

Acknowledgements

This resource has been prepared following in the success of the SPARK resource pack that was compiled by Mary Hodson and Clare Reabow, two Occupational Therapists from the Paediatric Therapy Department, Swindon. The SPARK resource pack was devised for teachers and parents to address some of the co-ordination difficulties school aged children experienced. The information provided empowered parents and teachers to work on the significant coordination difficulties while the children waited to be assessed by the Occupational Therapists. Due to the success of SPARK an early years version was devised in 2011 by Vicki Easton, Occupational Therapist and her colleagues. An early years edition was devised—Known as SPARK (Early Years)- SPARK(EY) .

A big thanks goes to all those “willing” volunteers that provided feedback, proof reading and support while this reference was in the making.

This resource has been compiled for children who are between the ages of 3 - 5 years of age. As a result it is a supplement to the Early Years Foundation Stage. Practitioners should refer to the Early Years Foundations Stage/ Development Matters or Early Years Outcomes 2013 for background information on “normal” development and developmental stages.



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Introduction

The information in this resource has been compiled for pre school children or those who are in reception stage who have co-ordination difficulties.

Co-ordination difficulties may be a result of a physical disability, a learning disability or a global developmental delay. Alternatively the child may not have had the opportunity to develop their co-ordination because of social difficulties or cultural expectations. The activities within this resource have been compiled to assist parents and preschool staff to help develop their child's motor skills. However as all children are different you will need to match the level of the activity to the individual child and this would be best done through an Individual Play Plan (IPP) to help target the areas of concern and set a baseline for assistance. The activities suggested may require adaptation for individual children, especially those with any learning difficulties where activities will need to be broken down into smaller steps and these practised regularly before putting the steps together to achieve the activities. Adaptations of activities will be paramount to help children to generalise and master the skills that other children "just do".

It is hoped that in the pre school period the children can build up their foundation skills which will enable them to cope with the increased demands when they reach school age. The development of motor skills is a crucial part of a child's overall development and difficulties in this area have a wide ranging impact. Difficulties can influence dressing, using cutlery, holding a pencil or scissors and playing ordinary games in the playground. As a result the child's social skills can be influenced; this may lead to difficulties with self confidence and self esteem.

Additional advice can be found in the Guidelines for a Speech and Language Friendly School, available from the Speech and Language Therapy Department, the Early Years Foundation Stage curriculum and the Entitlement document from the Local Educational Authority.

Children who have a physical disability may not benefit from the advice within this resource as some of the activities may be harmful for their condition. If you are considering using the activities within this resource with a child who has a physical disability, you should contact the child's therapist directly to discuss.

Co-ordination Difficulties

In the past decade there has been an increased awareness of children with co-ordination difficulties leading to increased publications and expectations.

Additionally there has been a barrage of labels and terminology attached to this group of children. Although this publication has been compiled to address coordination difficulties, the children affected by co-ordination difficulties may require additional specialist input from a variety of professionals in order to find the root cause of their difficulties. This publication can be used as a starting point in addressing some of the difficulties.

Co-ordination difficulties may be a result of a physical disability, a specific learning disability or a global developmental delay. The child may not have had the opportunity to develop his/her co-ordination because of social difficulties or cultural expectations.

As stated previously children with a known physical disability may not benefit from the advice within this publication as it may make their difficulties worse. If you are concerned about a child with a physical disability, you should contact the Paediatric Therapy Service in the first instance to discuss this.

The term dyspraxia has become a very popular label. It relates to difficulties with planning, organising and executing motor tasks. You can have difficulties with co-ordination and not have dyspraxia. For the purposes of consistency and clarity we will use the term co-ordination difficulties throughout.



What to look out for/Red Flag Signs

No two children are alike. They all have their strengths and weaknesses although they will have a variety of skills in many areas of development that indicate average development. However when should we worry about children who are not quite up to speed in their development? The following is a checklist that can help you to identify those children who may have coordination difficulties. It is not intended to be exhaustive and is a guide to patterns of behaviours that may be indicative of difficulties. If the child has one tick there is less likely to be a problem related to Developmental Coordination Disorder. However the more ticks a child has, the more likely there is a need for additional support and advice.

- Uncoordinated movement – unable to do a **variety** of age appropriate activities; looks awkward or stiff; constantly bumping into things or others
- Poor balance – falls off the chair; cannot stand still; falls over easily
- Appears weak – difficulty moving up from the floor, difficulty climbing on playground equipment; unable to squeeze toys or open doors that other children his age can manage without difficulty
- Continuously on the move – unable to stay still; does not stay with one activity for any length of time; fidgety
- Poor manual dexterity – unable to play with age appropriate toys; may not have a dominant hand so they change hands regularly within the activity (For more advice about hand dominance refer to the specific section within this manual) unable to handle small objects with ease
- Poor use of pencil – pencil grasp is unrefined; pencil control is poor and drawings are unrecognisable compared to peers.
- Poor use of scissors (after the age of 3 ½ years)
- Avoids constructional activities such as building blocks; Duplo or similar; puzzles or craft activities
- Does not play with a variety of toys or participate in a variety of activities i.e. always in the home corner and never at the craft table or always running around and never looking at books etc
- Poor ability to feed self – uses fingers inappropriately, difficulty scooping; food does not reach mouth without falling; poor chewing and swallowing; restricted diet (usually does not like to chew)
- Heightened sensitivity to sounds, noise or touch – responds to outside noise that others do not seem to hear; covers ears for ordinary class room noise, dislikes messy hands, lashes out when others bump him unexpectedly, dislikes messy play (painting with hands, gluing/ craft activities etc),
- Poor ability to undress and dress – does not seem to have the strength to pull off clothes; gets twisted up in clothes

Sensory Processing

Introduction

We are sensory beings – we take in information from our environment through our senses - our eyes, ears, skin, taste buds and nose. These are the 5 senses that we all learnt about. However there are 2 others that provide essential information to us that we use through the day to help us develop motor coordination, control our behaviour and learn. They are known as proprioception sense (body awareness) and vestibular sense (awareness of movement).

Proprioception is the name given to the part of our nervous system that is mainly responsible for interpreting the messages from our muscles and joints. These messages are important as they help us to know how hard to push or pull an object or how gently we pick up something that is delicate. Proprioception also helps us to build an unconscious map of our bodies called body awareness. We develop body awareness by receiving feedback through our muscles and joints when we do physical activities. These activities make us “work hard” which is why we are more aware of our muscles and posture once we have done some exercise like an

aerobics session. Good body awareness helps with motor control, fluency of movement, grading of pressure and motor planning. Activities which activate the proprioceptive system are those tasks or games which require the muscles to push/pull or lift something. These activities can be both energizing and calming, much like going to the gym or exercising when tired or uptight. The effect is the same.

Vestibular sense is our sense of movement. The sensory receptors are located in the inner ear and are activated by head movements. The vestibular system provides information about where our body is in space, whether we or our surroundings are moving and in what direction i.e. back and forth; side to side or rotation. Our vestibular system is important to maintain muscle tone, coordinate 2 sides of the body and holding up our body and head against gravity.

We all have sensory likes and dislikes (known as our sensory preferences). These fluctuate depending on what else is going on i.e. anxiety, hunger, fatigue etc. We are generally more tolerant of sensory information when we are well rested, fed and “chilled out”. We become more irritated by sensory information when we are hungry, worried, preoccupied or tired. To be at our best we aim to be in a ‘calm alert state’ as this allows us to take in information, deal with it and then respond appropriately to it.

Typically very young children display their sensory experiences in a big/overt way. They are naturally very sensory seeking i.e. touching everything, moving a lot, using loud voices when excited etc. This type of response helps to feed their systems and help them to process what is going on. As we grow and develop our responses become less obvious and more subtle. We learn to regulate or “dampen down” our responses with experience, exposure and maturity. It is essential that children are allowed to have these experiences for their natural development. It is important to respect a child’s sensory needs as it plays an important role in their development of motor, language and thinking skills.

Some children respond consistently with their sensory preferences (likes/dislikes) whereas other children will fluctuate from one extreme to another. These children have difficulties regulating their responses which then impacts on their behavior. Children with difficulties with regulation can be unpredictable in their behavior. Once distressed they can take a long time to calm down or settle.

Children who are experiencing sensory processing difficulties can have a variety of diagnoses which may include Developmental Coordination Disorder (DCD), Attention Deficit Hyperactivity Disorder (ADHD), specific congenital disorders, and neurological conditions such as cerebral palsy or have suffered severe neglect and/or abuse. Sensory processing difficulties may be present without another diagnosis.

It is important to assess the child's development using the Early Years Foundation Stage document (Development Matters or Early Years Outcomes 2013) as this provides information about the child's overall development. It will help to identify the child's strengths and weaknesses and clarify what should be the expected developmental milestones and behaviors. When an aspect of the child's development is 'out of sync' with other aspects of development, this may impact on the child's ability to learn or progress. It could be that the child is stuck at an earlier stage of play/behavior or that they play/act at an age appropriate level but take it to the extreme. Extremes of play/behavior can be indicative of sensory processing difficulties.



Signposting Children with Sensory Processing Problems

It is difficult to know where to start with helping some children when they are not following a typical developmental pattern. It is important to consider what is getting in the way of the child progressing in a typical way. This could be as a result of a sensory processing, motor or cognitive difficulty. The following may help to identify if the barrier has a sensory component. Generally we are not looking to see if there is one difficulty but rather looking to see if there is a “cluster” of difficulties which help to identify if the child’s development is affected by sensory processing difficulties.

Does this sound familiar?

Tactile (Touch)

- Child becomes distressed when having nappy changed
- Child resists being cuddled or touched
- Child avoids messy play
- Child complains about clothing being uncomfortable or is fussy about what they will wear based on how the clothes feel
- Child continuously seeks out crashing or jumping opportunities.
- Parents report child becomes overly distressed with activities such as face washing, hair washing, nail cutting, bathing, tooth brushing etc

In which case the child’s tolerance needs to be built up gradually

- Provide some deep pressure or resistive activity to the child’s hands before messy play – this will get the hands “ready” to tolerate this type of activity. Refer to the section on Body Awareness for ideas to do prior to messy play.
- Start with dry texture i.e. uncooked rice or lentils, dry pasta, dry sand to encourage the child to put their hands into. You can hide small toys in the rice etc. for the child to find using their hands.
- Move from dry textures to wetter ones i.e. wet sand, paint, yogurt on a tray etc.
- Explore in-between textures such as cooked pasta; play dough, ooblik
- Provide a flannel or paper towel that the child can use to clean their hands during or immediately after this type of play.

Young children will routinely touch new objects as part of their multi-sensory learning – this is normal and should be encouraged. It is how they develop their language and thinking concepts about shapes and textures etc. Ideas to help

- Encourage rough and tumble/heavy work activities. Refer to the Body Awareness section for ideas.
- Encourage full body textured play i.e. sitting and playing in a sand box, rubbing textured material on body parts
- Encourage playing with toys that vibrate – vibration can be very calming but at the same time provides a strong sensation throughout the body.

Body Awareness/ Vestibular

- Extreme responses to being swung in the air or when playing on playground equipment i.e. swings/slides/climbing frame
- Difficulty grading how much force to use for activity i.e. heavy handed when handling objects such that the object breaks unintentionally; too much force when interacting with friends or family
- Bumps into furniture, door frames or other people/clumsy
- Avoids movement/ becomes fearful when feet leave the ground i.e. getting on and off scoot along toys; avoids climbing or stepping up onto apparatus
- Rocks self while sitting.
- Is very fidgety/ can't sit still and has difficulties walking (hops, skips and jumps everywhere)
- Head banging (not necessarily in frustration)

Ideas to help

- Encourage body awareness type activities throughout the day which require pushing, pulling and lifting- Refer to the section on Body Awareness for specific ideas.
- Encourage very small amounts of movement – begin with a bouncing activity before moving onto swaying and swinging.
- Encourage swinging in different positions i.e. sitting on the swing, lying on tummy over swing or swinging in different directions i.e. forward and back; side to side, diagonals
- Encourage rocking on a rocking chair or rocking horse
- Encourage jumping/bouncing either on a space hopper ball, trampoline, on a mattress or mat on the floor
- Encourage squashing and squeezing throughout the day i.e. bear hugs, crawling through narrow spaces, rolling a large ball over top of the child who is lying on a mat on the floor
- Encourage swinging throughout the day on outdoor or indoor swing etc.
- Encourage “head down” position i.e. headstands against the wall, lying over a large therapy ball, wheelbarrow walking etc.
- Limit or avoid spinning – as this can be too intense and may result in over stimulation
- Encourage jumping and hopping at appropriate times while encouraging the child to walk at others.
- Provide the child with movement breaks.
- Head banging - If the child does this on a regular basis and for prolonged periods, a soft helmet may be indicated. The child should be reviewed by his/ her GP or Paediatrician

Auditory

- Child distressed by common noises in the environment i.e. toilet flushing; music or singing
- Child doesn't respond to verbal cues i.e. name being called
- Child distracted by noise
- Child is highly distressed by busy environments.

It is important to ascertain that the child has had his/her hearing checked and whether there is a history of frequent ear infections.

Ideas to help

- Whenever possible give a “warning” to the child that there is going to be a loud or different sound. Allow the child to leave the room during this noise.
- Encourage the use of headphones, earplugs, ear defenders or simply cover the child's ears.
- Encourage body awareness activities throughout the day to help the child remain regulated and in a calm alert state. This will allow them to tolerate these new noises/experiences better. **Refer to the Body Awareness section for specific activities**
- Encourage movement activities as the vestibular input can help with auditory processing.
- Provide a “sensory retreat” – this could be a quiet area such as an upturned box, den etc. where the child can go to block out noise and visual stimuli in an attempt to calm down and refocus himself.
- Be aware of the level of background noise and where possible reduce it.



Vision

- Child is overly distressed by bright lights/sunshine
- Child cannot pay attention to task if more than one object or food item is in view
- Child becomes distressed or falls asleep in busy environments
- Child displays an extreme interest in a visual activity/toy and becomes fixated on it i.e. spinning objects.
- Child becomes overly distressed when eyes are covered i.e. blindfolded

Ideas to help

- Be aware of lighting within the environment – natural light is best as frequently fluorescent lights give off a glare or can flicker which can be highly distracting/distressing.
- Reduce clutter in the immediate area i.e. table top. Use containers to help keep clutter under control.
- When outside allow the children to wear a floppy hat or a hat with a visor as this can help cut out some of the visual field.
- Use a plain coloured placemat on the table top to help the child's eyes focus on the task.
- Encourage the child to do some body awareness activities throughout the day to help him calm and regulate his behaviour. Refer to the section on Body Awareness for specific ideas.
- Allow the child time to process the change in activity – they may take longer to understand the words. If necessary provide visual prompts.
- Encourage routines and schedules whenever possible as this helps the child predict what is going to happen.



Taste/Smell

- Child has a limited diet or extreme food preferences for an extended period of time – certain textures, temperatures and colour.
- Child gags easily on foods
- Child refuses to try new foods and has a history of eating difficulties i.e. long period of time to wean onto solids
- Child becomes overly distressed by smells that are typically part of a child's experience i.e. cooking smells, cleaning smells etc.
- Persistent mouthing of objects/toys beyond the acceptable age
- Child smells or licks non-food objects

Mouthing/chewing non-food objects is typically seen in young children as this helps their learning about shape, textures, size etc. Prolonged mouthing can prevent the child from learning how to play differently with objects etc. It is important to ascertain when the child is most likely to chew on objects i.e. new or stressful situations, all of the time; with new objects/toys etc. It is also important to ascertain if the child is teething – some children's teeth do come later than expected.

Ideas to help

- Provide a “chew toy” that the child is allowed to chew and give it to the child if he/she begins to chew other objects. This should be a safe object that is large enough that the child cannot swallow. This should be readily available at all times.
- Provide chewy snacks that encourage good sustained chewing i.e. NOT chocolate or crisps. Consider French bread, chewy sweets, pepperoni sticks, fruit bars, cheese cubes, dried fruit such as apricots or apple rings
- Encourage drinking through a straw. Where possible provide thicker liquids such as thick milkshakes, sucking yogurt through a straw; smoothies or apple puree etc. This encourages the oral structures to work hard.
- Encourage the use of mouth toys such as a kazoo, bubble blowers, whistles etc.
- Encourage the use of an electric toothbrush throughout the day (vibration to the mouth can be very calming).
- Never force feed the child. Encourage the child to touch or smell the food but do not put him under pressure to lick it or eat it.
- Introduce new food regularly. It takes over 20 tastes before we are accustomed to a taste – fussy eaters need at least this amount of exposure before the taste is familiar.



Play and Behaviour

- Child plays the same way over and over again.
- Child becomes fixated with specific toys.
- Child plays with a range of toys but in exactly the same way i.e. waving and banging them, lining them up, spinning etc. .
- Child frequently breaks toys.
- Child lacks awareness of personal space i.e. strongly dislikes other children invading their space or they invade other children's space.
- Child unaware of own strength when playing with other children.
- Child is unable to imitate play of others
- Child wanders aimlessly without focussed exploration or purposeful play
- Child needs total control of the environment – behaviour is very controlling

Repetitive play can be calming to the child as it is very predictable and not particularly challenging. In moderation, repetitive play can be expected as it helps the child to learn and may help to keep them regulated in a “calm alert state of mind”.

Ideas to help.

- Encourage some body awareness activities throughout the day as this helps the child to be more in tune with his body (Refer to section on Body Awareness).
- Try and play alongside the child and model how he could play in a different way. You may need to gain his attention using sing song voice, calling his name or making the new play more exciting. Model what else you can do with the toy and if necessary ask the child to imitate what you are doing.
- If necessary you can give the child some physical guidance i.e. hand over hand to “feel” what he can do/ how to move or play differently.
- Communicate with the child what you are doing i.e. “I am pushing the car under the bridge” etc. to reinforce the language concepts. Simplify the language you use.
- Provide a range of structured and unstructured activities and observe the child's play. He may be more able to follow and complete structured activities as this provides some guidance for him.
- Be aware of the environmental demands i.e. noise levels, visual distractions etc. Wherever possible reduce some of this “competition for the child's senses”.
- Incorporate an environmental prompt to help the child move from one activity to another i.e. clap hands, shake bells etc.
- Once a child shows that he can change his play provide lots of opportunities so he can continue to play in this way with a wider range of toys. However be aware that you may need to keep showing him different ways to play – for this child playing may not be instinctive.

Frequently Asked Questions

Can sensory processing difficulties affect my child's play

Yes children with SPD may have difficulties with a number of different aspects of play. Because of the dynamic nature of play your child's nervous system is constantly taking in new information while referencing stored skill information. Play relies on effective sensory processing of visual and auditory information, as well as information from the primary senses (vestibular, proprioceptive, and tactile) which are all crucial for environmental and interpersonal interactions. This is why play is considered so important by developmental experts as it is crucial for early healthy development of the brain and body.

Do Sensory Processing difficulties affect a child's social skills?

Absolutely! Social interactions are just about the most complicated sensory activity for humans. True social effectiveness relies on the ability of the nervous system to process all the said and unsaid information, interpret it and then – in seconds- act on it.

In addition to learnt social skills such as introducing yourself or looking at people when they speak you must integrate what they are verbally and physically telling you as well as be cognizant of anyone else that is part of the mix. If your child is having sensory processing issues she is probably overwhelmed by all the sensory stimuli and as a result, she may shut down or appear inappropriate in social situations.

Is it difficult to separate behaviour from sensory processing?

We cannot separate the two. A healthy sensory system is the foundation for productive behaviour. Behaviour encompasses many things that make us adaptable and successful in our environments such as screening out irrelevant information to pay attention attending to an activity for a sufficient period of time, transitioning from one activity to another, following directions, moving attention from the big picture to the detail and back again as well as completing an activity once started.

When I pick my child up from nursery or school, he has a melt down . Why?

School is very demanding place for children with sensory processing difficulties. They are required to be still for long periods of time, respond to auditory and visual information quickly and then take in and respond to all the social cues around them. Your child is probably working hard to hold it all together during school and simply unravels when he is with someone safe.

Why does my child find it hard to play in group situations?

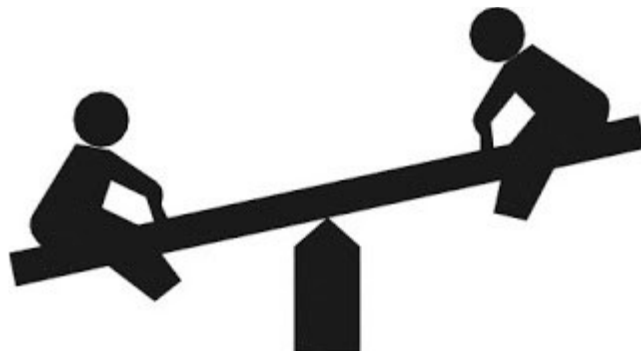
If you think about how you have to concentrate when you are in a social situation it is staggering. If you then factor in that a child also has to learn how to participate in a new activity. This takes a tremendous amount of attention and energy and the child needs to be able to use all their processing skills efficient in these situations. You can help your child by starting her off in same organised group situations, playing with familiar toys and structuring the interaction so that everyone has a turn and offering frequent changes of activities and movement breaks.

What do I do if I have concerns that a child has a sensory processing difficulty?

In the first instance you need to speak to your Early Years Inclusion Officer to raise your concerns who would give support and advice to you and the parents. This could result in signposting to the most appropriate professional/service.

What happens if the child is referred for an Occupational Therapy assessment?

It will be carried out by a qualified Occupational Therapist. This will involve the child's main caregiver and nursery/school teacher completing standard check lists of the child's behaviours. The assessing therapist will then use the results from these, along with his/her clinical observations of the child, to identify any sensory vulnerabilities that are impacting on what the child wants, needs or is required to do. This will then forms the basis of suggestions to home and nursery/school to help the child.



Signposting Children with Coordination Problems

It is difficult to know where to start with helping some children. This resource information has been compiled with a group of children in mind although even within that group there will be a multitude of difficulties. The following may help to identify which sections would be useful to refer to when devising an Individual Play Plan.

- Reluctance to physically move in/out of positions or on/off of apparatus
- Uncoordinated movements—looks awkward and stiff
- Excessive fatigue or stamina
- Continuously on the go—unable to remain still
- Poor balance
- Appears weak
- Avoids playing on the floor
- Difficulty pulling on clothes that peers can manage

Refer to sections on CORE STABILITY AND BODY AWARENESS

- Constantly bumps into others and furniture
- Falls off chair/can not sit still
- Difficulty knowing how hard to squeeze toys—judging when increased pressure is needed and when to use a more delicate touch
- Heavy handed with toys resulting in breakages unintentionally
- Difficulty generalising skills and needs to have every new motor task taught to them
- Heightened sensitivity to sounds, light touch and smells

Refer to section on BODY AWARENESS

- Falls off chair when sitting
- Leans excessively when sitting at the table, either forwards or to the side and needs to hold head with one hand
- Difficulty completing age appropriate manipulation tasks
- Poor pencil control
- Avoidance of constructional tasks such as craft activities, puzzles, DUPLO

Refer to section on CORRECT SITTING POSTURE

- Child cannot pick up small objects with a pincer grasp
- Cannot handle small toys appropriate for age
- Cannot do fine motor tasks appropriate for age (compared to peers)
- Cannot hold pencil appropriate for age
- Drawings consist only of scribble (after age 3 years)
- Cannot hold scissors appropriate for age
- Child does not have a preferred hand (after age 3 ½ years)

Refer to section on HAND SKILLS,

- Difficulty moving in/out of positions or on/off of apparatus
- Needs to be taught every new motor task
- Has difficulty generalising from one motor task to another
- Unable to do a variety of motor tasks compared to his peers
- Lack of progression with motor tasks despite lots of opportunities to practice
- Avoids activities that are difficult
- Poor persistence with activities—gives up at the slightest challenge
- Avoids constructional activities such as craft, DUPLO, drawing

Refer to section on GRADING ACTIVITIES and CORE STABILITY

Difficulty with self care skills appropriate for age i.e.
 Undressing
 Use of spoon or fork at meal times
 Becomes twisted in clothes when dressing and unable to correct it.

Refer to sections SELF CARE SKILLS, and GRADING OF ACTIVITIES



FOUNDATION SKILLS FOR

MOTOR DEVELOPMENT

Children generally develop in a typical pattern regardless of social background, race or gender. There are principles of development which can be applied to may if not all of the motor skills that we expect children to achieve.

Head to Toe control - new born babies develop head control before they gain control over any other body part. The control then progresses to the trunk and hips.

Core stability before control of limbs - children need to have stability in their trunks and shoulders and hips before they can develop the skills in their hands and feet.

Stability before mobility - children need to have the ability to keep a body part still before they can develop the precise movement of that body part. For example the child needs to be able to reach out their arm and hold it there before they will be able to grasp the toy being handed to them. They must be able to stand still momentarily before they can take their first step.

Mass movements before more refined purposeful movements - Newborn babies move their limbs in full patterns of movement without any purposeful movements. As the child develops their core stability they develop the ability to keep their trunks still while they reach out with their arms to grasp the toy. Over time the grasp becomes more refined and precise and the child can manipulate the toys using the finger tips only.

But muscles are not everything! When we learn a new task we rely on feedback from our body to refine the movement and it is this refinement which leads us to be able to master the task. We use this feedback to change slightly what we do in order to be better at the activity. If we do not use the feedback or the feedback is inefficient we do not change anything about what we are doing and this leads to the same result. For example if we throw the ball to someone else but we throw it too lightly so that it does not reach them, the next time we should learn from our mistake and throw the ball harder. But if we do not throw it harder we will get the same result; it still won't get to the other person.

All the information we receive about our world comes through our senses. We need to receive this input and then organize the information in order to make sense of it. Once interpreted we are then able to respond appropriately.

Paediatric Therapy Department Swindon Borough Council
In children who develop "normally," we do not see the interpretation and responses to sensory information – it just happens. However, we do see them returning to the activities that

We receive sensory information which tells us to move, how to move and which body parts to move. Once moving, we receive constant feedback through our muscles, our skin and our joints which allows us to adjust and refine our movements accurately.

In addition to the five senses you learnt about in school (vision, hearing, touch smell and taste) there are another 2 which play a very important role in the acquisition of motor skills - Proprioception and Vestibular. Now don't be worried about the technical words because proprioception means body awareness and vestibular means awareness of movement.

Vision plays a huge role in the acquisition of motor skills, especially precise fine motor skills. Our receptors for vision are found in the eye and the nerves which go from the eye to the brain.

Hearing is an important sense of the development of language, understanding and speech. The receptors for hearing are located in the ear.

We have different receptors for different **touch** sensations ie pain, temperature, pressure etc. The receptors for touch are located in the skin. The touch system is also referred to as the tactile system.

The receptors for **smell** are located in the nose. Smell is a primitive sense and has a very powerful pull to memory.

The receptors for **taste** are located on the tongue and the sense of smell and taste work together.

The receptors for **proprioception** are located in our joints and muscles. They are stimulated by hard, heavy work and help us to know where our body parts are without us having to look. They also give us information about whether we are moving or whether we are still. We rely on our proprioceptive sense when we are expected to do 2 things at the same time i.e. walk and carry something. Because we cannot watch both things at the same time we have to rely on our body sense to stop us dropping the package or tripping over our own feet.

The receptors for **Vestibular** input are located in the inner ear. They register every movement we make and every change in head position, even the most subtle. Our vestibular sense gives us information about our relation to gravity and the orientation that we are in ie upright or upside down. This system tells us whether we are moving or are still, whether other objects or people are moving or are still and in what direction we are moving and how fast. The vestibular sense assists all of the other senses to work effectively.

In children who develop “normally” we do not see the sensory information working – it just happens. However, we do see them returning to the activities that they experience as “fun” and avoiding those that they feel are “not fun”, “awful” or “too hard”. These experiences can help them learn about their bodies; about the space around them; about being still or being on the move and about other children. We can see how they adapt or change the activity to make it “more fun” or a bit harder or more interesting. They are using their previous knowledge and the familiar activity to make it into a new one. This helps them to develop a slightly different response, whether that is a motor response or a social response. In order to be successful the child needs to have a good body map in order to understand what their body is capable of and how it “works”. They will need to organize their movements and put them together in the correct sequence in order to complete the activity correctly. If they have a good idea and can sequence it correctly (first in their head and then in movement) they are most likely going to be successful. However things do go wrong and adaptations to the plan may be needed.

This whole process is known **as motor planning**. In order to master a new task you need to have the *idea* of what to do, need to be able to *put the steps together in a sequence* and then *execute the plan*. If it is not successful you need to adjust something – this might be the idea or the sequence or how you put it together. We need to motor plan every time we learn a new activity i.e. organize and sequence it on a conscious level. Once we achieved the activity we can practice it repeatedly until it becomes automatic and once automatic it moves to the unconscious ie we just do it.

Once we are at this stage we do not need to motor plan until we change the activity. For example when we first learn to drive a car our full attention goes into the physical aspects of driving. We need to organize which foot goes onto the clutch, when to press the clutch and when to put the car into gear. If we get those movements into the wrong order the car stalls or the gears grind - regardless we don't go anywhere. At this stage we need to keep practicing to get the sequence right until we can do parts of it without having to think about each step. With further practice and adjustments we can put all of the sequences together and can drive. After more practice the motor aspects have become automatic and now we can drive while listening to the radio, talking to another person in the car, check our appearance in the mirror etc. because we don't even have to think about the movements. We are now no longer motor planning until for example, we drive a different car. And then we need to use all of the skills previously mastered and generalize them to a new situation and set up. We do not need to start from the beginning but we do need to concentrate and practice again until we master this car.

Motor planning is required for learning of any new skill. It relies on good feedback from our senses and being able to organise and sequence movements in order to adjust what we do to master the activity. In order to help the child with motor planning difficulties we need to provide additional feedback to them otherwise they will not be able to master the skill – they will just continue to do the task as they previously had. This will reinforce the faulty movements and result in ongoing failure. Doing the same thing over and over again will help to be more skilled in doing it incorrectly.

How to grade activities to encourage success and independence

Grading of an activity refers to how an activity is paced. Providing the “just right” challenge is important to encourage development. If too much is expected the child can feel frustrated and refuse to participate, leading to temper tantrums etc. If too little is expected and adults step in too quickly to assist, the child will take longer to achieve the skill. It can be hard to watch a child struggle with a task and this is especially true with a child who has many difficulties.

The golden rule to grading an activity is to **allow the child to attempt it. Stay in the background to see how much he can manage independently.** Stand back and observe, sit on your hands and try to keep quiet. Avoid the temptation to jump in too quickly.

However if the child begins to experience difficulty in the middle of the task, ask if he requires assistance. Some children have the persistence skills to stick with it while others expect help at the slightest hurdle. If the child requests assistance, talk to him about what you are doing as this may help him to remember next time what to do next. This method of finishing off the task that the child has started is called **forward chaining**. The next time the child is faced with the same task, encourage him to do a little more until he can manage the complete sequence. For example, the child is trying to remove his trousers. Encourage him to push down the trousers as far as he can (maybe only a few inches before he gives up), you do the rest by pushing the trousers down and asking him to step out while supporting him. The next time encourage him to push the trousers down further i.e. to his knees, before you offer assistance. When he can manage this encourage him to push them down to his ankles etc. Encourage the child to do a bit more each time before you assist.

Alternatively there is **backward chaining**, which is starting off the task for the child, talking about what you are doing as you progress through the steps, but allowing the child to complete the final step in the process. When they are able to do the last step independently expect them to do the last 2 steps in the sequence and so on. Using the example above the adult would do the initial steps i.e. pushing down the trousers to the ankles and supporting the child, the child would step out of the trousers. The next time the adult may only push the trousers down to the child's knees before requesting they help.

For these methods it is important to **break the task down into small steps**. The child can practise the small steps in a variety of settings or situations to help generalise the skill. Once they master the steps individually, assist them to put the steps together into a sequence. Many children with Developmental Co-ordination Disorder have difficulties with sequences of movements and require additional opportunities to generalise the skill.

When the child is learning a new complex motor skill i.e. putting on his coat, think about the amount of **environmental distractions** there are. It is best to start out in a quiet area with few distractions until the child can manage the task.

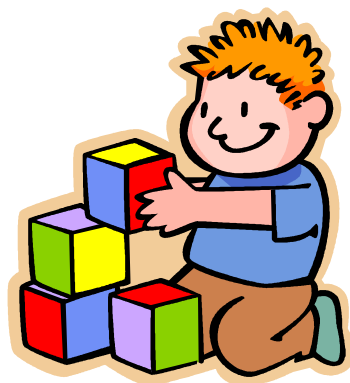
This is especially useful for children who have difficulties with filtering out background noise or those who have speech and language difficulties as it can help them to focus their attention.

Telling a child how to do something may be beneficial but it may not be enough. **Non verbal prompts** (i.e. demonstration, gestures or sign a long/sign language) and **hand over hand assistance** may be more meaningful. The child who has difficulty with body awareness and co-ordination may not be able to follow verbal instructions and may require you to physically guide his body parts through the movements. While moving their body use key words to help them understand the language used during the task. However keep the instructions short and concise. Too much language with directions can be very confusing.

Reward and praise any effort. For the child with coordination difficulties they do not spontaneously achieve success and most things are hard work. Therefore they are less likely to stick with something.

Grading the task can be done by **adapting the equipment** used. Initially the child may benefit from weighted objects as these give him better feedback; using larger objects i.e. catching football sized balls or balloons; changing the speed of the task; using a different tool i.e. chunky crayons or felt tip markers/ self opening scissors etc.

Timings of the task can also be adjusted. If the task is particularly difficult, keep the session short to encourage the child to stick with it. Initially it will take the child longer to achieve and if they are struggling, it will feel like a lifetime for them. As they achieve success in some of the steps, they will automatically get faster and you can potentially achieve more in a short period of time. Additionally the end of the session may not be the best time to concentrate on a difficult task.



Behavioural Compliance—How to get what you want from children

- Reward positive behaviour but be specific about the behaviour i.e. “I like how you are sitting on the carpet” rather than “ You are a good girl “
- Some children find a physical reward more meaningful initially and this can be in the form of a sticker, star chart or pasta shapes in a jar. This helps them to see the benefit of good behaviour.
- Children need predictability and consistency—routines are very important and some children respond better to a visual timetable as they can see what is going to happen next. This also helps when the routine has to change i.e. around Christmas time or end of term.
- Move close to the child and say their name to gain their attention—they are more likely to respond to your requests as they know the instruction is for them.
- Use a time warning to indicate a change of activity i.e. “In a few minutes we are going to put the toys away for snack”. You may wish to use a countdown approach i.e. “in five minutes we are going to have snack” “in 3 minutes we are going to have snack etc as the time winds down. This helps the child get ready mentally for the change in activity and gives them a chance to start the transition. For children who have difficulty understanding what is said to them use an egg timer to help reinforce the language with a visual cue.
- Be specific about what you want the child to do—telling them what not to do is not giving them a clear idea of what is expected i.e. “Don’t do that” is less meaningful than “Jamie you need to stop climbing on the table and get your coat on”. State the instructions in a clear and confident manner while being specific. Keep it simple!
- If you want the child to do as you ask do not ask them a question i.e. “Will you sit at the table?” can be answered with a “NO”. Rather use “Its time to sit at the table” or “I want you to sit at the table”.
- As soon as the child begins to comply with your request, give them praise to reinforce their good behaviour i.e. “Well done Jamie you are putting your coat on”.
- Offer choices throughout the day although make it clear when choices are not available to the child i.e. there are things that are not negotiable and the child has to do such as sitting down for snack.
- Some children need to have positive behaviour modelled to them. Spend some time playing alongside the child doing something together. This helps the child to understand what is expected and can help them to remain on task and develop a longer attention span.

The most important thing to remember is to remain calm.

If it seems that there is a defiance element to the child’s behaviour and it is a case of “won’t do “ rather than “can’t do”, you may need to try these strategies for a period of time before seeking more specialist advice. In the first instance you should speak to the Health Visitor or Early Years Consultant attached to your nursery. They may be able to offer further advice and support and if necessary they can refer the child to more specialist services through the Behaviour Support Team or TAMHS. The Educational Psychologist attached to your setting may also provide advice regarding behavioural management.

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Strategies for improving attention and activity levels

In order for children to learn they need to be in the “right frame of mind” - this means alert enough to be able to take in the information and not over active. Some children are regularly too active to take in the information—they may be described as “hyper”, “easily bored” or flitting from one activity to another. These children need to calm down.

Conversely some children are too passive to take in information and need to be “wound up”. The key to finding what the child needs is to watch him carefully. What activities does he routinely go to? How long does he stay there? What things seem to calm him or what things seem to excite him? Often the child seeks out the activities that he feels help him although he doesn’t always know when to use them or when he has had enough.

The following activities may be **helpful to calm** and prepare the child to learn.

Although the activities are active they can have a “calming” effect on children. These include

- Heavy resistive activities such as pushing furniture away to make a space, pulling a heavy load in a wagon or trolley or carrying a heavy load such as a stack of books or a toy crate etc. For other ideas refer to the body awareness activities.
- Rhythmical activities such as swinging on a swing, jumping on a trampoline or horse riding. These help to regulate the child’s central nervous system and can be very effective to calm.
- Being weighted down by a heavy duvet, or bean bag chair while lying on the floor—this may be ideal to use when looking at books or watching television. Some nurseries have a “calm down corner” which has a beanbag chair to burrow under, a pop up tent that reduces the amount of stimuli the child has to cope with and can muffle some noise. The child is never sent there as a punishment but can voluntarily use the space to calm himself down.
- Some children respond to an “egg timer” or a visual timetable to help them remain on task for a set period of time. Initially they will be more interested in the timer but the majority of children “forget” about the timer if it is used consistently.
- Use “when” and “then” i.e. “When we finished putting this puzzle together then we can go and paint”. When the bell rings then we can go out of doors etc. This indicates the beginning and end of activities that is more meaningful to the child then providing them with a meaningless time frame i.e. what feels like 5 minutes to us will feel like an hour to a child.

Activities to “**wake up**” a passive child

- Heavy resistive activities are also beneficial as they help to wake up muscles which in turn can help a child’s attention levels. Refer to the activities outlined in the Body awareness section.
- Encourage movement breaks after the child has been sitting for a period of time. In particular movement that involves spinning, fast movement or changes in movement direction i.e. a game of touch tag.
- Encourage eating of crunchy foods i.e. raw carrot, crunchy apple, pretzels or breadsticks.

Further advice specific to the child should be obtained from a paediatric Occupational Therapist.

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Activities to Encourage Body Awareness

Body awareness is the ability to have a well defined body map – which body parts attach to which and being able to move one part independent of another as well as knowing where our body is in space. All of these things we can do without having to look because of our well defined body map. Body awareness helps us to know how hard to push or pull or how gently we pick up a delicate object. Good body awareness helps us to organise our movements for complex motor tasks. We develop body awareness by receiving good feedback through our muscles and joints when we do physical activities. These activities make us “work hard” which is why we are more aware of our muscles and posture once we have done some exercise like an aerobics session.

The following activities help to develop body awareness and could be incorporated into a child’s daily routine. It is most beneficial to do this type of activity little and often and therefore be creative in your planning to allow the child to experience throughout the whole day. These activities may also have a calming effect on children who are very active or fidgety.

Some of the activities suggested may be more appropriate to use at home and you could encourage parents to do these.

Encourage the child to

- Move furniture to make a space – push chairs out of the way, stack chairs onto one another, set out gym mats or PE apparatus, carry a stack of books from one side of the room to the other, carry a crate of toys to another area of the building, carry a bag of shopping into the kitchen
- Place objects onto a work surface (so the child has to reach up).
- Use push along/ pull toys i.e. a wagon which has been weighted down with toys, push a brick trolley that has been weighted down with bricks, push a small wheelbarrow
- Play on climbing apparatus – swinging from an overhead bar or hanging by hands from it is fantastic for arm and shoulder strength. Initially you may need to support some of the child’s weight
- Jump on a trampoline or other jumping activities
- Wear a weighted back pack while walking to school (or even from the car park into school)
- Use playground equipment – the child climbs onto the swing or climbing frame independently

Games that would stimulate body awareness include

- Tug of war – using a rope or a rolled up towel. Initially the child may need to sit while doing this to ensure his stability. However once he can manage this, encourage him to stand to do it.
- Pushing another child who is sitting inside a large cardboard box from one side of the room to the other.
- Rough and tumble play
- Wheelbarrow walking i.e. child walks on hands while an adult holds their legs. Initially the child may be more successful when held at his knees as this allows the adult to support some of the child’s weight. As the child becomes more confident and able, move the adults hands down to the ankles.

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- Quick sand – the child lies on his tummy on the floor and is pulled out of

- the “quicksand” by an adult – you can pull the child by arms or by legs
- Man overboard – 2 children are sitting in the boat (on a large cushion or carpet tiles) – one child falls into the water and the other child has to pull them back into the boat
 - Parachute games
 - Animal walks i.e. lying on back and bringing knees and legs up to tummy while lifting head to be a rolled up hedgehog, jumping like a rabbit or a kangaroo etc.
 - Squeezing and pounding play dough. Some play dough kits come with “plungers” to push the play dough through and these are great to stimulate muscles in the hands.



Core Stability

The muscles around the hips, shoulders and trunk work together to form a child's core stability. It is essential to have a strong middle or core so that we can

- Maintain a good posture against gravity e.g. in sitting
- Use our arms and hands for more precise movements
- Use our legs for balancing and active movements such as running, hopping, jumping etc.
- Save ourselves when falling over

Children generally develop their core stability through ordinary movement activities such as reaching out while sitting, crawling on hands and knees, pulling to stand and cruising around the furniture. Eventually they walk on their own and learn that they can carry a large toy while walking. After gaining confidence and increasing their motor stamina and strength, most children progress to playing on apparatus such as swings and slides and pedalling a trike. These skilled activities will continue to develop core stability. However the child with poor core stability will be reluctant to participate in the very activities that will help to develop this area.

Children who have poor core stability are likely to become tired more quickly than their peers, and as a result have less concentration. They are children who slump over a desk, or who fidget constantly. Conversely, they might stay extremely still, as to move out of their base would be too difficult.

If children have to work hard to keep themselves up against gravity or try to stop themselves falling off a chair because of poor core stability, they will not be paying attention to what the teacher is telling them.

ACTIVITIES TO PROMOTE CORE STABILITY

Flexion Activities

1. Row your boat
2. While lying on their back –hands to feet/knees– use foot rattles etc

Extension Activities

1. Tummy time for activities such as reading, playing on the floor

Rotation Activities

1. Rolling Races
2. Rolling down a wedge
3. Sausage Sandwiches

Shoulder and hip girdles

1. Animal walks-snake, bear, cat/lion
2. 4 legged races
3. Wheelbarrow walking
4. Activities that require pushing or carrying

Strength

1. Pulling games e.g. a cart
2. Pushing games e.g. a weighted brick trolley
3. In sitting– tug of war/ row your boat
4. Climbing up ladders

Balance

1. Tightrope walking (wide)
2. Walking on a low bench
3. Walking between lines
4. Side steps
5. Star jumps
6. Jumping into hoops
7. Crawling/ walking games over obstacles
8. Action songs e.g. dingle dangle scarecrow, okey cokey, ring of roses, grand old duke of york.



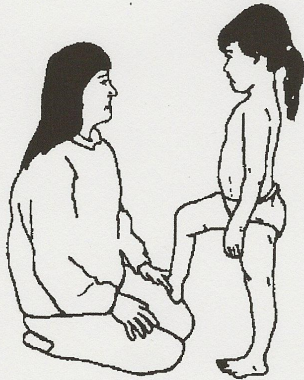
Gross Motor Skills



© Sarah Crombie

Sit the child on a stool or chair so their feet are off the floor. Make a game of reaching for objects, high fives, or hitting a balloon.

The child should be reaching as far as they can without toppling.



© Sarah Crombie

Ask the child to stand with one foot on your knee. Hold onto their foot to help them, and as in the above activity, ask them to reach for objects or to touch your hand.

Again the child needs to be reaching as far as they can to get the maximum benefit.

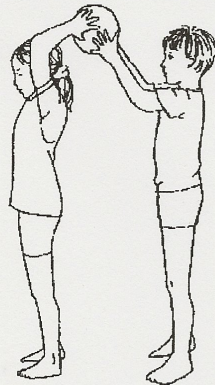


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Seat the child on a chair with their feet on the floor. Ask them to lift one foot at a time and touch it with the opposite hand.

You can make this activity harder by sitting the child with both feet off the floor to begin with.

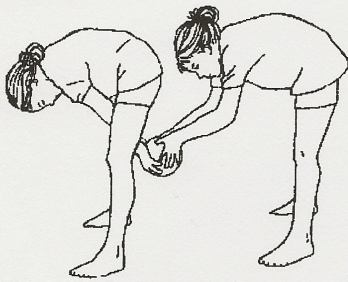
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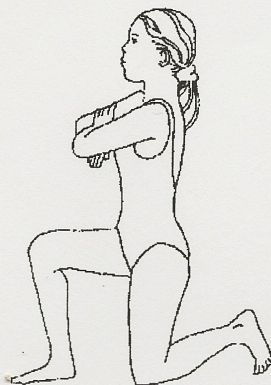
Pass a ball over head to a partner or line of Children.

B



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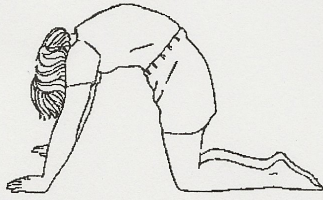
Pass the ball under to make it more difficult or alternate if you have a line of Children.



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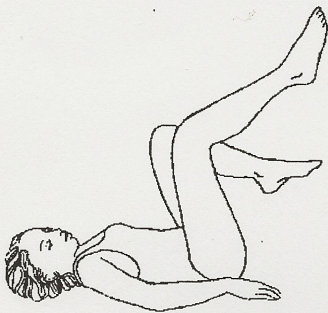
Any activity carried out in this half kneeling position is a good way of improving core stability.

Make the activity harder by asking the child to reach for an object or hit a balloon whilst maintaining this position.



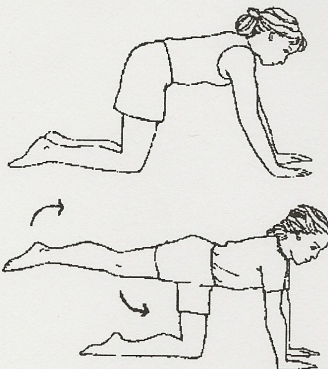
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Ask the Child to make a bridge for a partner or a ball or toy to go under.



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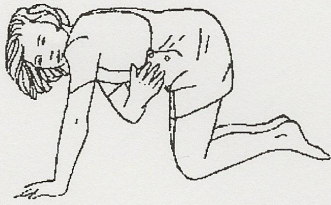
Ask the Child to pedal their legs for some upside down cycling.



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Ask the child to kick an imaginary object behind them whilst in the crawl position.

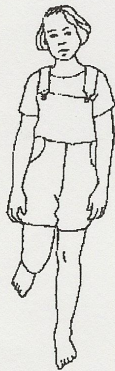
Kick slowly or to make the activity more difficult.



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Place the Child in the crawl position and ask them to reach to touch different parts of their bodies.

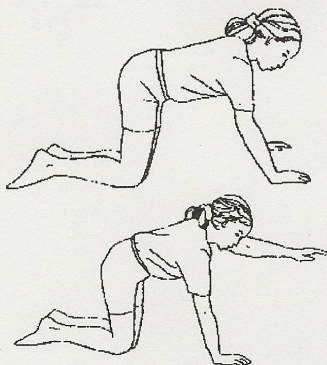
Make this activity harder by asking them to touch parts of their body on the opposite side of their body to the hand they are using.



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Activities such as standing on one leg and hopping are excellent for improving core stability.

Progress gradually from holding on whilst standing on one leg to standing on one leg without holding.



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Place the Child in the crawl position and play being animals.

Correct Sitting Posture

Although it is important for a pre school child to use a variety of positions for play and “work”, they will be required to sit for increasing periods of time as they approach school age. It is important to develop good habits from the beginning. The size of the chair and table can be crucial, especially for children who have difficulty with motor control. Unfortunately chairs and tables are often thought of as “one size fits all”. Look around your class and see if all the children are the same size. Chances are there are some who tower over the others and some who are significantly smaller than the others.

The correct size of chair should allow the child to sit with their bottoms to the back of the chair while their heels remain on the floor. If they are up on tip toes or their feet are dangling, the chair is too high for them. If their knees are significantly higher than their hips, the chair is too small.

The table height will need to be compatible to the chair height. The height of the table should be 2” (5 cm) above the child’s bent elbow when the child is seated squarely on the chair.

If the table is significantly higher, you may need to raise the chair with chair risers although you will then need to use a foot box to support the feet.

Once the furniture is correct, encourage the child to adopt a good sitting posture by sitting well back in the chair with feet flat on the floor and then the chair pulled up close to the table. Ensure that the child is square in the chair and the chair is square to the table.

If the child continues to slump forwards, a sloped seat cushion may help them to sit more upright. The narrow end of the wedge is placed at the front of the seat. Additionally they may benefit from using a sloped writing surface to help them stay upright when drawing, colouring or doing other manipulative tasks. Refer to equipment suppliers Appendix for further information.





Activities to Improve Hand Skills

Fine Motor skills refer to our ability to control our arms and hands in order to handle objects with precision and use tools such as a pencils, crayons and scissors. Handling of objects or toys requires strength as well as coordination and control. Children need to have control at their shoulders and arms before they will have control in their hands and fingers. The following activities will help children to develop their muscles and skills through play. They are by no means exhaustive and are to provide some guidance. Green coloured font indicates easier activities more appropriate for younger children while those in red are more suitable for older children.

Shoulder Control

Activities to help build up shoulder stability include

- Art work on an easel or paper covered wall or fridge. You can incorporate a variety of play positions into this activity i.e. standing at the wall, kneeling at the easel, lying on tummy while colouring or painting a large piece of paper as this encourages shoulder movements rather than just forearm movements.
- Painting a wall outside with water and a large decorators paintbrush
- Climbing on apparatus or playground equipment
- Wheelbarrow walking (be careful of your back for this one)
- Carrying objects such as play crates of toys, an armful of books, moving a chair from one area of the classroom to another, a carrier bag of shopping etc
- Crawling on the floor in games
- Throwing a large ball into an overhead hoop i.e. basketball into the hoop
- Overhead throwing of a large ball i.e. football size with 2 hands or a tennis ball with one hand
- Over and under race – children line up in a queue. The first child passes a football size ball over their head to the child behind who passes the ball between their legs to the next child who then passes it over their head and so on. If this is too difficult just pass over heads.
- Hoop games where the child has to pass a hula hoop over their head and down their body.
- Parachute games – the raising of the parachute above shoulder height is fantastic exercise
- Tug of war
- Carrying objects on a tea tray. If the toys are weighted this will help to strengthen the arms but you may need to start with the plastic tea set etc.
- Egg and spoon race – Early Learning centre has some play sets; alternatively use a large kitchen spoon and a bean bag or similar object until the child builds up some skill.

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Many household activities can help to build up shoulder control i.e. sweeping the floor, stirring batter when cooking, raking in the garden, watering flowers with a wa-

tering can, pulling out weeds in the garden etc.

Arm and Hand Activities

Many of these activities will not be new to you but they should be encouraged on a daily basis, as often children who have difficulty with their hand skills will avoid these activities. They will need encouragement to stick with these activities and will actively avoid them if possible. Initially you will need to keep these sessions short especially if the child does not enjoy this type of activity. Although these will be beneficial for the child, try to keep them fun as this will keep the child motivated.

- Playdough is fantastic – just taking it out of the pot will be beneficial for arm and hand strength. Squeezing, pounding, pulling and rolling with a rolling pin are a good starting place and should be encouraged. Pinching and poking help with more refined finger movements. Using cutters as well as making small figures, shapes or animals require precise hand skills but should also be encouraged. Store bought play dough is great or make some of your own – suggested recipes are included.
- Opening Tupperware containers or screw top jars help with hand strength. Place small interesting toys or sweets inside – we all need some incentives!
- Matching lid game – collect a wide variety of containers with lids – remove all the lids (or get the children to do this). Mix up the lids and get the child to match the lids to the container and screw or push it on.
- Screw toys i.e. nuts and bolts, nesting barrels etc
- In water play squeezing out a sponge filled with water. Use clean plastic squeeze bottles (empty washing up liquid bottles are great) and filled with water encourage the child to squeeze them out. Alternatively use spray bottles (empty spray cleaner bottles are ideal). Have the child spray plants, or the pavement to make pictures or shapes or for an old fashioned water fight (its similar to a smaller water pistol but better for hands that may not be able to use a water pistol).
- Threading – if the child cannot manage with conventional beads and lace try using wooden doweling and penne pasta. The stiffness of the doweling ensures success. Alternatively use washing line, cable, stiff cord or rope and large wooden beads, cotton reels, cut up drinking straws or Cheerios. Initially you need to ensure that the threading object has a large hole compared to the string. This can be reduced as the child becomes more confident and skilled. Some children are helped by wrapping a small piece of sticky tape around the end of the lace to create a longer and stiffer nib which goes into the hole easier. Alternatively place the end of the string into white glue and let it harden.
- Wringing out flannels
- Using an icing bag, fill with icing or custard or similar to make some edible art work. Icing biscuits, fairy cakes or similar can also be beneficial. Alternatively use a small plastic bag with the corner cut off of it. The same could be done with poster paint or glue etc

natively draw a shape on the pavement using chalks and ask the child to cover the shape with water sprayed from the bottle. This will help to develop the concept of colouring in and staying inside the lines. Additionally use the spray bottles for a good old fashioned water fight. These bottles help develop hand skills and may be more successful for children who cannot isolate their fingers sufficiently for a water pistol.

- Using a hole punch to make confetti

Finger Activities

Children who do not have good manual dexterity often do not perceive their hands and fingers as separate parts. They tend to use their whole hand to handle objects rather than just the finger tips and often are unable to move their fingers individually from one another. Finger isolation (the ability to move one finger independently from another) is vital for activities such as picking up coins to place into a money box, hold a pencil properly or the fasten buttons.

For the child who cannot isolate their index finger, use a “magic penny”. This penny is held in the palm of the hand and if it is dropped it will lose its magic. By holding onto something the child can practice tucking up his fingers but it allows him to poke his index finger out.

Early Finger isolation activities

- Pointing to pictures in a book – encourage the child to tuck all of his fingers up in the palm of his hand while pointing, as often small children do not point but poke with their finger (all fingers are held out but the index finger touches the picture or toy).
- Playing with a push button phone (or old fashioned rotary dial phones)
- Poking finger into play dough sausages
- Any push button toy – if the child reverts to using all fingers or uses his middle finger to push the buttons, gently tuck all of his fingers back into the palm of his hand.
- Place a finger puppet onto the index finger and make it “dance” by bending and straightening the finger
- Finger painting either in paint, shaving foam, custard or whipped cream.
- Counting on fingers i.e. holding up index finger for 1; index and middle finger for 2 etc
- Finger songs or action songs that require pointing or isolating the index finger
- Typing on the keyboard using the index finger only

Pincer games

Once the child can isolate their index finger you can progress to games/ activities that require a pincer (using the thumb and index fingers only to handle small objects etc. You may still need to use the “magic penny” to help.

- Picking up small beads to place them into an empty film canister or other container with a small opening. This prevents all the fingers from going into the container. Rather than beads use dried kidney beans, raisins or similar. Make a race out of it by timing the child to see how quickly they can put 10 items into the container.
- Inset puzzles that have the small peg on them
- Wind up toys
- Small pegs into a pegboard. Alternatively golf tees can be put into a

- Styrofoam block or floristry oasis.
- Pinching off small pieces of play dough
- Picking up cubes of cheese (or similar) using a toothpick held with the thumb and index finger only
- Turning pages in a book
- Pegging out the washing using spring opening clothes pegs. This can be the real thing or hang a line between 2 chairs and hang up the dolls clothes. IKEA carry small clothes pegs for small hands.
- Encourage the child to place the clothes pegs around the rim of an empty Pringles container or similar.
- Push pennies, marbles or similar sized objects into a wad of play dough. Encourage the child to pull out the objects one at a time
- Posting pennies one at a time into a money box
- Turning a row of pennies on the table from heads to tails
- Draw small circles onto a piece of paper. With coloured water and an eyedropper the child drops water one drop at a time into the circle
- Have the child crumple up a small piece of scrap paper (tissue or newspaper works best) into a small ball. Scatter the balls on the floor and encourage the child to pick up the balls using the clothes pegs. Use the clothes pegs to pick up other suitable objects.
- Flatten play dough balls between the thumb and index finger
- Plant bean seeds or similar into flower pots
- Ripping paper into strips or ripping random shapes. You may need to start off with tissue paper before progressing onto scrap paper.

Many of these games can be adapted to reinforce the tripod grasp in preparation for holding a pencil. However it is important that you are clear as to which fingers the children are suppose to use and to work only on one grasp at a time. The tripod grasp requires the ring and little fingers to be bent and held in the palm of the hand while the thumb, index and middle fingers are straighter.



General advice to help children develop a dominant hand.

Hand dominance is a vital pre requisite before we can be proficient with “tools”. In the case of children this means pencil, cutlery, scissors etc.

A hand is considered to be dominant when

- it is more skilled than the other hand,
- is used consistently despite the demands of the task and
- it is not dependent on where the objects are placed in relation to the child.

Development of hand dominance can take a period of years and is reinforced through activity rather than verbal (Actions speak louder than words). Most children begin to show a hand preference around 12 – 18 months although some children develop it earlier than this. It generally takes a period of time through exploration before a child develops a hand preference. It then takes time before this is firmly established. The majority of children develop a dominance by the age of 4 years although some children are later than this and with school entry at age 4 this can lead to difficulties.

Common observations to indicate that a child does not have a firmly established hand dominance are:

- the child uses one hand for learnt tasks such as holding a pencil or scissors while changing hands regularly when handling objects or for unfamiliar tasks.
- the child changes hands in the middle of the activity
- the child uses the left hand on the left side of the paper and then changes hands in the middle to complete the drawing on the right side of the paper with the right hand.
- the child changes hands when one hand gets tired.

To help the child

- Position objects used in the middle of the child as the child needs to actively choose a hand to use rather than using the one that is closest to the object.
- Encourage the child to continue to use the hand he started with throughout the activity i.e. if he starts out with the right hand discourage him from swapping hands in the middle of the activity and vice versa
- Encourage activities that require the use of 2 hands i.e. opening Tupperware containers, screw top lids, threading tasks, play dough (taking it out of the container, rolling out, squeezing etc). In addition to helping to develop a dominant hand these activities help with building up strength and stamina.
- Once a child begins to show a preference for one hand actively praise him when he consistently uses that hand.

Pre Writing Skills

We often think that writing skills can only be done with a pencil and paper. However if children are having difficulty holding the pencil, knowing how hard to press and then how to form letters they are less likely to want to persist with this activity, resulting in frustration and giving up. We can maintain their interest in pre writing tasks by using a multi sensory approach. Using different media the child can still draw and imitate shapes. This provides the foundation for learning letter formations. The novelty of this type of activity may hold their attention and motivation for longer periods.

In addition to paper and pencils try using

- Finger paints
- Shaving foam spread on the table top
- Flour or sand spread on the table top
- Chalk on a chalk board
- Chalk on the footpath outside
- Markers on a white board
- Chalk on a carpet tile (the texture provides better feedback and the child can rub off the marks using their hand)
- Paintbrush and easels
- Large decorators paint brush and a bucket of water to draw on the pavement
- Draw in damp sand (either using index finger or while holding a stick)
- Drawing with a crayon on kitchen foil, sand paper or greaseproof paper
- Use streamers to produce “sky writing” - hold the streamers on a stick and draw shapes in the sky. The big movements up against gravity also provide increased feedback.

Developmentally children begin with random scribble, which then becomes more directional i.e. back and forth, up and down or circular. They then scribble in a vertical or horizontal direction before they **imitate** a vertical or horizontal line. Imitation is when the child sees how the line or shape is draw and then they draw the same. Children learn to imitate these lines before they can copy them. Copying is a higher level skill where the child does not see how the line or shape is formed. They only see the end product and have to figure out how to draw it.

Developmentally children learn shapes in this order—the ages are approximate ranges.

Spontaneous Scribble (12– 15 months)

Directional scribble (18 months)

Imitated vertical line (24 months)

Imitated vertical line (30 months)

Imitated circle (33 months)

Copied vertical line (34 months)

Copied horizontal line (36 months)

Copied circle (36 months)

Copied Cross (48 months)

Copied Diagonal line (52 months)

Copied square (54 months)



Scissor skills

Before children can be proficient with scissors they need to have the following pre requisites

- Be able to use 2 hands together in a reciprocal manner i.e. one hand steadies the object while the other hand manipulates it
- Be able to open and close their hand with ease
- Be able to isolate some fingers from the others ie thumb, index and middle fingers work as a unit while the ring and little finger work as a separate unit
- Have a preferred hand although a firmly established hand dominance is better

Before working on scissor skills it is useful to set out some rules for using the scissors. These ensure safety but also help to ensure good habits start from the beginning. Spend some time showing the children these before using the scissors

- The dominant hand holds the scissors**
- The scissors are held with the thumb above the rest of the fingers**
- The scissors point away from the body (not parallel to the tummy)**
- The scissors are held in a slightly diagonal position toward the “helping” hand**
- The scissors and paper are positioned below the shoulders**
- The scissors and paper are held at least 8 – 10 inches from the face. Any closer and they become dangerous.**
- The “helping hand “ does most of the turning and movement of the paper**

When cutting around shapes Right handers should cut in an anti clockwise direction to ensure an unobstructed view of the cutting line. Left handers should cut in a clockwise direction.

Equipment

Initially cutting on thin card is easier as it does not flap around like paper. It is a good way to recycle old cards.

Spring opening scissors may be useful to introduce as these help the child to feel the opening and closing of the blades without effort! These are available from specialise

cialist companies such as PETA although some stationery shops do carry them.

Early Learning Centre used to carry them but have stopped although similar scissors are available from Consortium.

Where to Start

If the child cannot use their 2 hands together in a reciprocal manner

- Encourage 2 hand activities where both hands are doing the same activity i.e. pushing a trolley, pulling on a rope, holding onto a swing with both hands, pushing another child who is sitting on a tricycle, pulling apart play dough etc as well as activities where one hand is doing the activity while the other hand is steadying the object i.e. opening containers, twisting open nesting barrels, threading etc
- If the child is desperate to use scissors, hold the paper for them while they concentrate on the scissors.
- Encourage snipping (opening and closing the blades once) through making a fringe on the edge of paper
- Encourage snipping to cut drinking straws into small pieces or snipping pieces off of a playdough sausage
- Encourage play using kitchen tongs to pick up objects and move them from one container to another
- Start off cutting across a small piece of card—the emphasis is on the cutting across the card rather than along a line



Self Care Skills

Children generally have an independent streak which helps them to acquire self care skills such as feeding themselves, getting dressed and undressed and being toilet trained. However when children struggle with this type of activity they lose their persistence and generally become frustrated by their difficulties. Resulting in poor behaviour or becoming passive. Many of these activities require good postural stability, body awareness and fine motor skills. Therefore work on those areas as well as practising the self care skills.

Self Feeding

Finger feeding begins very early in a child's development. Initially the spoon is used in playing with food as the child is not able to scoop sufficiently to feed himself. With practise the child learns how to place food on the spoon and then take it to his mouth. Once he manages the spoon, he generally has moved onto more solid food and begins to use a fork to push food onto and take to his mouth. Only around the age of 5 or 6 does the child have the coordination necessary to cut with a knife and fork and to coordinate them together. If the child has difficulty coordinating the two sides of his body he will struggle with using 2 pieces of cutlery at a times and therefore encourage the activities as outlined on page 26

- Use a spoon in play i.e. spooning sand, dried rice or lentils from one container to another. Try to correct the child's grasp on the spoon at this time if necessary so he can concentrate on the feeding at mealtimes. Reinforce the movement pattern when playing with buckets and spades at the seaside.
- If beginning to spoon feed at mealtimes, encourage this with foods you know the child likes and especially those that stick to the spoon i.e. yogurt, porridge, mashed potatoes
- If the child has difficulty holding onto the spoon, look for slightly chunkier handled spoons such as the toddler training sets through Mothercare or Boots.
- Practise "stabbing" foods or non foods with a fork in play i.e. playdough peas and feed them to the teddies and dolls.
- If the child's dish moves around while they are trying to load food onto the spoon or fork, use a placemat or damp tea towel under the dish to help steady it.



Paediatric Therapy Department Swindon Borough Council
Compiled in 2010, reviewed and updated 2016

Undressing and Dressing

Generally undressing is learnt first as it is easier to manage compared to dressing. It is essential to look at what the child can do for himself before offering assistance. Begin to work on 1 piece of clothing at a time. The easiest to remove are unfastened shoes, pulling off socks, removing an unfastened coat and pulling down trousers. If necessary help the child using the backward and forward chaining approach on pages 10 and 11. If the child can see the article of clothing and see what their hands are doing it makes it easier. Therefore shirts over the head are far more difficult. Fasteners such as zips, buttons and laces come much later. It is best to choose a time during the day when undressing/dressing is a natural activity i.e. after using the toilet, dressing up in the home corner etc. Practicing dressing first thing in the morning is **never** a good time if you have to be somewhere at a specific time. It can be particularly helpful to encourage the child to undress when there is a motivating reason to do so i.e. for his bath, when putting on shoes to go outside or changing for swimming.

- Concentrate on one piece of clothing at a time
- Encourage undressing first
- Use the table overleaf to check the natural progression for undressing/dressing skills
- Use clothing that is slightly bigger or baggier as this requires less strength—dressing up clothes or older children's clothing can be fun and more motivating for the child
- Encourage undressing/dressing of large teddies or dolls to help with the skills.
- Check out the position that the child is in for undressing/dressing. It might be easier if he sits on the floor or small stool or stands with his back up against the corner of the room. This is particularly useful if the child has balance difficulties.
- Leave extra time so the child does not feel rushed
- Try to minimise distractions and interruptions
-

Socks/Shoes

- Begin with big socks (the ones that are long tubes are best)
- Nylon socks pull on easier although when the foot becomes sweaty they are harder to pull off.
- As the child learns to pull on socks, introduce the socks with the heel section. Initially use socks that have a different coloured heel and toes to the rest of the sock. You can then encourage the child to line up the heel correctly.
- Slippers or slide on loafers are easiest to pull on/off
- Use talc in the shoe to help the foot slide in and out easily
-

Trousers

- Try practicing with shorts first
- Elasticised waists can be helpful but if the child has a button ensure them that you will do that for them
-

Shirts

- Sleeveless or short sleeved shirts are easier to pull on as they have larger arm holes and less fabric to deal with
- Boat necks or V neck shirts are easier to pull on

Fasteners

- Practice unzipping to encourage the use of 2 hands together. If the child has difficulty grasping the small zip, use a key ring or zip pull as this provides a chunkier object to hold onto.
- Encourage the child to pull up a zip even if you have to put the 2 halves together. This again reinforces the use of the 2 hands together.
- Unfastening buttons is easier than doing them up. Unfortunately the buttons on children's clothing are small and usually flat and the same colour as the shirt. All of these factors make it much harder for the child to manage them. To practice replace small clothing buttons with larger buttons that are chunkier and are contrasting colour i.e. red buttons on a white shirt.
- Toggles and chunky buttons are easier to manage and to practise on.

Toileting

Generally when children begin to indicate their nappy is wet or dirty they are ready to begin toilet training. Even a non verbal child will pull at his nappy when it is wet/dirty to indicate a change in his level of comfort.

A toilet routine is important to establish. This will be different for all children and requires nursery and home to work together. Initially you need to keep track of when the child naturally urinates or has a bowel movement. Most children will have a degree of natural cycle. Once you know this you can work with it i.e. if the child primarily has a wet nappy at 10:00 am and again at 12:00 you know he wets sometime between this time and can schedule time to sit on the potty in this time. Some children need to be encouraged to stay seated for a period of time. Diversion sometimes can help i.e. having a book to look at, an adult to stay with them to talk to them about staying seated etc. However, it is important that the child know that they are primarily there to go to the toilet.

If a child has difficulty relaxing on the toilet he will struggle to perform there. If the child has poor balance, try using a small step stool under his feet to give him more stability. Additionally a small toilet seat with a smaller hole may help to stabilise him. Some children find a floor potty more successful as they do not require the same degree of balance and are closer to the floor.

Initially a child will need help to wipe their bottoms, however if a child has difficulty with poor body awareness they will require assistance for longer as they cannot see where their bottom is and do not have a good enough body map to instinctively know where to wipe. Some children are helped by using wet wipes or moistened toilet tissue as this provides greater feedback. It is beneficial to establish good habits following using the toilet i.e. washing hands. Again a small step stool can be useful to help the child reach the taps. Some children are helped by having a picture sequence on the wall i.e. them sitting on the toilet, another picture of them pulling up clothing, one of them standing on the step and turning on the tap etc. This may help to increase their independence to follow a sequence.

Undressing/Dressing

APPROXIMATE AGE

SKILL

One Year

Cooperates with dressing by lifting a leg or arm on request

Takes off hat

Pulls off shoes

Removes socks

Two— Three Years

Removes unfastened coat

Helps push down trousers

Finds arm hole when T shirt pulled over head

Tries to put on socks

Puts on front opening coat

Three—Four Years

Unfastens a large chunky button

Puts on T shirt with some help

Pulls on shoes (may be wrong feet)

Pulls on socks (needs help to put heel in correct position)

Pulls down trousers

Pulls zip up and down without pulling apart

Buttons more than one button

Dresses with supervision

Four—Five years

Pulls off T shirt independently

Pulls on socks correctly aligning them

Puts on shoes with minimal assistance

Five—Six Years

Dresses unsupervised

Paediatric Therapy Department Swindon Borough Council
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Suggested Booklist

Some of these books may be available from your local library. Although they may make specific reference to the term “dyspraxia” they would be helpful for a range of children with coordination difficulties. Additionally they would provide useful information and guidance for a range of associated difficulties such as attentional difficulties, language processing difficulties etc.

The Out of Sync Child, Carol Stock Kranowitz, Skylight Press 1998
ISBN 0 399 52386 3

Praxis Makes Perfect, Penny Hunt (Editor), 1998, Dyspraxia Foundation
ISBN 0-9534344-00

Dyspraxia in the Early Years, Christine Macintyre; David Fulton Publishers, 2001.
ISBN 1-85346-677-8

From Birth to Five Years, Mary Sheridan ISBN — 0-415-16458-3

The Out of Sync Child has Fun, Carol Stock Kranowitz, Berkley Publishing Group,
2003 ISBN 0 399 52843 1

Dyspraxia – Amada Kirby, Souvenir Press 1999, ISBN 0 285 63512 3

Kids in Motion—An Early Childhood Movement Education Program, Pamela Gilroy,
Communication Skills Builder 1985 ISBN—0-88450-923-0

Fine Motor Skills in Children with Down Syndrome, Maryanne Bruni, Woodbine
House, 1998 ISBN 1-890627-03-8

Activities for Fine Motor Skills Development, Teacher Created Materials Inc
ISBN– 0743936892

Pre Dressing Skills, Marsha Dunn Klein Communication Skills Builder 1983
ISBN 0-88450-874-9