the woodwork bench. Woodwork employs hands, hearts and minds. The smell and texture of wood, the sounds of hammering and sawing; the use of strength and coordination, the feel of real tools, the opportunity to work with natural materials, the deeply engrossed mind: all go together to captivate young children.

Currently there is a surge of interest in woodwork provision worldwide. In an ever-growing number of settings we can hear the tap-tapping of hammers and the sawing of wood. The renewed interest in woodwork is in part a reaction to our increasingly digital world, in which children now learn to swipe before they can walk. They are surrounded by complex technology but this has limited their experience of basic technology, with fewer opportunities to watch and learn and to understand processes. The rise of the maker movement, creating makerspaces and tinkering studios in cities all over the world as places for children to become inventive and follow their curiosity, is part of this reaction. Woodwork invites children to explore their physical world with real tools and authentic materials, and provides a solid foundation for creativity.

Despite the fact that many children will need practical skills for their future work, and that all children could use the confidence built through working with wood, there has been a marked decline of woodwork provision in primary and high schools, and therefore a great number of children are missing the opportunity to use tools as part of their education. So woodwork in the early years could well be children's only experience of working with tools. Fortunately, working with tools leaves a deep memory – so even if early childhood education is their only experience of woodwork, it will leave a long-lasting impression.

I hope this book will give you inspiration and confidence to introduce woodwork to your children. I focus on woodwork in early childhood but the principles and methods are also perfectly suited to primary age children.

Historic and geographical context

Working with wood is a universal language that crosses cultural boundaries. Many countries embrace woodwork, and though they may have slightly differing tools and methods, in essence it is the same experience, one that deeply engages young children. In Scandinavian countries woodwork has long been established in the early years curriculum. In New Zealand the Ministry of Education names carpentry (Tarai rakau) as a valuable play activity that supports the principles and strands of the Te Whāriki curriculum, so most settings have a woodwork corner. In some countries, for example Japan, China, and the United states, woodwork is less established, but there are individual settings that have been successfully providing woodwork for many years.

Inspired by Friedrich Froebel, European education adopted woodwork in the later part of 1800s. Froebel's view of children as competent learners and emphasis on "learning by doing" had a profound influence on established education. Woodwork was a later addition to his "occupations". The Scandinavian Sloyd system was influenced by Froebel's ideas. Sloyd's name derives from a term for creative handcraft. It was adopted into Finnish schools by Uno Cygnaeus in 1865. Working with the hands was believed to support brain development and give relevance to learning. In 1872 Sloyd was introduced to Sweden by Otto Saloman at the Nåås school, a teacher training college of worldwide repute attended by a number of English educational pioneers. In Britain, as nursery and primary schools were established in the late 1800's, woodwork became commonplace and remained so through the 1970s. In the 1980s and 90s, increased concern about litigation discouraged activities perceived as "risky", and woodwork was pretty much eradicated. This risk-aversion coincided with a curriculum shift away from practical skills being taught in higher schools, with the result that many young people in recent decades have never learned to work with tools. Today attitudes are changing with a more balanced attitude to risk being advocated. We are recognising that experiencing risk and challenge in controlled environments is an important aspect of children's development, helping

them learn to make decisions and judgements.

Equal opportunities

At my setting we introduce the basic tools to all our children in small groups, so that every child feels comfortable in the woodwork area. Later, children choose whether or not to join in (or initiate) a woodworking session. If we were initially just to ask who wants to do woodwork, it could well be the boys that would dominate the area due to all the stereotyping. Once they have all had the introduction we notice no gender difference in who chooses woodwork.

Woodwork sparks children's curiosity and has been particularly successful with drawing in children from disadvantaged backgrounds who are often less confident and can have more trouble focusing. So often woodwork is the key that unlocks children's learning and really builds their self-esteem and confidence.

Children with additional needs and disabilities should also be given the opportunity to do woodwork. This obviously depends on the needs of the individual child, but with careful planning and enough staff support all children can participate and gain enormously from the experiences that woodwork has to offer.

Risk

Woodwork is a low risk activity when introduced correctly and with basic safety

measures put in place. At the setting where I work we have been successfully woodworking with pre-school children for many years with no significant incidents.

In the UK there was a positive development with the "Common Sense, Common Safety" review – which encouraged schools and settings to embrace risk in a positive sense rather than limiting valuable experiences. The recommendations were immediately accepted by the British government in 2010. The report advocated a "shift from a system of risk assessment to a system of risk-benefit assessment". In 2012 the Health and Safety Executive published a paper offering similar advice: "the goal is not to eliminate risk, but to weigh up the risks and benefits. No child will learn about risk if they are wrapped in cotton wool". The Department for Education followed up with this advice: "Children should be able to experience a wide range of activities. Health and safety measures should help them to do this safely, not stop them. It is important that children learn to understand and manage the risks that are a normal part of life. Common sense should be used in assessing and managing the risks of any activity. Health and safety procedures should always be proportionate to the risks of an activity."

It is important for young children to experience risk in a controlled environment. This type of risk-taking contributes to their development by giving them opportunities for making decisions and learning to self-risk assess. Of course health and safety needs to be taken very seriously and there are links to health and safety guidelines and example risk assessments in the resources section on page 32. If parents are concerned about safety, an information evening could help explain woodwork's benefits – and reassure them that safety is prioritised.

"Risk is a part of life, and it's our responsibility at this stage of development to support risk-taking in a controlled environment."

Liz Jenkins, Former headteacher and Ofsted inspector St. Werburgh's Park Nursery School

Sustainability

We live in changing times, with global economic shifts, depletion of resources and environmental change. Woodwork helps counteract a "consume and dispose" mentality, by teaching children the skills to design, build and repair. Most wood used should be recycled offcuts, and if purchased should be resourced from responsibly managed forests. A wide selection of other recycled objects, such as corks or bottle tops can be combined with wood. Understanding where wood comes from is another important aspect of woodwork; seeing the beauty of wood and how long trees take to grow can help children respect and understand the value of wood as a material and the need for us to take responsibility for our shared environment. Planting trees with the children can support this understanding.


ESSENTIAL CLASSICS
EASY LISTENING
COLLECTION

Learning and development

When we analyse children's woodwork it is extraordinary to see how it encompasses all areas of learning and development and invites connections between the different areas. It embraces all the characteristics of effective learning and fosters confident, creative children with passion for life-long learning.

Personal, social and emotional development

Children are empowered by being respected and trusted. They gain confidence and a sense of responsibility when allowed to work with real tools. As with any new experience, young children may initially be apprehensive; but starting with soft wood and ergonomic tools ensures that their first experiences are successful, building self-esteem. As they master more tools and techniques, they take pride in accomplishing increasingly complex tasks. They show satisfaction in their mastery of new skills and take immense pride in their creations. This imparts a can-do attitude and provides children with a strong sense of agency and a proactive disposition, as well as the belief that they have the power to help shape the world around them.

Children develop sustained attentiveness as they persist. There are two layers to their concentration: first, children have to focus due to the nature of the tools; second, they engage in deep-level problem solving because they are so motivated to construct their desired project.

When children discuss and plan a project together, their social skills develop. They learn the value of sharing ideas and learning from others. The "what if?" questions that spontaneously arise enable children to detect and refine problems – and then solve them. Such problem-solving often evolves among two or three children. The "possibility thinking" thus gained reinforces children's

capabilities as confident investigators and decision-makers.

Physical development

Hand-eye coordination is basic to woodwork and children gain increasing control over their bodies as they develop agility and dexterity, manipulative skills, and muscular strength. Woodwork incorporates fine motor skills (holding a nail, screwing) and gross motor skills (hammering, sawing). Children's core strength is developed as they push/pull (sawing, filing), rotate (using a screwdriver, drill, wrench, vice), lever

(using a claw hammer or Japanese nail puller) and rub (with sandpaper). Hand-eye coordination is developed for example whilst hammering or threading a nut on a bolt. One-handed tools (screwdriver, wrench) and two-handed tools (hand drill) are experienced. The delight on a child's face when they have persevered cutting through a section of wood is a wonder to behold: a mixture of pride and surprise that they could actually make it happen.

Woodwork is a kinaesthetic experience that embeds deep memory. Experience of using tools becomes part of children's physical "vocabulary". Children also learn self-care, for instance the importance of protecting their eyes with safety glasses.

Communication and language

Natural conversation occurs among adults and children in the woodwork area. Because wood can be used in countless ways, possibilities are thoroughly discussed. Children's language of thinking evolves through experience. In the project development stage, children express ideas; dialogue ensues as they reflect and modify their plans. Adults introduce new vocabulary to enable children to discuss their work with greater clarity. Learning to use new tools builds attention skills; children learn to listen carefully in order to understand instructions.

Woodwork is a universal language that engages children across cultural boundaries. Those with English as an additional language will have little difficulty understanding, as processes are visually demonstrated.

Numeracy is basic to woodwork. Children measure pieces of wood; they experience shape and weight. Constructing three-dimensional forms develops their spatial awareness.

Mathematics

Numeracy is basic to woodwork. Children measure pieces of wood; they experience shape and weight. Constructing three-dimensional forms develops their spatial awareness. Adults have ample opportunity to extend children's mathematical understanding: having them estimate which is the best length nail to use, for example, or how long a piece of wood needs to be for a particular purpose. Many mathematical concepts are related: matching with classification; counting with measuring; comparison with weight and size. Children are fascinated to calculate a tree's age by counting its rings in cross-section. Be sure to include a wide range of mathematical equipment in your woodworking area (rulers, tape-measures, set-squares, spirit levels).

Understanding the world

Becoming familiar with trees and wood is part of making sense of the world. Trees are essential to life on our planet, and children are intrigued to learn about various kinds and about where and how they grow. Even

young children begin to appreciate the interconnectedness of life and our dependence on oxygen released into the atmosphere by trees and other plants. If possible, take children into the woods to investigate a tree's trunk, branches, leaves and roots. Planting a tree is a positive experience. Learning can branch out, for example by viewing leaves on a light box, examining different vein structures, making prints with leaves and learning about animals that live in trees. Talk about wood: what it is, where it comes from and its uses. Investigate wood as a material. What are its properties? It floats, it burns, it creates sawdust when cut, it gets hot when rubbed.

Explorations can diversify – for instance, after wood is burned, it might be used to make charcoal drawings.

Scientific understanding is furthered through enquiry based learning. Children question why the saw gets hot, how hard to hit a nail, how to correct a leaning nail's angle, or how to lever it back out of the wood. The experience of using tools (which are essentially basic technology) will be developing their scientific understanding and knowledge.

Expressive arts and design

Woodwork's greatest asset is its contribution to children's creativity. When creating they become designers, architects and artists. I avoid set tasks such as having every child build a bird box, but rather encourage them to make whatever their interest suggests. This keeps enthusiasm and engagement high, and produces amazingly varied results, from hedgehogs or flying lampposts to superpower heli-planes!

Initially children may explore by nailing bits together. It's the process of experimentation that captures them at this early stage. As they become familiar with the tools' possibilities, their creativity and imagination emerge, and they start forming concrete ideas of what they can achieve. Teaching technique is just to give them confidence and ability to pursue open-ended creative exploration, to think through and follow their own ideas and designs.

Thinking creatively is a life skill that impacts on all areas of learning. It will help children develop innovative ideas and influence how they respond to opportunity and adversity, enabling them to see options and evaluate possibilities in the future.

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Literacy

Literacy is about expressing thought through writing. In woodwork, children express their ideas through creating, laying the mental foundation toward expressing themselves through the more abstract medium of the written word. There is also plenty of scope for mark-making, on the wood itself, on paper while developing design ideas, or writing about their work afterwards. Many good children's books and stories relate to wood, carpentry, and forests, and can be linked to the woodworking area.

Getting started

Setting up the woodworking area

The first thing to decide upon is a suitable space. Choose an area where there are few distractions as children need to remain focussed when sawing or hammering. Woodwork works well indoors or outdoors. If you don't have a natural corner, storage shelves can be placed to prevent cross-traffic. Set up so you can continue to monitor the woodwork area at all times – keeping it within your line of vision. Working outdoors is great, however, in very cold weather it can be off-putting as you don't really warm up doing woodwork, and wearing several layers of clothing restricts movement.

A strong, sturdy workbench is essential. Wood being sawn must be clamped tight in a vice. It is also useful to have an old table as most work can be done there. Ensure children are not working too closely together. Tools can be readily accessible or brought out as needed, except the saw, which must always be monitored 1:1 when being used.

Wood

Balsa wood makes for a very positive initial introduction to woodwork. If children start by working with soft woods (such as pine), it is quite likely that some will struggle to master the techniques and be deterred from

"Woodwork is a powerful tool for developing children's creative and critical thinking. There are countless opportunities for children to solve complex problems and express their limitless imagination. Our experience at St. Werburgh's has been that woodwork is one of the children's favourite activities; the impact on children's learning and development is clearly evident."

Liz Jenkins, Former headteacher and Ofsted inspector
St. Werburgh's Park Nursery School

continuing. Balsa wood allows techniques to be easily mastered and leads to a smooth transition to working with harder woods. It is soft and easy to hammer into, so children will quickly gain confidence and in no time will be knocking in nail after nail. Balsa is also perfect for learning to screw and saw. It is, however, expensive so is best kept for these introductory stages. There are alternatives, such as pumpkins, layered

cardboard, and dense foam blocks that can be used for developing the initial skills of hammering, screwing and drilling, but I would recommend balsa wood because it provides an authentic and aesthetic experience of working with real wood, and makes transferring skills to other woods easier.

Once basic skills are acquired, children can move to soft woods: pine, cedar, fir, larch, redwood, poplar, lime and spruce. Pine is by far the most readily available; at our setting we never buy pine but rely on off-cuts from builders, carpenters and parents. With pine, the possibilities rapidly expand and children are able to create more interesting work. They will certainly develop their hand and arm muscles! After working with balsa wood, transitioning to soft woods is merely a matter of applying the same techniques, but hammering a little harder when using nails, or drilling small holes first when using screws.

Hardwoods should be avoided as they are difficult to hammer, saw and drill into. Also avoid chemically treated wood. Many schools use preformed wood such as MDF and hardboard. This wood is cheap and easy to source, but it creates a very fine irritating dust when cut, so do not allow children to saw it. It can, however, be presented to children as pre-cut shapes.

Natural wood such as sticks and branches can be an interesting addition to your resources. These can be incorporated into children's woodwork: slivers of branches become wheels, peeled bark becomes string, forked twigs become antlers! Also add buttons, corks, bottle tops, or MDF wheels, which can be purchased from many early years education suppliers.

> "The emotional impact of woodworking is that it gives children that sense of achievement: 'Yes! I can do this!' Experience builds skills and knowledge which strengthen understanding: a positive cycle. Parents see happy children, further strengthening the whole ethos of positivity and empowerment."
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> **Terry Gould**
> Early Years Consultancy Ltd
> Former Ofsted inspector

First steps

I recommend introducing woodwork to children in their pre-school year. At this age they have developed the maturity and physical coordination necessary to be able to successfully work with basic tools. Their developmental stage at three and four years old and beyond is perfectly suited to the learning and development associated with woodwork.

Emphasis should initially be on becoming familiar with the tools, acquiring skills, and

gaining confidence. Tools should be introduced one at a time. We need to teach children how to work safely – it will be a slow and deliberate process. Start by having a discussion about the safe use of tools, highlighting potential hazards such as sharp edges, and thinking together about how to keep safe.

Initially, use balsa wood as it is soft and allows all children to master the basic techniques of woodworking easily. First introduce the hammer and nails, starting by hammering nails into wood, and then using nails to join pieces of wood together. Very soon after knocking in their first couple of nails, children's satisfaction

becomes obvious as they happily pound in one after another. The second tool to introduce is the screwdriver, again just screwing into the balsa wood and then using the screws to join pieces together. Hammering and screwing already allow extensive creativity as the children make aeroplanes and sculptures. I then introduce the Japanese saw, which the children use to cut short sections of balsa wood, which is easy and satisfying. After the children have had a couple of experiences working with balsa wood using these techniques, I introduce a softwood such as pine. The next tool to introduce would be the hand drill, as screwing into pine is difficult without drilling a pilot hole. The G-clamp can also be introduced at this stage to hold the wood firmly as it is being drilled.

Children will start by tinkering, gaining confidence as they join and connect. Then they'll progress to having more concrete ideas in mind. Let the children be at the heart of their learning, allowing them to make what they want to make. This way they will be creating their own problems and will have the motivation to find solutions as they resolve them. Children create in the way that works best for them, be it in schematic repetition, tinkering, symbolic work, abstract work, representational modelling or work that creates an evolving narrative.

Tools

Tools should be ergonomic, easy to use and allow children to work as independently as possible. To begin with you will need a basic toolkit: hammers, screwdrivers, a hand drill, a saw, a couple of G clamps and lots of nails and screws! We use a regular old table to work on and a solid wood Community Playthings workbench to hold wood being sawn or drilled. Your toolkit can be added to over time as children's skills increase.

Having the right tools makes a big difference. For example, a short-handled hammer with large head, good grip and reasonable weight is excellent for children; whereas a long-handled pin head hammer is difficult to use and invites frustration. Most of the tools are standard, but there are some specific items I strongly recommend, having worked with young children for many years and observed what works best for them

- The 8oz Stubby Ball Pein Hammer is perfectly suited to young children.
- Draper pistol grip hand drill and short drill bits (3mm diameter). This drill is comfortable for children to control and the mechanism is enclosed.
- Short Stubby Posidriv screwdrivers.
- A Japanese Dozuki saw is ideal being very easy for children to use, cutting on the pull stroke. Ice Bear brand with 160mm blade length works well. Some Japanese saws have teeth on both sides so avoid these. In addition, I suggest getting a larger pull saw for cutting thicker sections.
- Small junior safety glasses, rather than goggles.

See page 32 for more details.

Suggested tool kit

- Workbench with vice
- Junior safety glasses
- Stubby ball pein hammer
- Stubby claw hammer
- Pozidriv screwdriver
- Hand drill
- Japanese saw
- Larger pull saw
- G-clamps
- Bradawl
- Ruler, tape measure, square

Consumables:

- Sandpaper
- Nails, screws
- Drill bits

Safety glasses

It is important for children to learn about taking responsibility for protecting their bodies with appropriate safety protection. Safety glasses should be worn at all times. With hammering there is a small risk that something could shatter or a nail could rebound toward the eye. This risk of impact with the eye is eliminated by wearing safety glasses.

Hammer

The first tool to introduce is the hammer. Use a short handled ball-pein hammer. The 8oz Stubby ball-pein hammer is readily available and is perfectly suited to young children. It is the ideal weight, has good grip and a short handle allowing good control.

I start by demonstrating how to hold the hammer in the middle of the handle and showing which part of the hammer (the face) to hit the nail with. I emphasise the importance of looking at where you are hitting all the time and not distracting others whilst they are hammering. We talk about how it might feel if we banged our finger and the importance of not swinging the hammer in a manner which could hurt someone else, especially behind you. I then demonstrate how to hold a nail with finger and thumb, ensuring it is vertical, and demonstrate giving gentle vertical taps first whilst still holding the nail upright. With these gentle taps, even if they miss and bang their thumb or finger it will not hurt too much.

Once the nail is standing on its own, the children then remove their hand and hold the wood firmly well away from the nail. They can then hammer with more vigour, banging repeatedly until the nail is right in. It is helpful to emphasise the need to hammer from directly above as opposed to hitting the nail at an angle which would make the nail lean over. Young children are more than capable of carefully holding the nail upright and gently tapping until it stands up on its own in the wood. After a short time they will be happily banging in nails independently. When children are hammering larger nails they will be using considerably more force. It becomes even more important then, that the hand holding the wood is well away from the nail.

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Screwdriver and drill

The second tool I introduce is the screwdriver, which provides children with another way of joining pieces of wood. Short cross-head screwdrivers are easy for children to control. Demonstrate how to turn the screwdriver with a downward turning motion, and have children experiment turning both directions to see how the screw goes into the wood and how

it can be removed. When starting to screw, first make a small indentation in the balsa with a sharp point such as a large nail or bradawl and then twist the screw in with finger and thumb till it stands upright. Screwing into balsa wood is easy. With soft wood, such as pine, a small hole needs to be drilled first. I recommend using the Draper pistol grip drill for this, as the mechanism is enclosed. Instruct children to turn in the correct direction, and teach them to keep the drill upright so drill bits don't break. Children also like using the old brace and bit style drills. The turning motion is easy, and it is particularly useful for drilling larger holes.

Saw

Many practitioners get a little nervous at the thought of their children using a saw, but it is an important addition to a toolkit because it allows the children to have more control over their designs and creations by being able to cut wood to the size they require.

Having the correct saws makes a huge difference. We want sawing to be as easy as possible so as not to discourage any children. The toolkit should contain two saws:
1. A small Japanese Dozuki pull saw
2. A larger pull saw for cutting through thicker wood

In all cases it is essential that the wood being cut is held firmly in a vice and it is important that the workbench is firm and solid. The wood should be cut close to the workbench so that it doesn't vibrate while being sawn. When introducing the saw, show the children how sharp the saw is, allow them to very gently feel the teeth to raise their awareness and emphasise the need for care.

When sawing, one to one supervision is required at all times. Check that the wood is tightly clamped in the vice and ensure the child is using the saw correctly, supporting them if necessary. Most importantly, make sure other children don't pass in front of the saw or try to watch from in front. It would be significantly risky if a child were to get in front of the saw, so be vigilant. This risk can be eliminated by the teacher positioning themselves directly in front of the workbench, keeping the area clear. Other children will love to watch – but ensure that they stand well back. Another way to eliminate this risk would be to position the workbench so that the saw protrudes towards a wall with no potential for children to access the area of risk. After sawing, the saw should be returned to a safe place (we keep it visible but elevated).

Pull saws are surprisingly easy for children to use. The Japanese pull saw's blade is thin and has very fine teeth, so as they cut on the pull stroke they never snag. It is held with two hands, which actually helps the children cut in a straight line perpendicular to the wood. There is the added benefit that when both hands are safely holding the saw's handle they are away from the cutting area.

Health and Safety checklist

(see page 32 for link to full guidance)

- Safety glasses should be worn at all times to protect eyes. Having children learn about safety culture and looking after themselves is an important lesson. Children are much more comfortable in safety glasses rather than chunky goggles.
- Ensure all children are given proper instruction on the correct use of all tools. Take time to draw attention to hazards.
- Initial ratios for safely introducing tools: Pre-school 1:3, Reception 1:4, KS1 1:8
- Initially children should be closely supervised. When children are confident using tools ratios can be relaxed, but a staff member should always remain in the proximity (in line of vision) to monitor the woodwork area.

- Limit the number of children at the workbench so they are not working too close to each other. Locate the workbench in a protected space to minimise traffic and other distractions.
- When sawing one to one supervision is required at all times. Ensure no children are watching from in front of the sawing area; the practitioner should stand in this area to prevent children getting close to the saw. Children sawing with the Japanese pull saw must hold the saw with both hands. After use, the saw must be immediately put out of reach. Wood should always be clamped in a vice when being sawn. Staff must ensure that the vice is clamped tight.

- When transporting tools, hold them by your side. Never run with tools.
- Exercise caution when children are using vices, clamps and pliers so that fingers do not get pinched. Make sure that children keep their fingers away from the clamping area. Close vices when not in use.
- Remove or modify protruding nails on finished woodwork before children take work home, to ensure safety.
- Avoid using hardwoods. They are too difficult for young children to work with and there is a possibility that nails could rebound. Plywood also splinters badly.
- Check wood for splinters. Avoid rough splintery wood. Sand the edge after sawing if rough. Caution: splinters can be a source of blood poisoning.
- Avoid wood treated with preservatives.
- Use caution with MDF. Children should not cut MDF due to excessive levels of irritating dust.

Staff training

Many teachers have little personal experience of working with tools and can lack confidence about introducing young children to woodwork. It is understandable that staff often need to gain confidence around working with tools and this can be acquired with basic staff training. It is certainly not necessary to have a specialist come in to run your woodworking sessions. All staff can become capable and confident to introduce woodwork and monitor sessions with some basic training.

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Woodwork training covers theory: the history of woodwork, the rich associated learning and development, and understanding risk and health and safety issues. It also involves hands-on practical experience and learning about all the essential equipment you need to get started. The practical sessions are particularly useful, giving teachers the opportunity to become really confident and familiar with the tools and their safe use. Staff become creative with wood and experience the rich potential for problem-solving, which gives an insight into what woodwork feels like for children.

To successfully embrace woodwork in your setting, it is much better for all staff to have a level of competency and confidence than to rely on one or two teachers, so providing training for the whole staff team is very much recommended. It is also good to visit a setting that is already doing woodwork. Seeing children engaged in their woodwork is both inspiring and reassuring.

Projects

Projects can be a wonderful way to extend learning. They encourage more in-depth investigation, build on developing skills and combine different areas of learning. Project-based learning has had many advocates over the years. The Reggio Emilia approach embraces it, and Chard and Katz in particular have championed the project approach. Through projects children acquire deeper knowledge by active exploration of real-world questions and challenges, and discover real-life applications of various tools and techniques.

Extended projects can last over several sessions, weeks or even months and are collaborative, with a group of children working together. They provide a wonderful opportunity for children to learn from each other. Children experience how others think, thus expanding their own creative and critical thinking skills. They build on each other's ideas as they refine designs and work out potential solutions to problems together.

Ideally ideas for extended projects will emerge from children's interests, questions, a problem to be solved, or from authentic necessity to repair or add something to the setting. In one project, children at our setting decided to make a scarecrow to

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keeps the birds away from seeds planted in their garden. This project lasted over many weeks as children developed their ideas, collected materials and created their scarecrows. Another project involved repairing a broken garden bench with much initial discussion and planning. Other projects have evolved from the children being consulted about what additions they would like for their outdoor environment. From these discussions it emerged that the children wanted to make a playhouse, a mud kitchen and a sound garden. Obviously, with these projects there was a significant amount of adult input, but with sensitive collaboration children remained completely involved and engaged throughout the entire design and making process.

Creating wooden sculptures is an excellent way to expand woodworking skills. Sculpture, like other art forms, gives them the opportunity to express their ideas in a number of different ways as they represent thoughts, experiences and feelings in physical form. With sculpture projects it can be interesting to add other materials such as drilled pieces of coloured plastic, pieces of hose pipe, and so on to make a mixed media sculpture. Children develop spatial awareness while constructing three-dimensional forms, and they spontaneously bring in ideas from other areas of learning. The resulting works can make a great addition to the environment.

Deconstruction

Deconstruction is an exercise in discovery. Children enjoy using their skills with tools

to deconstruct items. They are curious to discover what lies inside and are fascinated to figure out how things work. Their understanding of how things are made deepens as they break an appliance down into parts and investigate each component. Children can see how elements interact and observe the complexity necessary to make an appliance function. They focus intently on their detective role and learning expands as they investigate.

Deconstruction encourages children to slow down and observe, to look deeper, to be curious and question. They need plenty of time to notice the details, the complexities and the design. Thoughtful observation will initiate investigations, with the potential to open up many new lines of enquiry. They may become fascinated by the fact that a speaker is magnetic and go on to explore magnetism. They might be curious about the coloured wires and investigate further by making a simple circuit. Seeing how cogs work together may draw children's interest and encourage them to explore rotational movement.

Collect things like old bikes, prams, and weighing scales to deconstruct. There is conflicting advice about potential contact with toxic elements in deconstructing electronic equipment, so I recommend avoiding printed circuit boards. Be cautious as to what other materials an item may contain. If in any doubt, it is better to avoid electrical appliances and stick to more mechanical objects. You will need a range of screwdriver bits as appliances will include all sorts of screw types and sizes.

Children frequently use their deconstructed parts to make new constructions! I've seen the debris turn into robots, sculptures or mobiles, often combined with wood.

Conclusion

We have seen how working with real tools offers children new experiences and encompasses all areas of learning and development. Woodwork allows children to become the innovators, makers, sculptors, tinkerers, engineers and architects of tomorrow. The experience of working with wood and tools leaves deep memories and becomes a part of children's DNA.

It does take some effort get started with woodwork: sourcing the tools and wood, ensuring staff feel confident and that you have sufficient ratios to introduce and monitor it properly; however, know that it is very much worth the investment. Once everything is in place you won't look back and you'll be amazed by the levels of engagement and the depth of children's explorations.

It would be wonderful if every child could experience woodwork. As a practitioner, it is a joy to see children so deeply focussed on an activity and to witness their growing confidence, their persistence despite challenges and their resilience in the face of failures. It is a delight to watch their creativity, observe their problem solving and see their pride in their achievements; it always leaves me feeling uplifted.

As children construct with wood they are learning skills that will empower them to shape their world. Let's provide all children with this valuable opportunity.

Pete Moorhouse

Pete is an early years creative consultant and an artist educator. He has over 25 years' experience of working in schools and is currently artist educator at St Werburgh's Park Nursery School in Bristol. His work is inspired by his visits to Reggio Emilia and Keilhau and his in-depth study of both the Reggio Emilia approach and Froebelian principles. Pete is the author of several books including Learning through Woodwork: Introducing Creative Woodwork in the Early Years (Routledge, 2018) and has had many journal articles published in the educational press.

Pete is an Honorary Research Fellow at the University of Bristol researching creative and critical thinking and is a Churchill Fellow. He is the leading authority on woodwork in early years education and is the chair of the Early Childhood Woodwork Association. Pete coordinates The Big Bang Project which encourages woodwork practice around the world. He is also an associate trainer for Early Education and delivers CPD training, workshops and conference presentations throughout the UK and overseas.

Contact Pete about his CPD/INSET trainings at studio@petemoorhouse.co.uk or visit his website: irresistible-learning.co.uk

All information and guidance is offered with the best intention for positive outcomes for young children's learning and development. It is important that woodwork is introduced with the correct instruction and is closely monitored and that safety guidelines are strictly adhered to. No legal responsibility can be taken by the author or Community Playthings for any accidents, injury or prosecution of any kind. It is your responsibility to introduce woodwork appropriately to your particular setting and respond accordingly to the individual children taking part. The guidance in the book is intended to be supported by training, including hands-on practical experience of working with tools.

Workbench for hands-on learning

community playthings

To keep tools out of reach, move the Perspex cover from the back to the front of the cabinet.

Tool cabinet can be latched in various positions.

Tool cabinet stores below for clear work surface.

Add an extra Tool cabinet for more supplies.

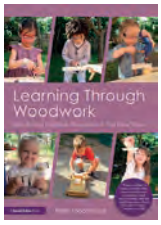
Call 0800 387 457

Appendix

Health and Safety

For a Health and Safety checklist and example risk assessment see irresistible-learning.co.uk/resources

Further reading



Learning through woodwork: Introducing creative woodwork in the early years, Pete Moorhouse, Routledge, 2018

Maker-Centered Learning: Empowering Young People to Shape Their Worlds, Edward P. Clapp, Jossey Bass, 2016

Making Makers: Kids, Tools, and the Future of Innovation, Dr. Ann Marie Thomas, Maker Media, 2014

Creativity: Flow and the Psychology of Discovery and Invention, Mihaly Csikszentmihalyi, Harper Perennial, 1996

Online content:

Youth Makerspace Playbook 2015 (PDF): makered.org/makerspaces

Resources

Wide range of free supporting woodwork resources such as a children's book list and top tips available from: irresistible-learning.co.uk/resources

Early Childhood Woodwork Association and Big Bang Research Project: earlychildhoodwoodwork.org

Suppliers

Workbench: communityplaythings.co.uk

Tools: cosydirect.com and muddyfaces.co.uk

Balsa wood: balsacabin.co.uk and cosydirect.com

Community Playthings produces solid wood furniture and play equipment. Our products are developed to support children's play and creativity. We design and manufacture at workshops in East Sussex and Kent. You can find free training resources and our full product line at **communityplaythings.co.uk,** or call **0800 387 457** for a Community Playthings catalogue.

Free training resources

Request online at communityplaythings.co.uk or phone 0800 387 457.

Spaces for children

Room layout for 0-5 year olds

Design quality environments for children in your setting. This booklet will help you make the best use of your spaces.

A good place to be two

Developing quality environments indoors and out

Guidance for settings providing the two-year-old entitlement.

I made a unicorn

Open-ended play with blocks and simple materials

When free to experiment with the simplest materials, children find ways to express and develop their thoughts in imaginative play.

Woodwork in the early years

A practical guide to introducing woodwork in your setting

Artist and educator Pete Moorhouse offers a practical guide to introducing woodwork in your setting.

The irresistible classroom

Getting the learning environment right in Reception and Key Stage 1

The teacher facilitates learning, and the child does that learning. The environment must support them both. How can Reception and Key Stage 1 classrooms inspire education?

Learning outdoors

All about learning through play in nature, by Pete Moorhouse with contributions from Kathryn Solly, Jan White and Jon Cree.

DVD: Foundations

The value of Unit block play

Instructive video illustrating the value of block play.

DVD: The Nursery Gym

in action at Pen Green

Highlights the importance of physical activity and positive risk-taking for young children.

Play and learning blog

Join us in observing how children discover, develop and learn through play. Sign up at: **communityplaythings.co.uk/blog**