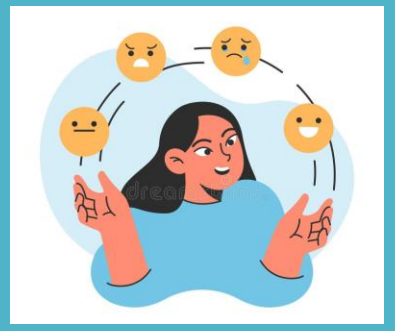


Self Regulation and Executive Function

Parent Get-Together

Aims of our session today

- To understand what executive function is and why it is important
- To understand how to help your child develop self-regulation skills.

Executive Function

Executive function is often compared to a busy

Airport Traffic Control

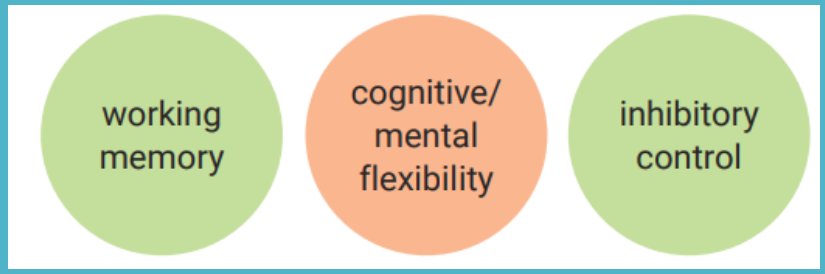
It involves juggling multiple tasks,

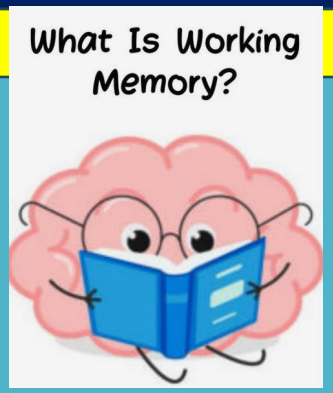
Filtering out distractions and ensuring smooth operations

Executive Function

Executive function is made up of three main elements:

- Working memory (the ability to hold information and use it)
- Cognitive/mental flexibility (the ability to change gears and shift thinking in response to new rules or a change of situation.
- Inhibitory Control (The ability to control thoughts and impulses)





Working Memory

Working memory is one of the brain's executive functions.

Executive functions are the core mental skills that allow us to focus, plan and switch between tasks. Our working memory holds onto new information while working on another task. For example, when learning a new fact in class, working memory allows the child to 'hold on' to that new fact whilst trying to connect it to what they are currently working on. Even if they forget this new fact later on, the working memory has successfully helped them to use that fact at the time.

A strong working memory is also necessary for correctly storing information in the long-term memory.

What are the signs of working memory difficulties?

- Retaining information (for example, when reading a book they are unable to tell you what has just happened).
- Following instructions, especially without missing steps.
- Starting tasks
- Maintaining focus on tasks.

What are the signs of working memory difficulties?

- Tackling multi-step problems
- Applying past learning to current situations
- Multi-tasking
- Following routines
- Planning and organising
- Time management

This list shows some medical conditions or SEN which can impact working memory.

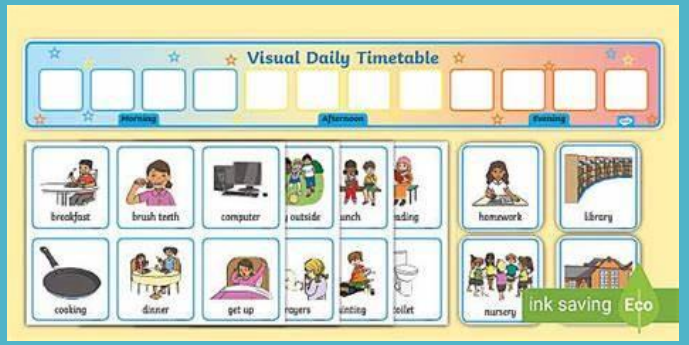
- Dyslexia
- Dyscalculia
- ADHD
- Autism
- Auditory Processing Difficulties
- Speech and Language Difficulties
- Genetic disorders
- Childhood trauma

Supporting a child with Working Memory Difficulties

There are lots of ways that you can support your child to build on their working memory skills.

Both at home and in the classroom your child could benefit from extra support with things that they would usually be expected to remember, such as the daily timetable or routine.

- Display a visual timetable/write things on the calendar
- Now/Next board
- Have materials accessible for them to get out
- Key vocabulary or words displayed
- Instructions or visual instructions



Supporting a child with Working Memory Difficulties

Most people find tasks more manageable and less daunting when broken down into smaller chunks.

A task here could be to do something like "Go and clean your teeth."

This seemingly simple request can be broken down into lots of smaller steps. Think about how many times you have walked into a room and forgotten why you are there.

A child with working memory difficulties may do step one and head up the stairs and then completely forget the rest of the task. Start with a single step- "Go to the bathroom" When that is completed, move on to the next step- "Grab your toothbrush and toothpaste"

Supporting a child with Working Memory Difficulties

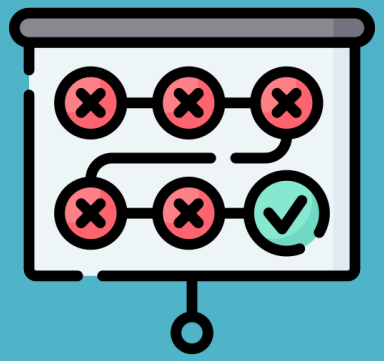
Children are more likely to be able to recall a routine if it is repeated consistently. Having a solid routine in place so that the child knows that there is one less thing to worry about remembering will help them to be able to concentrate that energy on the task in hand.

- **Repeat the same routines at the same time each day.**
- **Asking children to repeat instructions or information back to you.**
- **Repeating key instructions or information.**

Supporting a child with Working Memory Difficulties

We need to give the children the ability to help themselves.

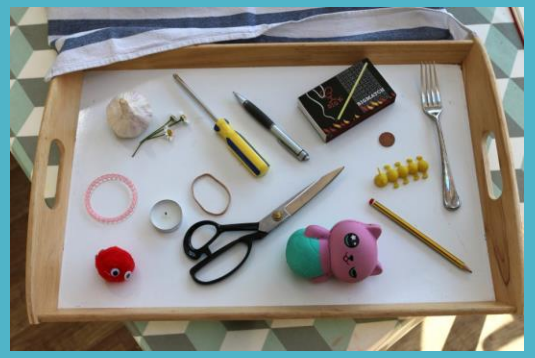
You can encourage and support your child to trial and error a variety of ways to manage their working memory difficulties until they find something that works for them.



- Demonstrate the correct use of the visual aids you are using.
- Work with your child to find a way of organising their belongings in a way that makes sense to them.
- Model strategies for dealing with anxiety around forgetfulness.

Supporting a child with Working Memory Difficulties

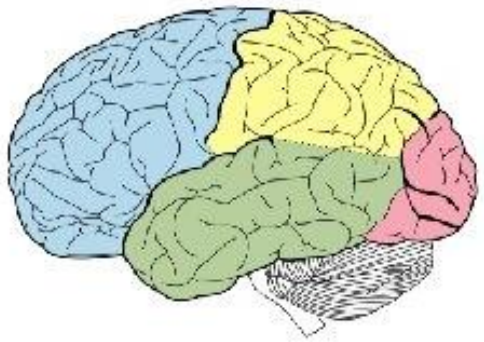
Exercises and games to help improve working memory:



- Simon Says
- Pairs memory game
- Kim's game
- I went shopping....
- Brain breaks- can you....pat your head with one hand whilst rubbing your stomach in a circular motion with another hand or pretend your right hand is a saw and your left hand is a hammer at the same time. These kind of exercises get both sides of your brain working.

Cognitive Mental Flexibility

Cognitive



1. Solving Problems
2. Thinking Critically
3. Connecting Ideas
4. Synthesizing Information

Flexibility

1. Bending
2. Twisting
3. Thinking about things differently
4. Changing approaches when needed

Cognitive Mental Flexibility

Cognitive flexibility is a psychological concept that refers to an individual's **ability to switch between different tasks, thoughts, or strategies**. It involves the mental capacity to adapt and adjust in response to changing demands, stimuli, or environments.

Benefits include:

- Better problem-solving skills- flexible mind helps you to approach problems from different angles
- Improved emotional regulation- being mentally flexible helps you adjust to stressful or unexpected
- situations without becoming overwhelmed. It also helps you to see difficulties as opportunities for growth rather than obstacles.
- Absorbing new information more easily
- Increased creativity- it helps generate new ideas, find solutions, and think outside the box and understand different points of view.
- Greater adaptability to change- better prepared to face life's uncertainties and adapt to new circumstances

Cognitive Mental Flexibility

Ways to help improve cognitive flexibility

- Incorporate the concepts of rigidity and flexibility through play. Practice modelling flexible thinking in fun and silly ways to help your child better understand it.

- Label rigid thinking patterns in a non-judgemental way in yourself and your kids to help them identify them. Helpful talking techniques can include explaining rigidity as a tightly pulled elastic. By contrast, flexible thinking is a loose, flexible elastic. We want to practice flexibility so that we can bend with whatever life throws at us and not break!

- Talk about scenarios that have multiple ways to solve a problem.

- Help your child examine their triggers for rigidity and work to identify them. For example, do they need things done a certain way? Celebrate how those behaviours can help them, but also teach them how to distinguish between helpful versus harmful inflexibility.

Cognitive Mental Flexibility

Ways to help improve cognitive flexibility

- Emphasize that there are different strategies they can try,
- Model skills for flexibility/frustration tolerance in daily activities, and model how you practice cognitive flexibility.

- Reflect on your behaviours that may model rigidity. We all demonstrate rigidity at times! Being patient with yourself and practicing looking at other perspectives will model the learning process for your child.

Inhibitory Control

Inhibitory controls are important in helping to regulate children's behaviour. Specifically, an inhibitory control operates like an early warning system to help protect children and stop them from engaging in behaviours that may be risky or unhelpful. For some children their inhibitory control is inefficient for a variety of reasons. For example, two children may climb up on a high wall in the playground during break, so that they can jump off and have fun. However, the child with the efficient inhibitory control system will realise the wall is too high and not jump off, but the child with the inefficient inhibitory control system will jump off first before realising the wall is too high and injure themselves.

Play-based activities can foster inhibitory control in young children, setting them up for success in school and beyond. Inhibitory control is the ability to resist distractions, manage impulses, and focus on tasks.

Inhibitory Control

Ways to help

- Delaying gratification- learning to wait- in 5 minutes/then in ten minutes
- First, then or now/next knowing when to expect or receive
- Acknowledge progress your child is making- well done you waited for five minutes, well done you put your hand up and waited, amazing you ignored....and focused on your learning
- Verbal social story- steps and expectations that need to go through

- Games such as Simon Says... skipping games, dodgeball are good ways of practising their inhibitory control

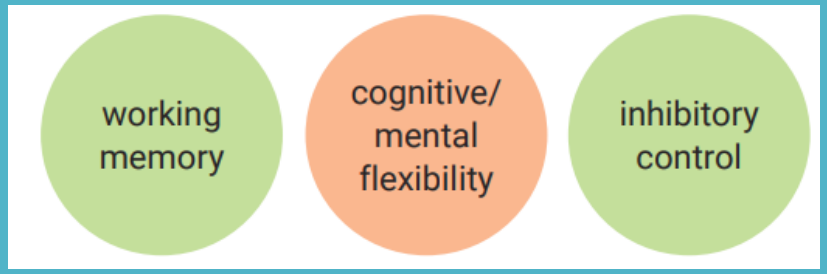
Inhibitory Control

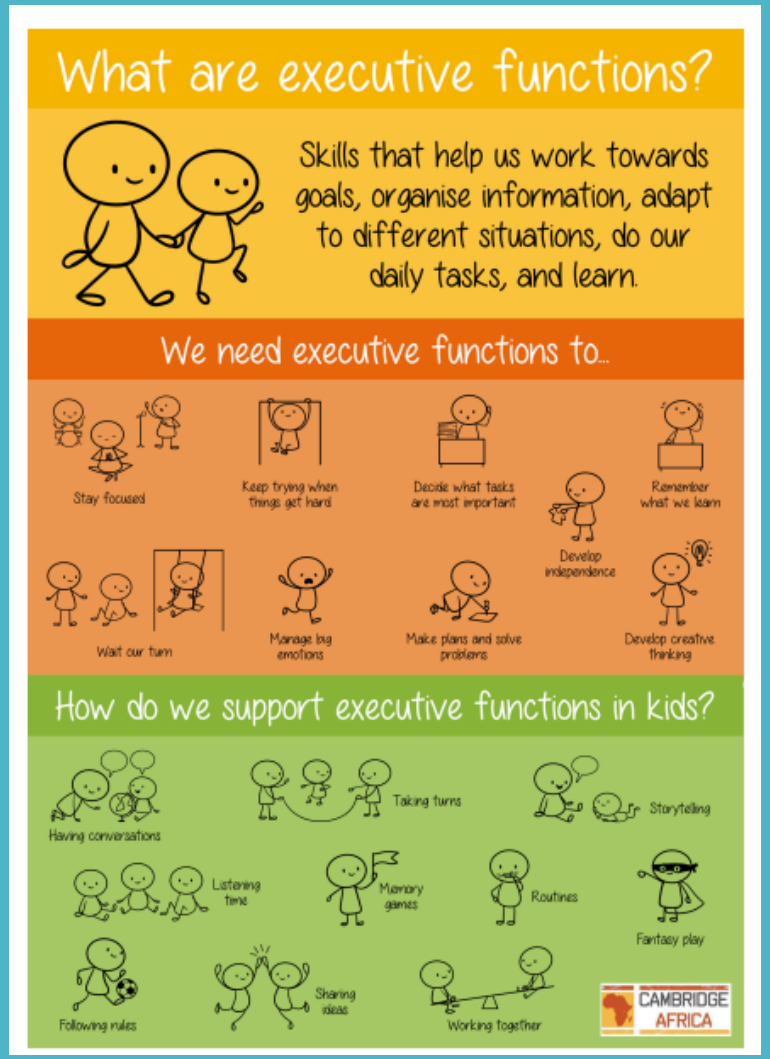
Research shows that increased screen exposure is linked to difficulties in sustaining attention and problems with behavior, making it important for educators and parents to monitor and limit screen use.

For example, most screen platforms allow users to pause and skip sessions that they are less interested in and select content that they enjoy more. This increased accessibility to information allows children to pursue immediate rewards and feedback and, in turn, this increased reward-seeking tendency may further weaken Inhibitory Control development.

Executive Function

Pedagogical approaches like modelling and scaffolding will help children through difficulties in play and develop their patience and reflection. Talking through difficulties that you experience and modelling good practice through these moments helps children to understand how they can do it too.

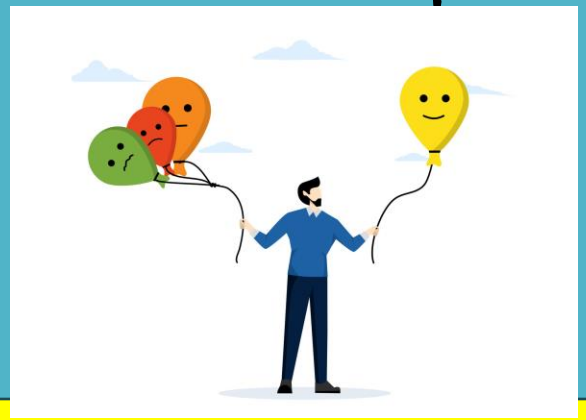




Executive functions lay the foundations- if these are strong then children are more likely to be able to self-regulate.

Self Regulation

"Self-regulation is our ability to regulate or manage our thoughts, feelings and behaviour. Being able to self regulate helps us to remain calm and attentive and helps us to respond, rather than react, in the face of many strong emotions and responses to stressors in life. When a child can self-regulate, they are able to think before they act, self-calm or re-organize when they are met with overwhelming or stressful input." (Mine Conkbayir)



Self regulation might look like:

- walking away from another child that has called them a name, rather than responding by name-calling.
- Persevering with task even though it's difficult
- Taking themselves to a quiet space and taking some deep breaths rather than escalating their emotions through a 'meltdown'.

Self Regulation is not the same as self-control. But Self-Regulation makes it possible for self-control to happen.

Self-regulation builds on children's executive function and helps them to better focus thinking, regulate strong emotions, be patient and overcome difficulties.

Self Regulation

Mine Conkbayir lists 10 attributes of SR

- Managing own feelings and behaviour
- Self-soothing/bouncing back from upset
- Being able to curb impulsive behaviours
- Being able to concentrate on a task
- Being able to ignore distractions
- Behaving in ways that are prosocial (getting on with others and showing empathy)
- Planning
- Thinking before acting
- Delaying gratification
- Persisting in the face of difficulty.

Self Regulation

Our capacity to self-regulate varies from person to person and can depend on a range of factors:

- Genetics
- The presence of any special educational needs or disabilities
- Parenting Styles
- Caregiver support
- Environmental Context
- Age of the child

"Children who struggle with self-regulation skills have difficulty building and maintaining positive relationships, paying attention, following directions, and controlling unwanted impulses, all which impact learning." (Blair and Diamond, 2008).

Self Regulation

"Self Regulation like many elements of learning, is not something that children can do themselves. It is a process that grows out of attuned relationships where the caregiver and child are closely attentive to each other and engage in sensitive, responsive exchanges."

(Birth to Five Matters, Early Years Coalition, 2021:20)

We do not want children to suppress big feelings, but to develop the resilience to "feel" and "deal" with them. (Hughes and Baylin)

Dysregulation shows up in behaviour, mood, attention and physical well-being.

It does not mean a child is misbehaving, but we need to consider is the child feeling unheard, tired, hungry, thirsty, unwell, anxious, finding it hard to concentrate or feeling overwhelmed.

The Five Domains of Self Regulation

Biological Domain

This domain focuses on physical health and wellbeing. Stressors include insufficient sleep, poor diet, sitting still for extended periods, lack of exercise, lack of fresh air, energy levels, illness, pain, sensitivity to certain fabrics, excessive visual stimulation, bright lighting, feeling too hot or cold.

The Five Domains of Self Regulation

Emotional Domain

This domain focuses on a child's ability to monitor, consider and change their behaviour. Stressors affecting this domain include things such as trauma, bereavement, transitions, changes in routine, as well as feeling embarrasses, unwelcome, anxious, depressed or scared. It also includes difficulty in coping with strong emotions such as excitement and anger.

The Five Domains of Self Regulation

Cognitive Domain

This domain involves the mental processes involved in building knowledge, such as paying attention, perception, memory and problem solving. Difficulties in the other domains will impact a child's ability to pay attention. Stressors include- lack of intellectual stimulation, confusion, difficulty concentrating and prioritizing tasks, poor memory and low frustration tolerance.

The Five Domains of Self Regulation

Social Domain

This includes verbal and non-verbal communication, empathy, active listening, managing friendships and overcoming conflict.

Stressors include lack of friends, being isolated or not having anyone to play with, difficulty in understanding social norms and understanding how their own behaviour impacts others, feeling awkward in social situations.

The Five Domains of Self Regulation

Pro-social Domain

This includes the capacity to care about others' feelings and to help them manage their feelings to co-regulate them during times of emotional difficulty. Stressors include: reading others' cues and coping with other people's stress, sharing, telling the truth and knowing right from wrong. It includes injustice, unfairness, expectations of others, being late

The Role of the Adult

Biological Domain

The more energy an individual expends on trying to overcome a stressor, the less capacity they have to be emotionally and cognitively present.

There are 4 neural mechanisms for dealing with stress:

- Fight (hyper-arousal state)
- Flight (hyper-aroused state)
- Freeze (hypo-aroused state)
- Fawn (hypo-aroused state)

Adults can help by:

- Knowing the child and how they are likely to respond,
- Identify and minimize triggers
- Using the child's preferred ways to help them reach a regulated state

The Role of the Adult

Emotional Domain

Very young children need support of an attuned adult to guide them through the overwhelming world of emotions, to help identify where they are coming from, what they are called and how to manage them.

Adults can help by:

- Connecting with the child before trying to re-direct their behaviour.

The Role of the Adult

Cognitive Domain

Children with SEND can find it difficult to exercise cognitive SR. Behaviours such as fidgeting, an inability to sit still or concentrate making learning challenging and draining for these children. As we said earlier 'Executive Functioning' is the management of cognitive processes. Metacognition is a core part of these executive functioning skills, which provide the foundations for all learning. Put simply metacognition means thinking about thinking.

Examples of metacognitive questions a child may ask themselves:

- What do I need to do first?
- Who can I ask for help?
- Can I explain what I have learnt?
- What might happen if I....?
- What did I find difficult?
- How can I improve?

The Role of the Adult

Cognitive Domain

Opportunities for abundant free-flow, child-led play where young children can push their own boundaries, develop reasoning skills, make decisions, release stress and work through difficult emotions are crucial for developing Self Regulation and Executive Functioning skills.

Self Regulation = School Readiness

The Role of the Adult

Cognitive Domain

The Foundation Stage year is more than just about getting children ready for the rest of their school journey. However, what we want for children in their early years of education is to:

- Be prepared to cope emotionally with separation from their parents/carers
- Demonstrate robust social skills with the adults around them and their peers
- Demonstrate some independence in their personal care
- Demonstrate curiosity about the world and their place in it through observing and exploring
- Listen and have sufficient language to express themselves
- Feel safe, secure and cared for and be resilient enough to be able to take risks and find solutions for the challenges they will encounter.

- For some children, these skills will need to continue to be worked on....they are so important for success in life. Research continually shows that children's ability to self-regulate is a stronger predictor of academic performance than IQ.

The Role of the Adult

Social Domain

Humans are born to be social.

Feeling regulated in the social domain includes the ability to read social cues, to know how others are feeling, how behaviour impacts others and how to modify our behaviours.

Some children find it difficult to read emotions from facial expressions or can feel threatened by certain gestures, tone of voice etc and may go into fight or flight mode.

Adults can help by:

Co-regulating

Demonstrating calm techniques that can help a child to cope with and even begin to enjoy such situations.

The Role of the Adult

Pro-Social Domain

Humans are born to be social and connect

When a child is living with stressors they may develop behaviours such as shouting, disrupting, fighting, but if a child is continually reprimanded without any connection and the root causes are not addressed these behaviours will increase.

A dysregulated child is often seen as "challenging" or "naughty" or as having a "tantrum". We need to think about the child's psychological state of mind to support them to regain equilibrium. Dysregulation happens to us all. When an adult finds it hard to self-regulate a child will often imitate behaviours.

Co-regulation

Perry, Shanker and Murray et al explain that:

"Co-regulation is defined as warm and responsive interactions that provide the support, coaching, and modelling children need to understand, express and modulate thoughts, feelings and behaviours."

If provided consistently from birth, co-regulation helps to build our tolerance of physical and emotional discomfort while building resilience. Two key enablers of CR within the security of strong relationships are:

- The rich language used by the adult with the child
- Ample opportunities for play

Co-regulation

Bruce Perry's Three R's- Reaching the learning brain

1. **Regulate-** first soothe and reassure the child in order to calm their fight or flight response. Stay close by, speak in a gentle tone, breathing techniques- let the child know they are seen, heard and understood
2. **Relate-** By acknowledging feelings in the moment- I can see you're upset now and I'm here for you...it validates their emotions
3. **Reason-** Once the child feels calmer we must seek to understand what happened and talk through alternative ways of behaving- helping to build SR skills and help to de-escalate future instances of dysregulation.

Co-regulation
Parent guide

In toddlerhood you need to:

- Teach age-appropriate rules and expectations
- Support children to label and express their emotions ("Name it to tame it")
- Model waiting and self-calming strategies
- Redirect the child's attention to help regulate their behaviour

Co-Regulation
Parent guide- EYFS

- Coach children through identification of solutions to simple problems
- Acknowledge the efforts made by children when trying to self-regulate. Labelling exactly what they did can be very powerful in helping them to remember and use the strategies again in the future
- Coach/break down the rule-following and task completion, using your knowledge of the individual child and their dispositions to help you. Remember all children are different-what works for one may lead to frustration in another
- Model, prompt and reinforce self-calming strategies like taking deep breaths, doing some simple stretches or mindfulness activities.
- Provide external structures for calming down- including a cosy or calm down space

Interaction and Play

Some examples of play experiences that are commonly used to aid the development of SR skills include:

- Board games
- Puzzles
- Drawing/colouring
- Musical Chairs
- Traffic lights
- Musical statues
- Follow my clap
- Breathing exercises
- Making and playing with playdough

Video Clip

What did we see?

Case Study- Taken from a Blog by Lauren Grocott (EYFS Specialist)

Sam, a child who recently started pre-school, sometimes takes toys he is interested in from other children. Sam apologises quickly when the other child reacts. This is something his parents have taught him to do. They explain that he has not had many opportunities to play with other children before starting pre-school.

Many young children have one or two 'go to' approaches to solving problems. Some children may default to pushing, snatching, crying or shouting. Until they are taught something different, their brains will 'default' to these strategies.

Case Study

Leah, Sam's key worker, knows a variety of tools that she could use to help Sam- scaffold conflict resolution, or implementing sand timers or waiting lists for popular resources.

One day, Sam is in the sand tray and he wants the big spade, but someone else is using it.

What can Leah do to help Sam inhibit his impulse to take the spade?

Case Study

1. Shift his attention from the spade by holding her hand out and using his name.
2. Remind him of their strategies for taking turn-e.g. timers, waiting list
3. Giving Sam two solutions that align with his goal

Sam decides a large bucket is a good substitute tool to use to build a sandcastle and selects one from the shelf.

Case Study

The reality of working with young children means the process may not always be this straight forward.

However, with each attempt, we help to create and reinforce new pathways and connections to children's brains. With practice and experience, some of these could become their new default.

At our school we offer:

- Visual timetables- highlighting when something is different- recognizing we may feel excited etc how we will manage that
- Calendar
- Moving to a more neutral coloured, calm environment to reduce cognitive load.
- Feelings Area with fidgets, mirrors, picture books, emotion cards/visuals
- At school we use Zones of Regulation- how can we get back to green?
- Ample of opportunities for child-initiated play in Foundation Stage
- Supporting children with waiting-use of sand timers
- Mindfulness Monday- linked to picture books- labelling emotions, acting out emotions, what helps us to feel better/calmer/happier? Strategies and mindfulness techniques- through breathing and movement, responding to music. Self Regulation skills- managing big emotions- losing at a game, finding something difficult

At our school we offer....

- Circle Times- role-playing different scenarios- puppets
- Seeing things from different perspectives- putting ourselves in other people shoes
- Limit transition times throughout the day- reflecting on other ways to limit sitting still etc.
- Think carefully about transition to Year One

At our school we....

- Support children with regulating thoughts and behaviours to take turn.

  - Clarifying what the child wants (ie: a turn of the tricycle),
  - Modelling language and strategies to communicate their wants with others (such as asking for a turn when their friend has finished),
  - Supporting them while waiting (for example, redirecting their attention or using sand timers).

Questions

Further Reading and Links

EEF | Self-Regulation and Executive Function

How to empower parents to support children's self-regulation… | EEF

PEDAL Seminar: Self-regulation – Foundation skills for children's healthy development - PEDAL

Enhancing-and-Practicing-Executive-Function-Skills-with-Children-from-Infancy-to-Adolescence-1.pdf