



Sensory processing Strategies




Our senses

- Tactile - Touch
- Auditory - Sound
- Olfactory - Smell
- Gustatory- Taste
- Vision
- Proprioception
- Vestibular
- Interoception



- ▶ People who have difficulty processing sensory input require regular sensory information (**sensory snacks**), to help the brain organise and understand the sensations.
- ▶ Similar to feeding the body nutritious foods multiple times a day we need to ‘feed’ our sensory systems as well.
- ▶ Strategies need to be implemented consistently and in all environments.



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- ▶ **EVERYONE** who is involved with the pupil needs to implement strategies in order to get the best outcomes
 - ▶ There is no medication or cure however we can make changes which can improve sensory processing and the pupil's ability to engage in daily occupations

PROPRIOCEPTION

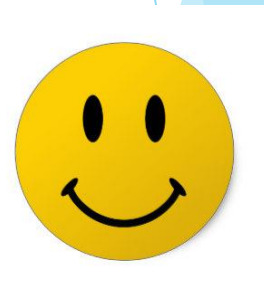
The sense that helps a child with body awareness is known as proprioception.

Proprioception - Your new best friend

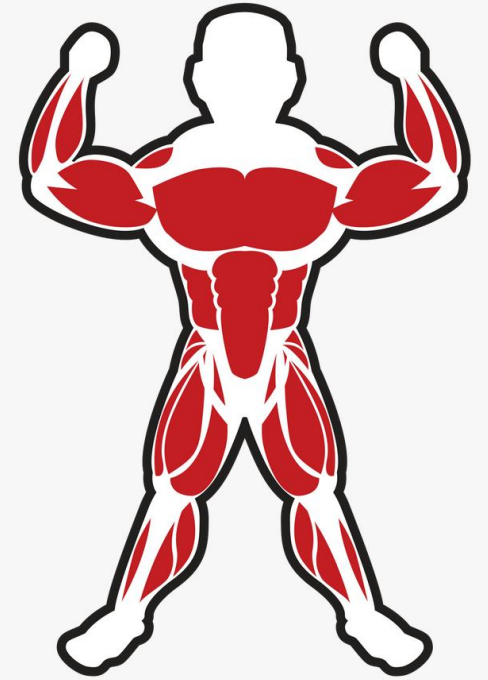
- ▶ We use proprioceptive activities for sensory seekers and to increase processing in this area (e.g. poor body awareness)
- ▶ Great sense in helping to achieve “just right” levels of alertness
- ▶ Essential for pupils who have sensory defensive behaviours especially tactile (touch) - the proprioceptive system overrides all other sensory systems



- Helps the brain to organise and make sense of the information gathered from all of the body's senses
- Calming effect on people who are sensory seekers or have difficulty processing sensory information
- Increase endorphin levels (happy hormones) and decrease heart rate and blood pressure (indicators of anxiety and stress)
- Release of serotonin and dopamine - "happy" neurotransmitters that produce a feeling of calm within the nervous system
- Should be used throughout the day on a consistent, regular basis



Proprioceptive activities use the big muscles of the body. Activities that are heavy, resistive and repetitive are great sources of proprioceptive input.



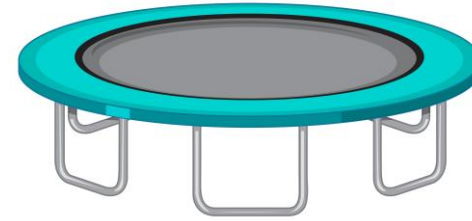
Examples of Proprioceptive activities

Indoor activities

- ▶ Bounce on a therapy/fit ball
- ▶ Pinch, roll, squish, squeeze, push, poke and pull playdough, plasticine or theraputty
- ▶ Stress ball
- ▶ Sit on a bean bag
- ▶ Chair push-ups
- ▶ Table pushes
- ▶ Give big hugs
- ▶ Massage
- ▶ Resistance bands
- ▶ Wear a weighted backpack between class
- ▶ Weighted lap pad



Outdoor activities



- ▶ Jump on a trampoline
- ▶ Running
- ▶ Kicking a football or catching and throwing different balls (heavy ones are great e.g. basketballs)
- ▶ Obstacle courses
- ▶ Ride a bike
- ▶ Gym equipment
- ▶ Sensory circuits



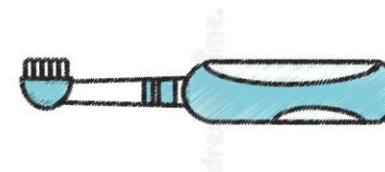
Proprioception and the power of the mouth

- ▶ When chewing, blowing, sucking you use the small muscles in the mouth which provides intense proprioceptive input
- ▶ This input is organising to the nervous system



Oral Strategies

- ▶ The mouth can be over or under responsive. These strategies work for both.
- ▶ Cheek massage - using two fingers on each cheek massage in small circular movements moving from the cheek bones down to the corners of the mouth.
- ▶ Using the index finger press firmly above the top lip, move slightly to one side and repeat, continue doing this until you have gone round the outside of mouth.
- ▶ Use electric toothbrush for cleaning the teeth



Oral Strategies

- ▶ Crunchy or chewy snacks/food. Foods could include carrots, apples, crackers, breadsticks, cereal bars etc.
- ▶ Sip/suck water from a water bottle or use a thin or curly straw. Try drinking thicker liquids through a straw e.g. milkshakes, yoghurt or even jelly.
- ▶ Blowing/sucking games e.g. whistles, bubbles, harmonica, blow football, sucking a cotton wool ball up to move using a straw
- ▶ Chewy items such as Chewy tubes, Chewelry or Chewy gems



Vestibular

- ▶ We use vestibular activities for sensory seekers and to increase processing in this area (e.g. poor balance and coordination)
- ▶ Can help to achieve “just right” levels of alertness
- ▶ Pupils with poor vestibular processing can exhibit aggressive and emotional behaviour following vestibular activities and there can be a delay in this so keep an eye on this!

Linear activities

Linear input tends to be calming if it is slow and rhythmic. This movement is back and forth or up and down. Activities include;

- ▶ Rocking in a rocking chair
- ▶ Slowly bouncing on an exercise ball
- ▶ Lying on an exercise ball on tummy and roll slowly back and forth
- ▶ Swinging in a hammock swing
- ▶ Gently rocking side to side or forwards and backwards
- ▶ Swinging on a swing
- ▶ Going on a See saw

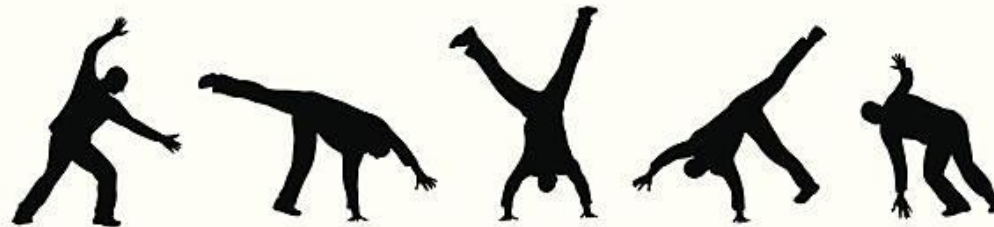


Rotatory activities

Rotatory input is fast and variable and can be excitatory.

Activities include;

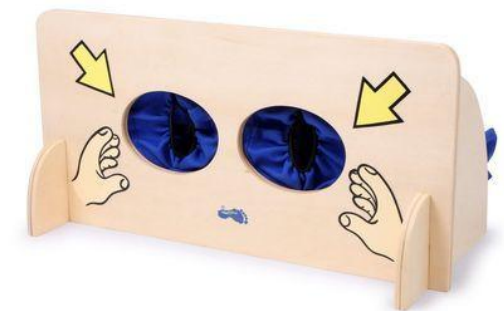
- ▶ Stand and spin on the spot
- ▶ Go on a roundabout
- ▶ Swings that go in a circular motion
- ▶ Log rolls
- ▶ Cartwheels
- ▶ Roly Poly's



- ▶ A lot of the activities we discussed in proprioception also have a vestibular component e.g.
- ▶ Sitting and bouncing on a therapy ball - this gives proprioceptive input through the legs but also provides linear vestibular input if done slowly which can be calming
- ▶ If you complete vestibular activities such as spinning, rolling etc always follow with proprioceptive activities to help regulate the body.

Tactile

- ▶ Tactile activities - which may include water, sand, different types of textured items
- ▶ Theraputty - hide things in the putty to find
- ▶ Play dough
- ▶ Rubbing different textures against the skin
- ▶ Handling different textured objects e.g. rough and smooth
- ▶ Feely box - a box with different textured objects or different shaped objects inside
- ▶ Water play
- ▶ Experimenting with different temperatures e.g. water at room temperature, slightly cold or warm etc.
- ▶ Messy play e.g. papier mache, finger painting etc.
- ▶ Wash hands using different types of soaps and scrubs
- ▶ Poppits
- ▶ Pop bubble wrap
- ▶ Compression clothing



Olfactory

- ▶ Use oil burners with different essential oils

- NB. Start off with softer smells e.g. lavender, rose etc. as these are known to calm. Stronger smells e.g. lemon, peppermint etc. are typically associated with alert behaviours and need a very gradual introduction.

- Aromatherapy oils such as lavender, basil, or chamomile can help calm and reduce stress.

- Rosemary, eucalyptus, lemon, and orange can promote concentration. Some people find that certain smells help with organizing and calming

- ▶ Potpourri

- ▶ Scented playdough

- ▶ Scented markers

- ▶ Massage with scented creams

- ▶ Cooking and explore the different smells



Auditory

- ▶ The use of music can be a powerful tool. Varying rhythms and beats can excite or calm. Different types of music should be tried and observation responses noted. Music can then be added into the daily routine to excite or calm as required.
- ▶ Background music for focused activity e.g. music with a regulating beat 50-70 beats per minute
- ▶ Listen for birds or animals
- ▶ Fill containers with rice or pasta to shake
- ▶ Rainmaker toys



Visual

- ▶ Kaleidoscope
- ▶ Dark tent
- ▶ Lava lamp
- ▶ Ocean waves on a projector
- ▶ Organise beads according to colour

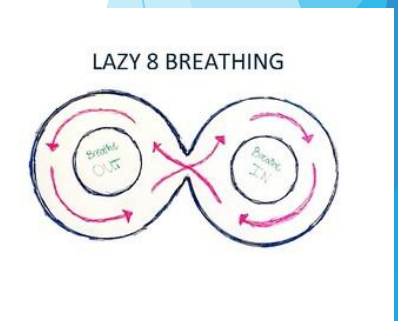
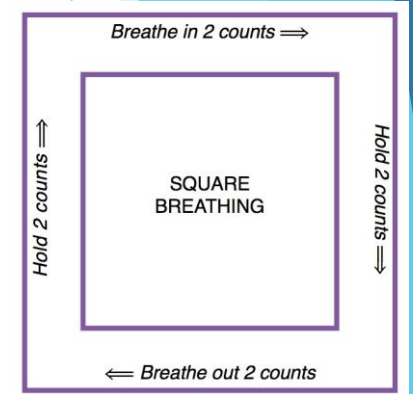


Breathing

- Breathing is a very powerful activity and it helps the body get back to a calm state
- It is important in our ability to pay attention because oxygen is delivered to our brain.
- Practice specific breathing exercises e.g. square breathing, belly breathing, lazy 8 breathing
- Blowing games e.g. blowing through straws (feathers, pom poms, ping pong balls), blowing bubbles, bubble volcano, blowing up balloons, blowing paper windmills



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- ▶ Pupils who are in a high state of alertness -
Need calming sensory information. Think deep pressure touch, proprioception, mouth and linear vestibular
- ▶ Pupils who are in a low state of alertness-
Needs alerting sensory information. Think rotatory vestibular, proprioception and mouth.

Equipment found in classrooms



Trampette



Fidgets



Chews



Disco



Move'n'sit



Ear defenders



Body sock/
Dance sack



Theraputty



Weighed
Blanket



Weighed lap
pad



Exercise ball



Peanut
ball



Zuma
chair



Theraband



Cushtie
cushion



Vibrating cushion



Bear Hug

Weighed
Compression
Vest

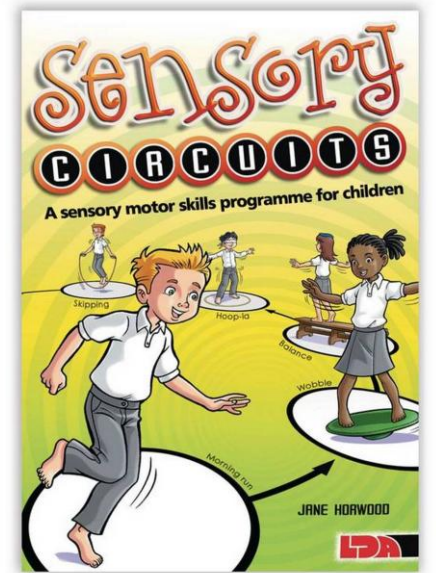


Vibrating
massage tube



Sensory circuits

Sensory circuits encourage **self-regulation (to achieve a calm alert state)**, help to **manage anxiety** and increase and/or decrease sensory **arousal levels** to assist with **focus, attention** and **learning**. Sensory circuits can be completed at the beginning of the day or after lunch to help learning occur. Sessions can last for approximately 10-20 minutes.



Circuits should be physical and fun activities. There are three elements to the circuits; the order is very important.

1. Alerting – This section uses proprioceptive and vestibular input to prepare the brain for learning
2. Organising – This section helps the student to organise their body, plan their approach and do more than one thing at a time in a sequential order
3. Calming – This section ensures the student leaves the circuit in a calm yet alert state ready for learning

Sensory circuits

▶ Proprioception

Proprioception is a sense where joints and muscles provide and send feedback to our brains whenever we move enabling us to use and grade force required to complete activities. Proprioceptive activities help people to feel calm, grounded and can help with concentration and focus. It can also support our body awareness and overall confidence.

▶ Vestibular

Fluid filled canals and organs in our ears contain receptors which pick up on directional movement and send this information to the brain.

Rhythmic, slow, rocking and bouncing movements provide vestibular stimulation which can be calming.

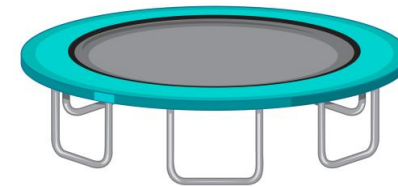
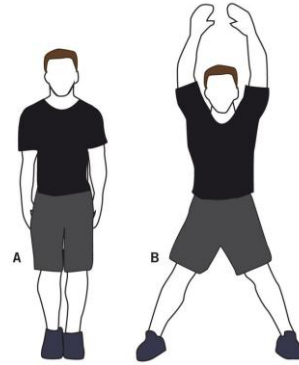
Sudden, quick and fast movements provide vestibular stimulation which can be alerting.

▶ Oral Motor

We can use our breathing to help us regulate.

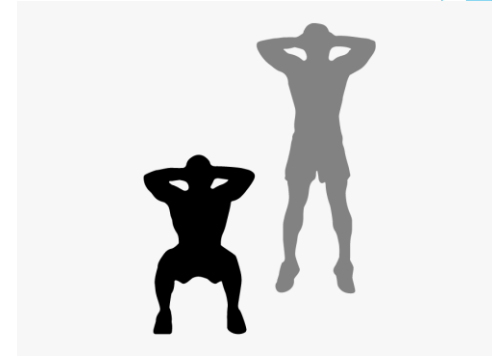
Alerting

- ▶ Star jumps
- ▶ Running on the spot
- ▶ Running- high knees
- ▶ Running to and from set points
- ▶ Stride jumps (same arm and leg)
- ▶ Spinning on the spot
- ▶ Bouncing on mini trampette
- ▶ Skipping
- ▶ Battle ropes



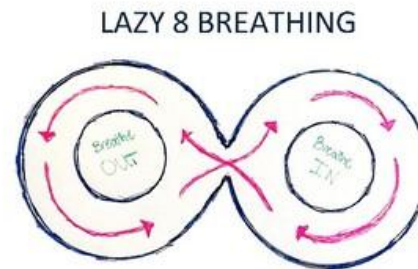
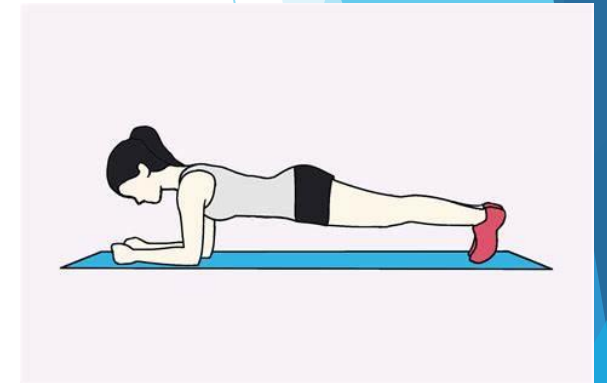
Organising

- ▶ Squat jumps
- ▶ Balance walking along a line
- ▶ Throwing to target
- ▶ Wobble board/Bosu ball – stand and balance. If able to, throw and catch a ball whilst balancing
- ▶ Skittles
- ▶ Theraband exercises
- ▶ Therapy ball exercises



Calming

- ▶ Yoga
- ▶ Wall push
- ▶ Plank position
- ▶ Chair push-up
- ▶ Blowing bubbles
- ▶ Square breathing or lazy 8 breathing
- ▶ Lying on a beanbag
- ▶ Lying under a weighted blanket
- ▶ Isometrics



- ▶ Prior to participation in a sensory circuit, you should consider the pupils arousal needs. Do they need to work on increasing or decreasing levels of alertness. Pupils who are low arousal will need to do faster movements for longer. Pupils who are high arousal might need to avoid fast movements and focus on repetition and holding of positions. Pupils who need to get more organization typically need more structure so you may get them to count their movements.
- ▶ Keep the sensory circuit fun and interesting. You may want to change the activities once every half term or termly for variety.



SENSORY OVERLOAD/SELF REGULATION

- Do not push the student past his/her limit - look for the warning signs and try to leave the situation or take a break from it
- Do proprioceptive exercises before returning to the situation
- Sensory survival bag - containing objects that help the student deal with challenging situations e.g. a stress ball, fidget toys, theraband, MP3 player, ear defenders, etc.
- 'Sensory retreat' - somewhere to go to unwind if feeling overwhelmed - calming environment e.g. in the dark, heavy blankets, soft music etc.

SENSORY OVERLOAD/SELF REGULATION

- Allow wind-down time after the student has been in a stressful situation.
- Where possible have clear routines and use visuals
- Make the environment as predictable and consistent as possible
- Prepare the student in advance for any changes
- Introduce changes slowly if possible
- Use slow, rhythmic, repetitive activities to calm.

Is it sensory or is it behaviour?

- ▶ Some pupils present with behaviours that are labelled as sensory when in fact they are not.
- ▶ If the behaviour has a sensory base to it the strategies we have talked about should have a positive impact on these
- ▶ Remember just because a pupil enjoys a sensory experience doesn't mean they are "sensory"
- ▶ Be consistent in implementing strategies - on a good day and on a bad day

Zones of regulation

Leah Kuypers, MA Ed. OTR/L







- ▶ Identifies feelings, energy and levels of alertness
- ▶ Know what regulation tools work and when/how to use them
- ▶ Understand the social context as it relates to regulation and goals
- ▶ Problem solve positive solutions
- ▶ AND ultimately move towards independent regulation and well-being

FOUR ZONES DESCRIBE

- What we are feeling on the inside

The **ZONES** of Regulation®

			
BLUE ZONE Sad Sick Tired Bored Moving Slowly	GREEN ZONE Happy Calm Feeling Okay Focused Ready to Learn	YELLOW ZONE Frustrated Worried Silly/Wiggly Excited Loss of Some Control	RED ZONE Mad/Angry Terrified Yelling/Hitting Elated Out of Control

The Zones categorizes states of alertness and emotions into four coloured zones:

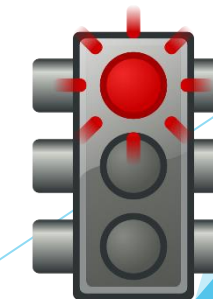
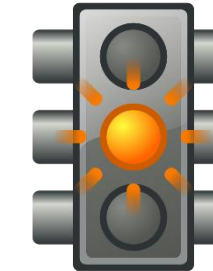
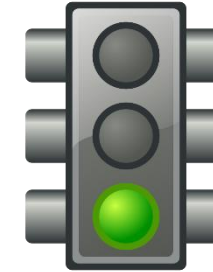
The Blue Zone - used to describe low states of alertness such as when we feel sad, tired, sick or bored. When our body and/or brain is moving slowly or sluggishly

The Green Zone - used to describe a regulated state of alertness. A person may be described as happy, calm, focused or content when in the Green Zone. This is the zone students generally need to be in for schoolwork and being social. Being in the Green zone shows you are in control

The Yellow Zone - used to describe a heightened state of alertness; however, a person has some control when in the Yellow Zone. A person may be experiencing stress, frustration, anxiety, excitement, silliness, nervousness, confusion and many more slightly elevated emotions and states when in the yellow zone (such as wiggly, squirmy or sensory seeking). The Yellow zone is starting to lose some control.

The Red Zone - used to describe extremely high states of alertness or very intense feelings. A person may be experiencing anger, rage, panic, terror, devastation or elation when in the red zone. Being in the Red zone can best be explained by not being in control of our own body.

- ▶ The Blue zone is like a blue rest area where you pull over when you're tired and need to recharge...
- ▶ The Green Zone is like a green traffic light - you're ready and good to go
- ▶ The Yellow Zone is like an amber traffic light - it's a warning to slow down and think
- ▶ The Red Zone is like a red traffic light - you need to stop and regain control



Key principles of the Zones of Regulation

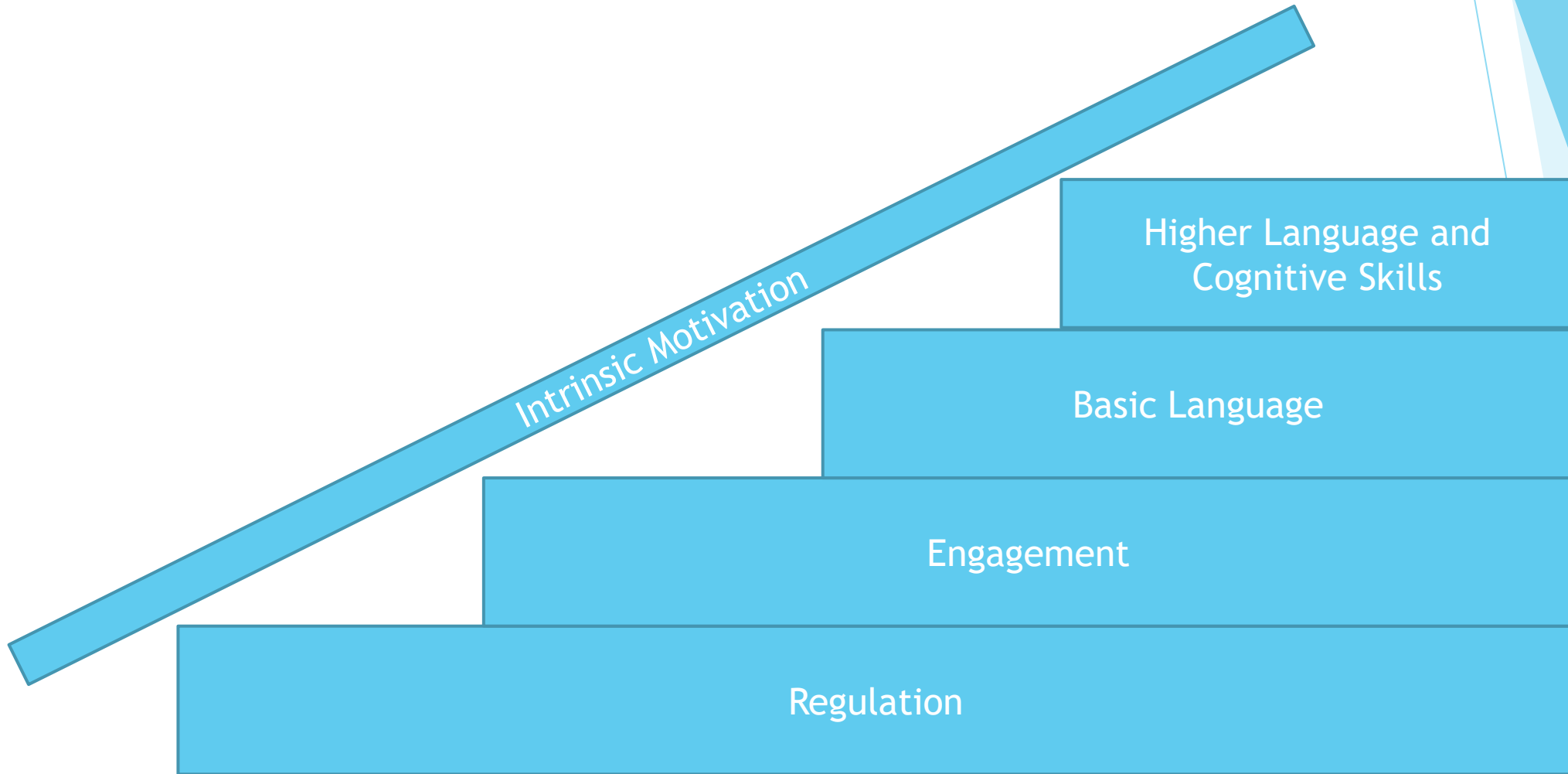
- ▶ Zones are based on feelings, not behaviours
- ▶ All the zones are OK
- ▶ The Zones is not a compliance based model
- ▶ The green zone is not the goal
- ▶ How we teach the zones matters

Zones of regulation pathway

- ▶ Notice
- ▶ Identify zone
- ▶ Decide
- ▶ Regulate
- ▶ Reflect



Regulation comes first!



House analogy



Downstairs brain - reptilian or primitive brain. The instinctive part of the brain.
Innate responses such as fight/flight/freeze

-Produces strong emotions such as anger and fear.

- When viewed as a house it is where all necessities of living occur, the kitchen, laundry, dining, living room and bathroom

Upstairs



Downstairs

The upstairs brain - significantly more sophisticated than the downstairs brain. This part of the brain is responsible for higher order thinking and planning, imagining, analyzing, problem solving and sound decision making. When this part of the brain is working well we are able to utilize self-understanding, empathy and morality as well as consider consequences and think before we act.

- When viewed as a house, the upstairs brain can be imagined as a light filled, airy, second storey study, library or bedroom filled with windows and sky lights, enabling us to see the world more clearly.

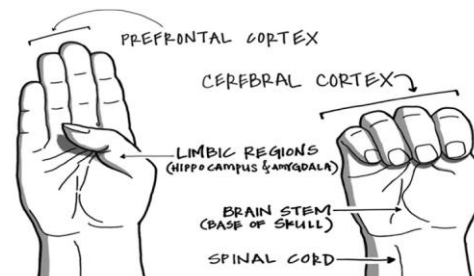
- The upstairs brain does not reach full development until our mid-twenties and thus this upstairs level of our house remains under constant construction and renovation



- ▶ In times of high emotion and stress we find ourselves being trapped in the downstairs , unable to access the logic and considerations of the upstairs. When the amygdala senses danger, it can overrule the upstairs brain and take over, enabling us to act before we think, a highly useful survival response.
- ▶ In normal everyday life however, when we are not in mortal danger , acting before we think is not always the best to proceed and can result in what Dan Siegal refers to as ‘flipping our lids’

Flipping Your Lid

Hand Model of the Brain




Self-Regulation

- ▶ Self means you or me. Regulation means the process of being in control or to have management.

Self-regulation therefore means you or me being in control and having management of ourselves.

- ▶ This is a skill and can be difficult for some people. Throughout the day we encounter multiple situations and circumstances that require an awareness of our self and others and the ability to have or to gain self-control



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- ▶ Self-regulation is the ability to attain, maintain and change our arousal level, emotions and behaviours.
 - ▶ We can use regulation tools or strategies to impact arousal so we can appropriately and efficiently respond to the demands of a given task
 - ▶ One of the most important steps of self-regulation is having the awareness that something is ‘off’ and we need to do something physically, emotionally or cognitively and that a change must happen.

Tool Kit

Once students are able to understand what zone they are in they can start to develop a tool kit

Students learn and practice tools to help them regulate to what zone they are in

Example of what a tool kit may look like

Blue Zone	Green Zone	Yellow Zone	Red Zone
Bounce on a therapy ball	Movement breaks	Pull on a resistance band	Go for a run
Have a crunchy snack	Fidget toy	Use hand weights	Do some boxing
Drink some cold water	Bounce feet on resistance band round the chair legs	Go for a walk with a backpack on	Deep breathing
Go for a run	Drink from a sports bottle	Yoga	Something sour or crunchy to eat
Talk to some-one	Finger presses	Go to a quiet space with a soft or weighted blanket	Massage

Strategies you could use in the blue zone

- ▶ Jumping up and down
- ▶ Log rolling
- ▶ Go for a walk with a weighted backpack on
- ▶ Spinning on a computer chair
- ▶ Open a window or use a fan
- ▶ Crunchy/chewy snack
- ▶ Drink through a straw or sports bottle
- ▶ Listen to lively music

Strategies you could use in the yellow zone

- ▶ Colouring/Drawing
- ▶ Trampoline
- ▶ Bouncing on the ball
- ▶ Counting back from 5
- ▶ Deep pressure
- ▶ Press-ups
- ▶ Sit-ups
- ▶ Yoga positions
- ▶ Chin up bar
- ▶ Wall push
- ▶ Chair push-up

Red zone/crisis tips

- ▶ NOT the time to teach new skills
- ▶ Pre-teach/Over learn Red zone tools
- ▶ De-escalation training and strategies
- ▶ Don't force learners to check-in with zones
- ▶ Use YOUR tools
- ▶ Give them time and space
- ▶ Use zones during restorative conversations/processing later

QUESTIONS

