Arbour Vale School

Sensory Processing Training

Tuesday 23rd January 2024

Presented by Lyuba Kisel

Everybody has sensory needs…

- People will actively seek and/or avoid sensory experiences:
    - Dry rough towels on the line
    - Squeaky balloons
    - Nails on a blackboard
    - Knives on plates
    - Blanket comforter
    - Smell of Suncream

A day in the life of

‘Can you make it to the end?’

What is sensory Integration?

- Normal neurological process of organising sensation for use in everyday life
- If there is a problem with the way a child processes this sensory information then this can result in delays in development and can be extremely uncomfortable for the child
- This can make it really challenging for the individual to remain focused

SPD formerly called sensory integration Disorder is a condition where the brain and nervous system have trouble processing go-

Describe Sensory Processing Disorder

"a neurological disorder that is like a virtual traffic jam in the brain. The information from all eight senses is misinterpreted which causes a child (person) to often act inappropriately."

October is Sensory Awareness month

Understood.com

Not just ASD!

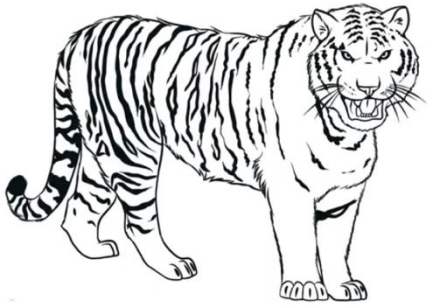
Other children without a diagnosis of ASD **can** have sensory processing integration difficulties

Cerebral Palsy, Fragile X Syndrome, visual difficulties, Down Syndrome, ADHD

But what does SPD look like?

- Your brain is designed to do 2 things- keeping yourself safe and to learn
- Our natural primitive “fight or flight” instinct is what keeps us safe
- In order to learn the brain will take in information from all the senses and process this information for us to learn from

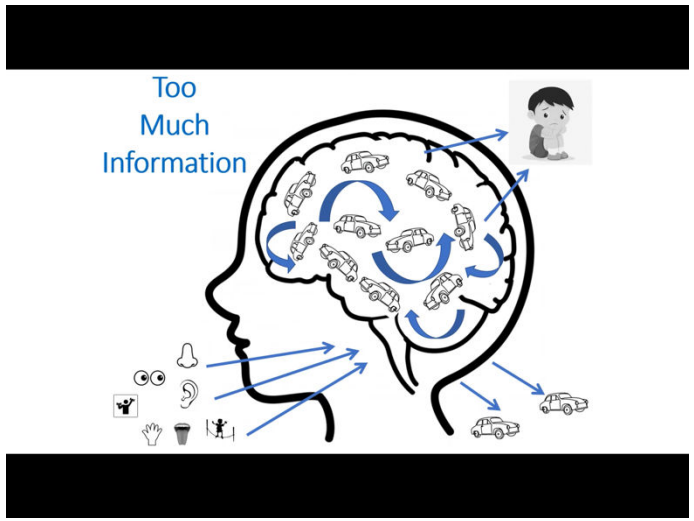
The Job of the Brain

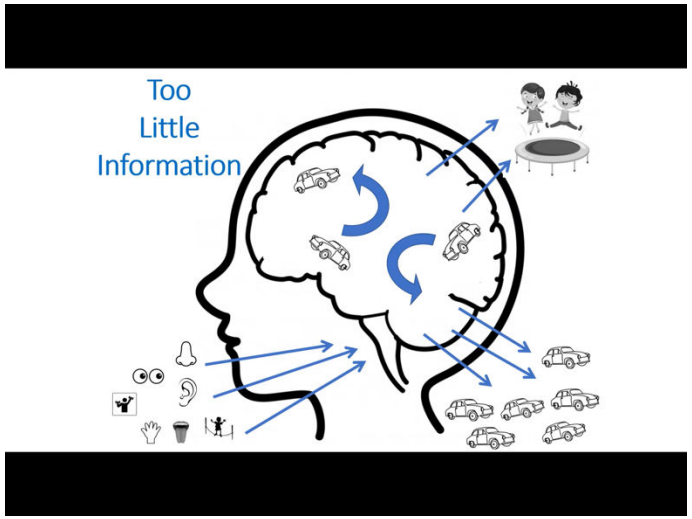


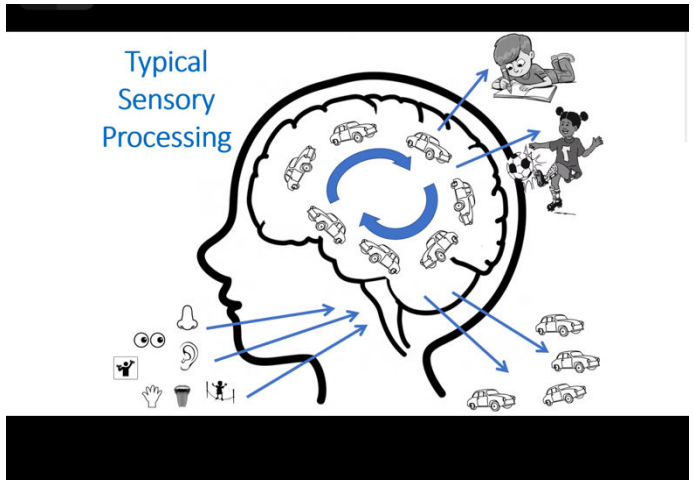
1st – Keep us safe!

2nd – To learn

In order to do this the brain needs a range of appropriate sensory information.



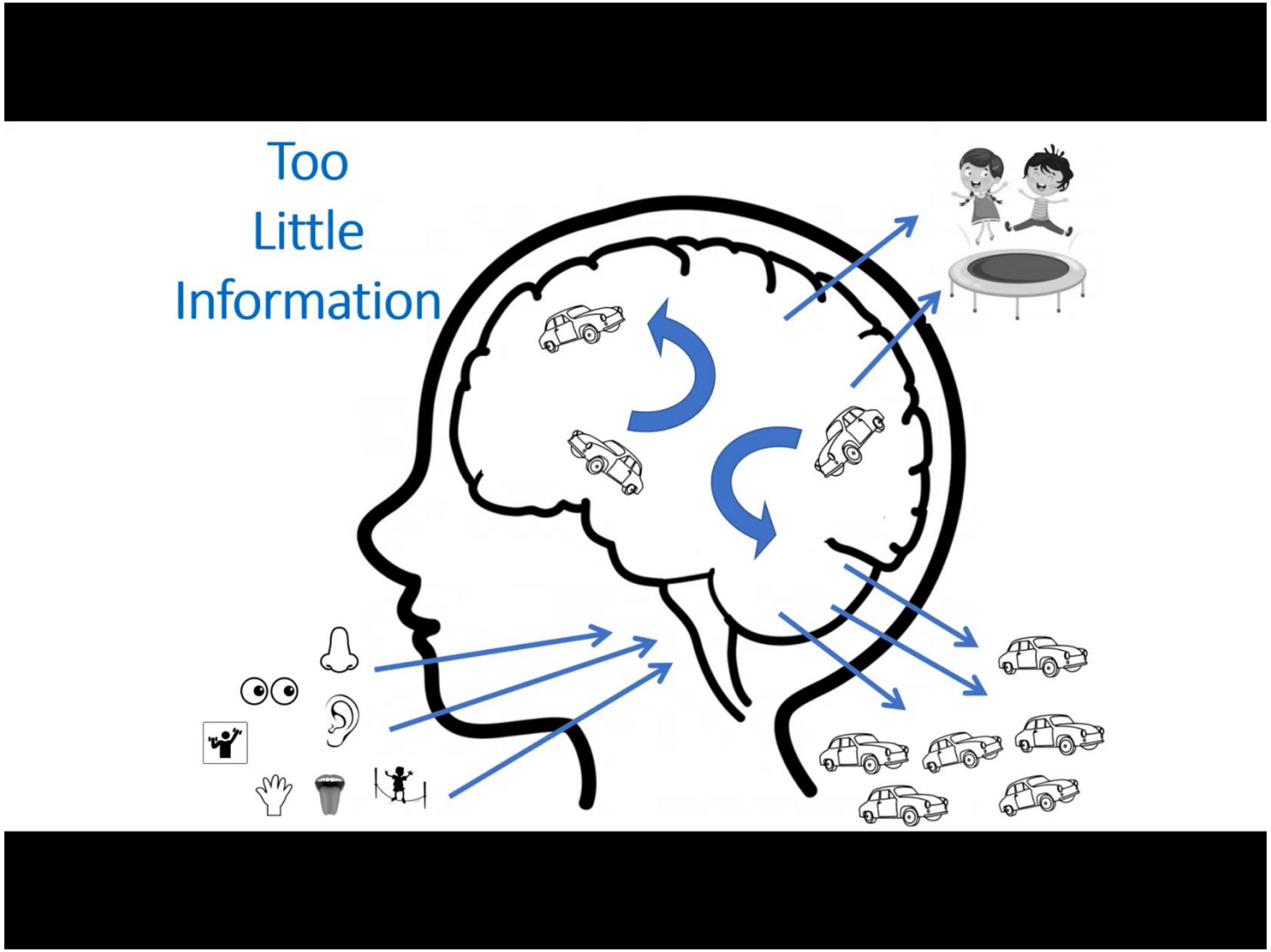




The brain takes in information, filters out unnecessary information and keeps what it needs to know People with SPD often struggle to stay in the calm and/or alert status and will spend more time in the low and/or high level of arousal

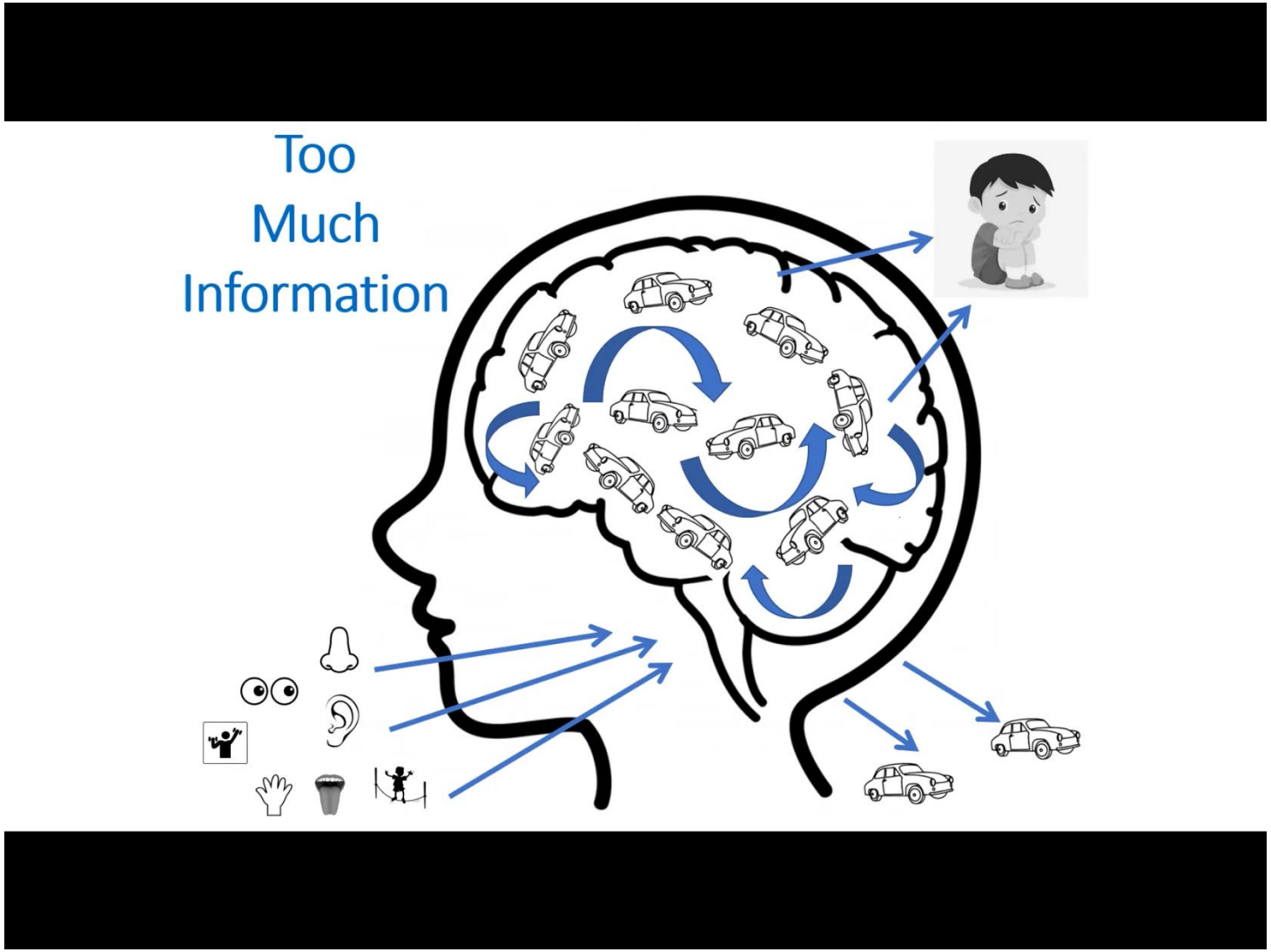
Too Little

- Sometimes the brain filters out too much information
- This means the brain is under stimulated and this can cause someone to lethargic and sluggish



Too Much

- Sometimes the brain doesn't filter out enough information
- This results in the brain being over stimulated and can result in confusion, upset, frustration and the brain "shutting down" to cope



Activity

Avoid or seek?

Part 2

The Senses & SPD

Tactile processing

- The tactile system is responsible for processing touch information from the body
- The tactile system is extremely important in SPD. Many individuals with the disorder have tactile symptoms such as tactile defensiveness or under-responsivity to touch and pain.

Visual processing

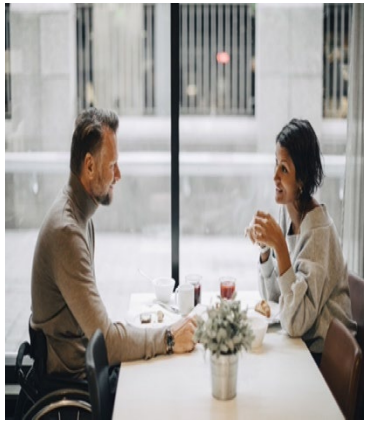
- The primary visual area of the brain is the occipital lobe. Projections are received from the retina where different types of information are encoded
- Types of visual information include: colour, shape, orientation and motion. From the ventral stream information is processed to tell you what objects are
- People with SPD can often have hyper sensitivity or underactive processing of this information, with the brain either filtering out too much or too little information

Auditory processing

- The auditory system is responsible for hearing
- Specific sound frequencies can be mapped precisely onto the primary auditory cortex

  People who have SPD have filtering difficulties, sometimes allowing too much noise (often shown by people putting their hands over their ears) or too little (people can seem to be ignoring you) or be unable to categorise importance and priority of sounds meaning they focus on a background noise rather than the primary sound

Gustatory/taste



- The sense of taste is very closely linked to the sense of smell
- It can be an overwhelming sense and one that an individual can really struggle with
- Overly sensitive children can avoid certain foods that other typical children eat and can be upset by certain tastes and smells
- Extreme versions of this can result in a diagnosis of Avoidant Restrictive Food Intake Disorder (ARFID) This condition is when children avoid and restrict food, not as part of a dieting regime but due to sensory needs. This is a diagnosable medical condition
- Children who are under sensitive can crave foods with strong tastes and smells

Olfactory/smell

- Smell travels directly to the centre of the brain that controls our emotions, memory and learning

- Our brains are wired to respond appropriately to certain smells, for example ‘I smell burning so I need to seek out what is happening' etc

vestibular

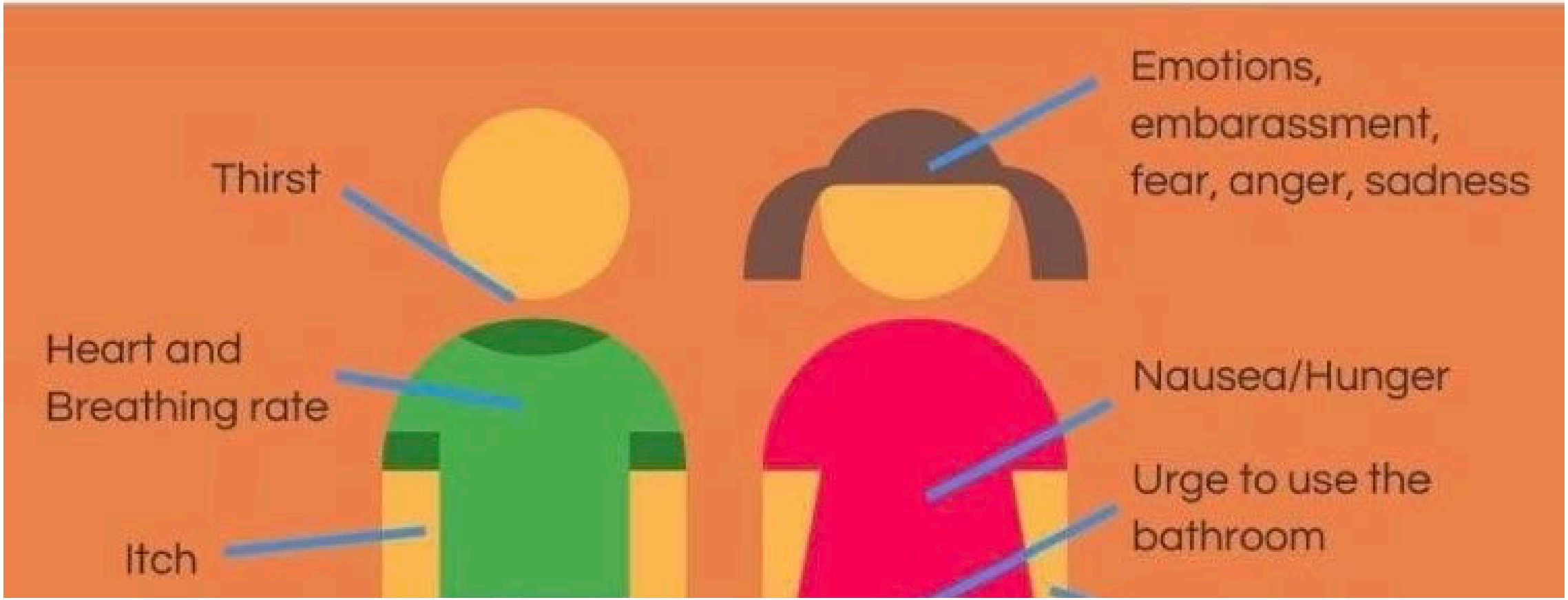
- This sense is how the body handles movement. It is located in the inner ears
- This is probably the most fundamental of all our senses as it gives us physical and emotional security when moving in spaces, as our bodies automatically adjust to stop us falling
- The vestibular system reduces the confusion about conflicting visual information. If a young person hangs upside down then the vestibular sense confirms for the young person that their world hasn't turned upside down
- This sense can also stabilise the visual field, for example a rugby player can run at the same time as looking at the target of the goal posts

Proprioception

- This is a sub-conscious sense that gives us body awareness. It tells us where our arms and legs are in space without having to look at them
- Along with vestibular this sense allows us to keep a certain shape, such as sitting on a chair without falling
- It is the sense which makes us assess the amount of force needed to move things and can impact on how our muscles react to different stimuli
- Proprioception is thought to be the sense which can calm and override other systems so is a beneficial activity to do

The Eighth Sense

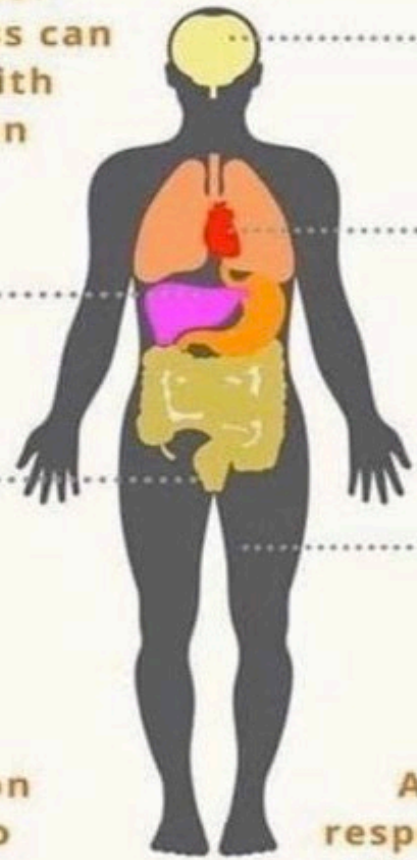
In Sensory Processing Disorder the interoceptive Sense can wreak havoc on a child's wellbeing and mental as well as physical health



INTEROCEPTION

THE EIGHTH SENSE: KNOWING WHAT IS GOING ON INSIDE YOUR BODY

Evidence suggests poor nteroception awareness can lead to difficulties with emotional regulation



Inability to recognize signs of getting tired fatigue

Not noticing increased heart or breathing rat or noticing it to the point it becomes distracting or overwhelming

Unusually high tolerance or sensitivity to pain, may not notice if cold or overheated

Overeating or rgetting to eat, not eling thirst or feeling irst too frequently

lot feeling the urge o urinate or feeling an intense urge to urinate frequently

Disrupted interoception awareness can lead to autistic meltdowns

A person can be over-responsive to one particula internal signal and under-responsive to another

interoception

The interoceptive system has special nerve receptors which are located throughout our bodies including the internal organs, bones, muscles and skin. These receptors send information to the brain

The brain interprets this information and uses it to tell us how we feel. The interoceptive system helps our bodies stay in a state of optimal balance, which is known as **homeostasis**

People with good interoceptive processing skills can respond quickly to the input. They receive and maintain their body in a state of balance. For example, when they feel cold, they put on a jumper and when they feel dehydrated, they have a drink to restore the balance in their bodies

In addition to controlling all these sensory inputs, the Interoceptive system is also responsible for helping us to control our emotions. For example, if you can feel yourself getting tense from anger, you know to slow down and take a few deep breaths. Being able to read your own physical signs and emotional states, directly impacts our ability to read another person's physical and emotional state

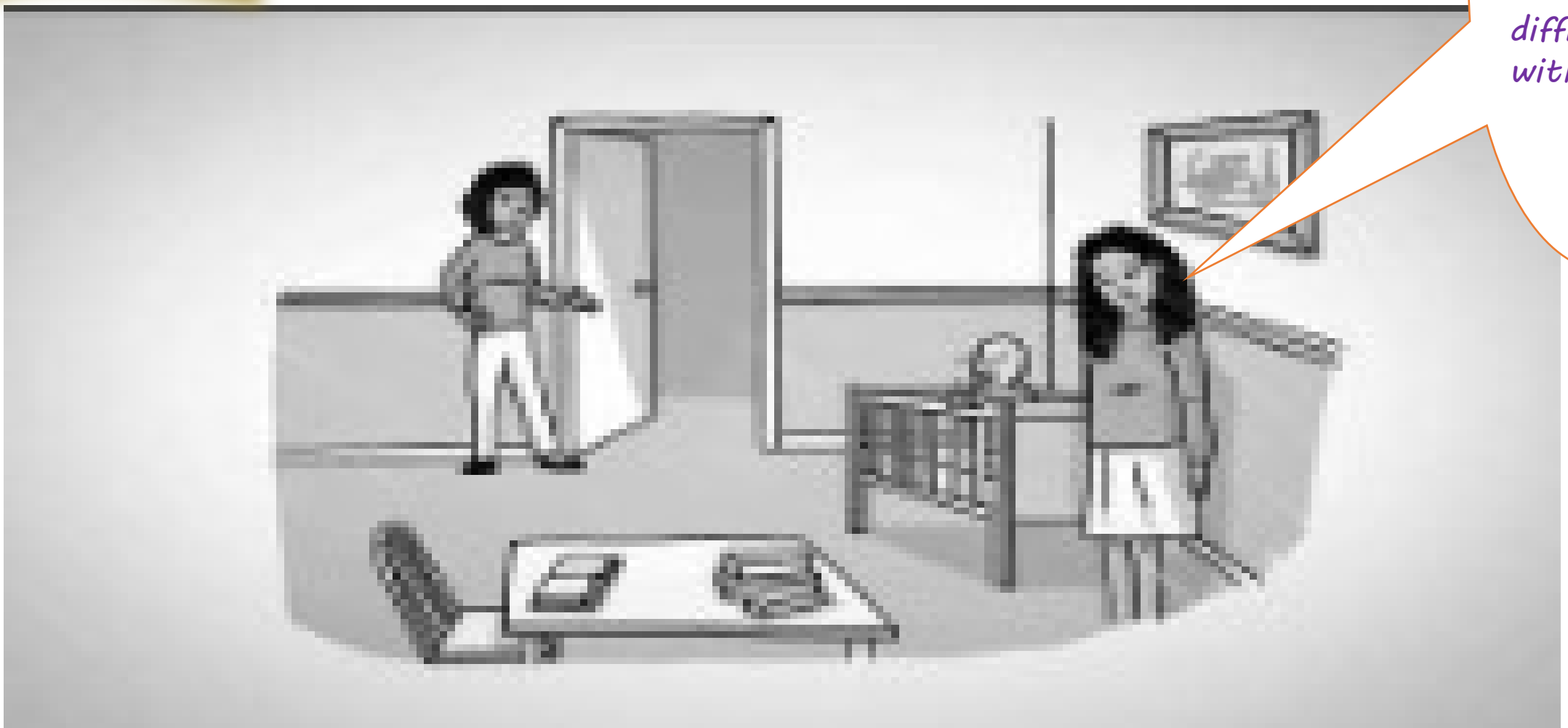
People who struggle with the interoceptive sense may have trouble knowing when they feel hungry, full, hot, cold, or thirsty

For children with sensory processing issues, the brain may have trouble making sense of that information. They may not be able to tell when they're feeling pain or when their bladder is full. An itch may feel like pain or pain may feel ticklish.

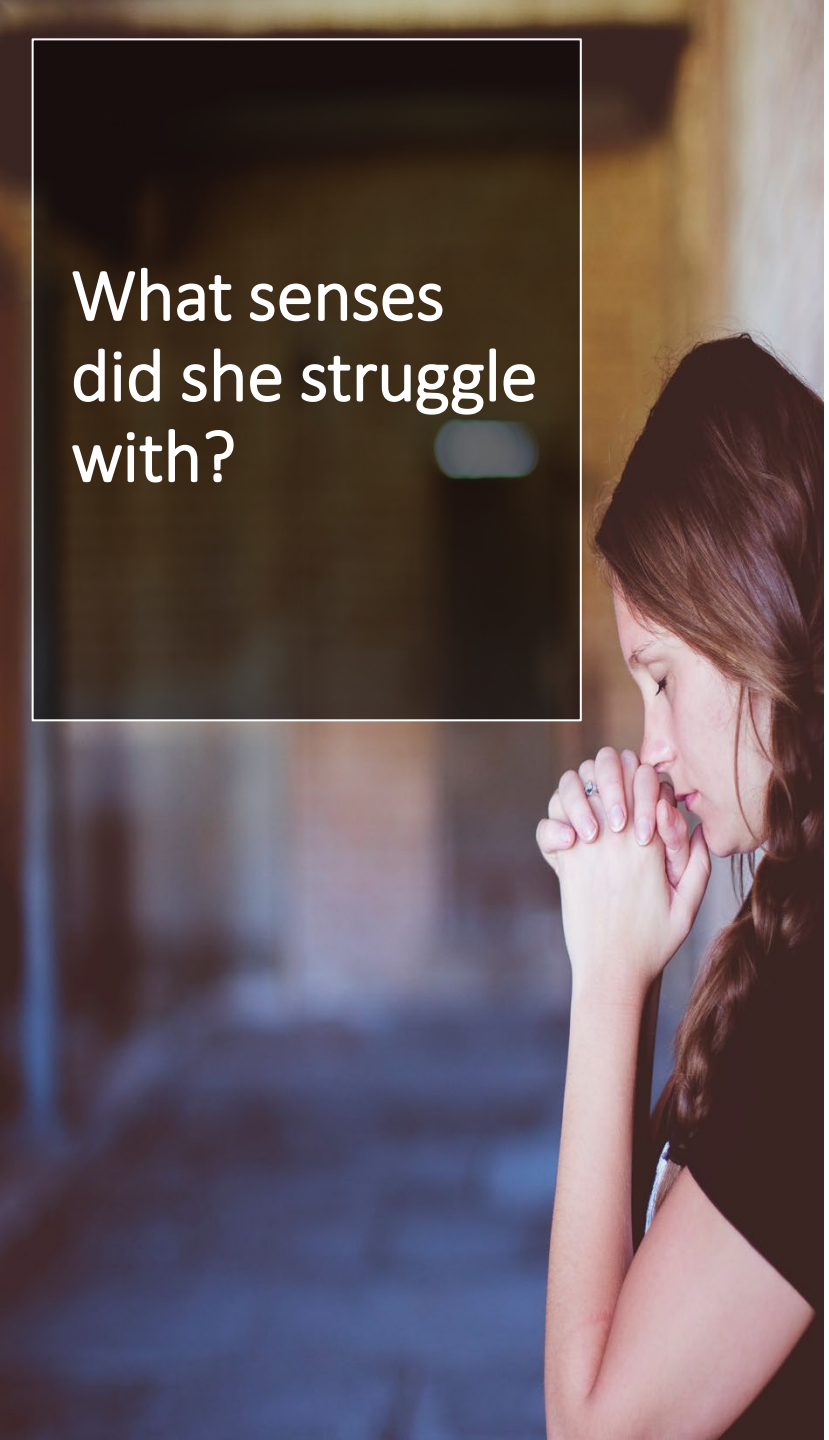
- People may also struggle with recognising emotions because of this- for instance, may not "feel" fear because they don't recognize that their muscles are tense, their breathing is shallow, and their heart is racing.

Activity

A day in the life of…



Can you write down all the senses that the girl in the video is having difficulty with



- Textures of clothes - only likes soft clothes without tags (tactile)
- Grip - cannot use fine motor and co-ordination skills to zip up the zip (vestibular)
- Food textures and tastes- only likes plain toast and doesn’t like small seeds in strawberries (gustatory)
- Sound and movement - cannot concentrate in the class (auditory and visual)
- Sounds and smells - the lunchroom causing anxiety and smells making her feel physically sick (auditory and olfactory)
- Sounds - little brother crying causing distractions for homework (auditory)
- Settling down to sleep - cannot get comfortable in bed and mind is too busy to sleep (proproception, interception, auditory, visual, tactile)

Sensory Interventions

What can we do to help?

Part 4 sensory diet

What interventions can we do now?

Introduce a daily sensory diet

A sensory diet is very similar to a food diet, but involves our senses

Instead of a balanced diet of protein, carbohydrates, vegetables, oils, vitamins, etc; it is a balanced diet of touch, movement, visual input, auditory input, olfactory input and oral input

Just like a food diet, individuals may struggle processing one or more particular sense. Therefore encouraging and exposing the individual to a varied sensory diet, can improve the processing of that sense

*Activities to be delivered daily *All sessions should last at least 16 mins (4 mins per activity)	Monday	Tuesday	Wednesday	Thursday	Friday
Week One	○ Finger Painting ○ Singing ○ Smell herbs ○ Glow sticks	○ Sand Play ○ Blow a whistle ○ Smelly tissue ○ Sensory bottles	○ Water play ○ Sound bottles ○ Scented Playdough ○ Timers	○ Shaving foam ○ Bang drum/pans ○ Draw with scented pen ○ Blow bubbles	○ Playdough ○ Listen Bingo ○ Scented hand/foot massage ○ Torches
Week Two	○ Corn-starch and water ○ Nature sounds ○ Cheese shapes ○ Light projectors	○ Pop bubbles ○ Hands sounds ○ Crunchy food ○ Picture books	○ Rice and beans ○ Feet sounds ○ Drink a smoothie through a straw ○ Sensory bottles	○ Feet trek ○ Bubble wrap pop ○ Soft food ○ Coloured scarfs	○ Touch and feel book ○ Rain sticks ○ Jelly play ○ Kaleidoscope
Week Three	○ Brushes on the body ○ Listen Bingo ○ Ping-pong play ○ Glow sticks	○ Vibrations on hands and legs ○ Echo me ○ Smelly Tissue ○ Sensory bottles	○ Finger Painting ○ Singing ○ Scented playdough ○ Timers	○ Playdough ○ Sound bottles ○ Facemasks ○ Blow bubbles	○ Rice and beans ○ Nature Sounds ○ Scented hand/foot massage ○ Torches
Week Four	○ Water play ○ Blow whistles ○ Cheese shapes ○ Light projectors	○ Pop bubbles ○ Hand sounds ○ Crunchy food ○ Picture books	○ Shaving Foam ○ Bubble wrap pop ○ Drink a smoothie through a straw ○ Sensory bottles	○ Feet Trek ○ Rain sticks ○ Soft food ○ Coloured scarf	○ Sand play ○ Sound bottles ○ Jelly Play ○ Kaleidoscope

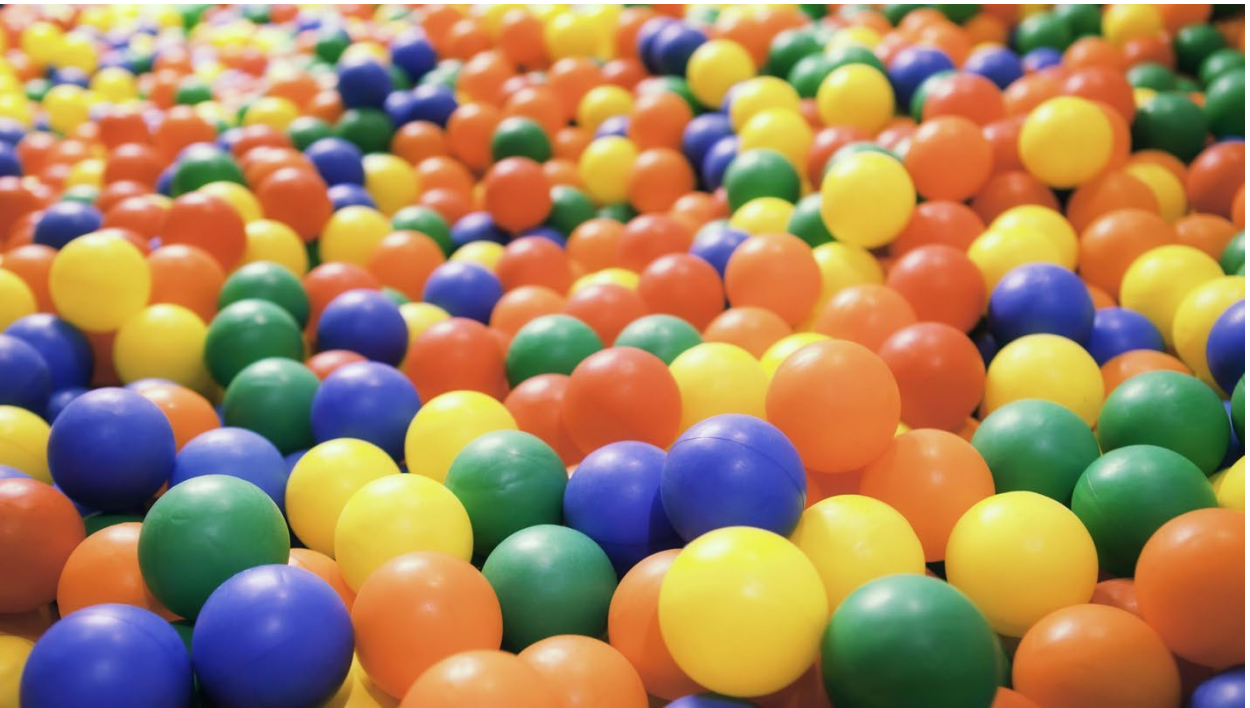
Tactile	***Auditory***	***Olfactory*** *****All activities that include tasting or eating food *MUST* be risk assessed for choking hazards and/or allergies**	***Visual***
Sand play Place some sand in a container (coloured sand if available). Allow the child to draw with their finger, use different containers to pour sand from one to the other, build sandcastles, bury objects or allow child to place their feet in the sand	**Singing** Sing a selection of short songs, some soft and quiet, some loud, some that build or sing the pupils favourite songs	**Scented Playdough** Purchase scented playdough or alternatively use normal playdough and add a few drops of essential oils, pupils could even create their own scented playdough through the scent of their choice	**Torches** In a dark space, project light using torches. You can use a single torch and add more in, or use torches with different shapes at the end. You can use the torches to project shadow puppets using hands on the wall
Water play Place some water in a container You may want to add some food colouring to colour the water, or some glitter. Allow to use different containers to pour water from one to the other, splash their hands in the water, float objects on the water or allow child to place their feet in the water	**Hands sounds** Using hands and some everyday objects/objects in the classroom/outside and experiment on what sounds can be made- How loud can they go? How quiet can they go? How long can the sound be? Can they copy a short rhythm or beat?	**Drink a smoothie through a straw** Create a thick smoothie or milkshake with fruits of preference, and drink through a straw	**Kaleidoscope** Using perchased kaleidoscopes or creating your own using toilet rolls (lots of ideas for this are online), allow children to experiment with light and colour using the kaleidoscope
Play dough Encourage pupils to squish, pull, roll, stretch, press, slap, and kneed the playdough. Allow pupils to create shapes and mix colours, and see if they can copy your shapes too. Can they create a playdough person, animal, object of interest?	**Echo me** Create sounds with your voice, short phrases or tongue twisters, and see if the pupil can echo it back to you. Allow pupils to create a sound and repeat it back to them.	**Scented hand/foot massage** Using scented moisturiser or massage oils, add a small amount on the hand or foot and gently rub	**Timers** Using sand timers, or liquid timers, allow pupils to experiment turning the timers over and watching the timer run through. Allow pupils to turn the timer before it has finished if they wish

Rice and Beans In a container place rice, beans, dried pea, lentils, pasta shapes, etc. Allow pupils to feel with their hands and feet	**Sound bottles** Pour different objects into an empty bottle (rice, beads, gravel, water, sand, pasta, etc). Allow pupils to experiment with sound by tipping or shaking and listening. Maybe the pupils can create their own sound bottle	**Smell herbs** In small bowls, place either fresh or dried herbs. You may want to place a thin cloth over the top and secure with an elastic band to make the smell less overpowering. Allow pupils to experiment with the smells	**Coloured scarf** Using coloured strips of material or chiffon, or coloured scarfs, allow pupils to look through them, throw them up in the air, or if it is a larger piece of material lay under it and float the material down onto them
Feet Trek In several small containers (trays, small padding pools, tuff trays) place a variety of textures in each one (shaving foam, feathers, sand, water, rice, etc) and allow the pupil to walk through them	**Bang drum/pans** Using either small drums, pans, or homemade drums (lots of ideas on the internet), allow the pupil to bang on the drum- How loud can they go? How quiet can they go? How long can the sound be? Can they copy a short rhythm or beat?	**Crunchy food** In a few small bowls, or a divided plate, place a variety of crunchy foods. Try to range from slightly crunchy such as cornflakes, cucumbers, quavers crisp; to harder crunchy food such as carrots, pretzels and ice-pops	**Sensory bottles** Pour different objects into an empty bottle (glitter, feathers, sticks, stones, rice, beads, gravel, water, sand, pasta, etc). Allow pupils to experiment with the bottles by tipping or shaking. Maybe the pupils can create their own sensory bottle
Vibrations on hands and legs Using either specific vibrating massage aids or an electric toothbrush, and move it up and down the pupils' arms, hands, legs and if they accept feet. Some vibrating massage aids can also be used on the head (not all pupils will enjoy this)	**Listen Bingo** Using a computer, iPad or CD play, play sound bites. These can be of animals, nature, vehicles, weather, or a mix. Using pre-made bingo cards, see if the pupils can identify the sound and fill their bingo card	**Draw with scented pen** Using either scented pens or pencils, allow pupils to draw a picture of choice	**Blow bubbles** With the adult blowing bubbles or using a bubble machine, allow pupils to watch and play with the bubbles, they may let them land on them or pop them. Try using different coloured lights/torches to shine on them as they fall

Finger Painting Using non-toxic, no-stain paints, allow pupils to paint a picture of choice using fingers and hands or toes and feet- or all four!	**Nature sounds** Either using a soundscape, YouTube nature video or going outside- listen to nature sounds. Experiment with different sounds from whale singing to monkey noises	**Soft food** In a few small bowls, or a divided plate, place a variety of soft foods such as banana, yogurt, marshmallows, Weetabix etc	**Glow sticks** Using glow sticks, glow bracelets or finger lights, allow pupils to experiment in the dark with different lights
Shaving foam Squirt some shaving foam into a container. You may choose to add different colours or glitter. Allow pupils to experiment touching, wiping, and moulding the foam	**Feet sounds** Using feet and some everyday objects/objects in the classroom/outside and experiment on what sounds can be made- How loud can they go? How quiet can they go? How long can the sound be? Can they copy a short rhythm or beat?	**Jelly Play** In a container, use different flavoured jelly (and coloured), and allow pupils to feel with their hands, smell the jelly and even taste the jelly	**Picture books** Allow pupils to look through serval picture books (specifically those with no or few words- including comics). Try and have a variety, with some that have shiny pictures, simple pictures, busy pictures (such as where's Walley) and photos
Brushes on the body Using make-up brushes, nail brushes, soft hairbrushes, etc – brush them up and down the arms and hands, legs, and feet and if they accept, face (careful of the eyes) and the scalp	**Bubble wrap pop** Place a sheet of bubble wrap on the floor. Allow the pupil to either lay down and pop the bubble wrap, walk/run/stomp on the bubble wrap or roll over the bubble wrap	**Smelly tissue** Place a small amount of essential oils on a tissue. Have a variety of scents and allow the pupil to experiment and smell them. Maybe the pupil can create their own with the scent of choice	**Light projectors** Create a dark space and allow pupils to watch the lights from either a light projector (stars, aurora light, etc) or different projecting torches.
Pop bubbles With the adult blowing bubbles or using a bubble machine, encourage the pupil to pop the bubbles as they float down. Some pupils may wish to blow bubbles for other pupils to pop	**Rain sticks** Using either purchased or homemade (lots of ideas on the internet) rain sticks, allow the pupils to listen to the rain fall	**Cheese shapes** Using small cookie cutters, cut shapes out of cheese slices. Allow pupils to try different shapes and eat if they wish	

Touch and feel books Allow pupils to look through serval touch and feel books (specifically those with no or few words). Try and have a variety, with some that have shiny, rough, fluffy, bumpy, etc textures	**Blow a whistle** Using whistles, kazoos or party blowers, allow the pupil to experiment with the pitches and volume	**Facemasks** Either using purchase scented facemasks or create your own using food (banana and oats, avocado and mint, etc) – place the facemask on wither the face, hands, or feet	
Corn-starch and water Using corn-starch and water mix in a container, allow pupil to experiment with the liquid and then slap/hit the mixture and feel it's hardness		**Ping-pong play** Using two ping-pongs and two straws, blow the balls across a surface or on top of water	

Part 5: Sensory Circuits



Sensory circuits: An introduction

- A sensory circuit is a short and snappy sensory motor skill programme that helps to set children up for a school day or to help self-regulate them
- The circuit also encourages the development of the child's sensory processing skills. Many children can benefit from attending a Sensory Circuit, even for a short period of time.

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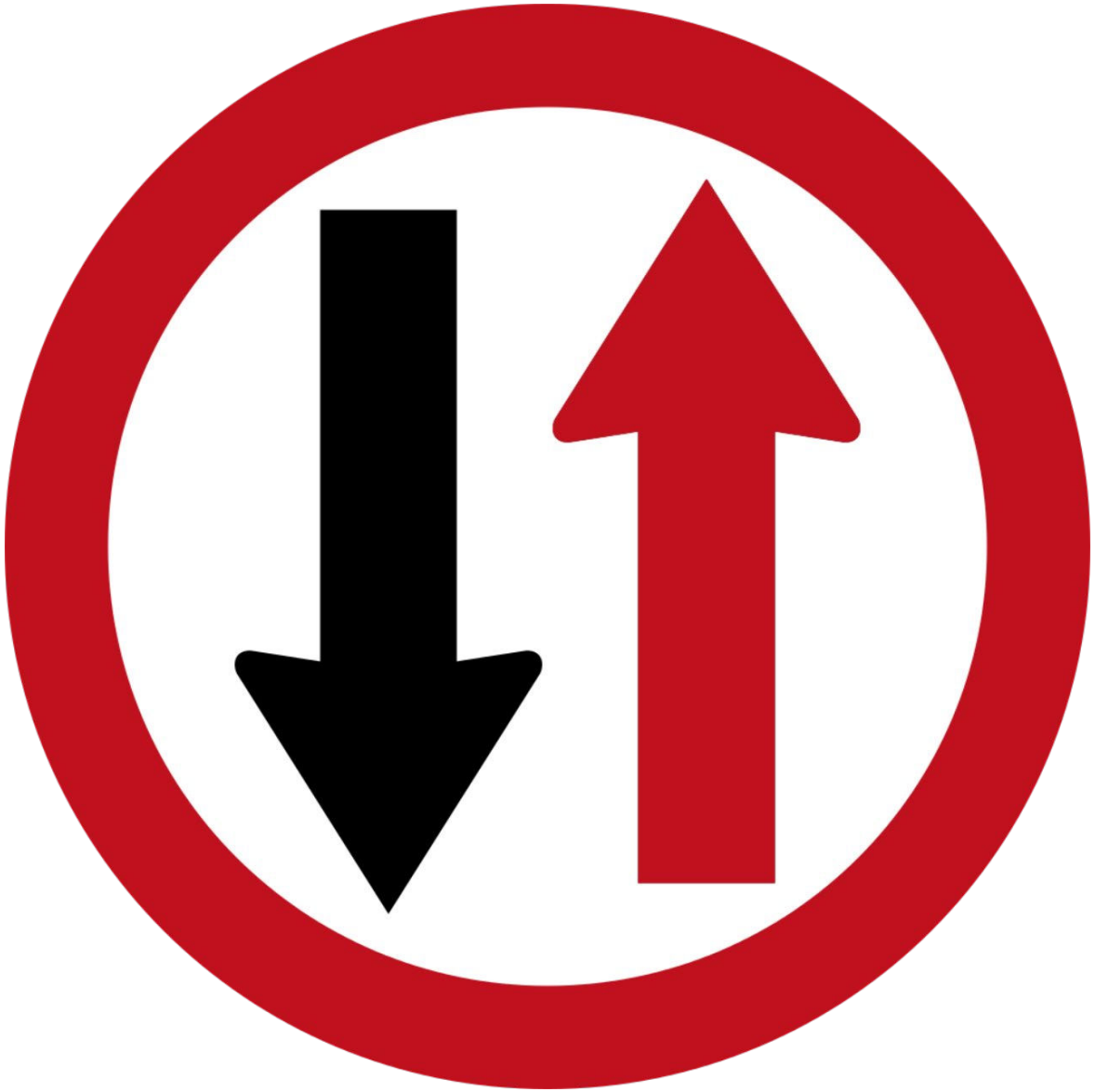
3 stages of A sensory circuit

- Alert – repetitive actions such as up and down and side to side
- Organising - processing many inputs all at once and mainly includes co-ordination and balance
- Calming - to end the circuit in a calm and controlled manner



What order do we do Sensory circuits in?

- <u>Why do we do the ‘alerting’ section first?</u>
- It triggers the body and the mind to wake it up and be ready
- The activities are very short and focused and gets the child in the right mindset for the next part of the circuit
- The organization section makes the child use two senses at once, making the brain concentrate and building the ability to process more than one thing at the same time. This is why it’s the longest part of the circuit”
- The calming section is last as you simply, “don’t want them bouncing of the walls before going to their next lesson!”

Video of sensory circuit

Activity	1 (2 min)	2 (1 min)	3 (1 min)	4 (2 min)	5 (2 min)	6 (2 min)	7 (2 min)	8 (2 min)	9 (1 min)	10 (2 min)	11 (2 min)
Week one	Star Jumps	Run on the spot	Side Steps	Balance on a beam/line	Jump and twist	Pass a weighted ball	Bear crawls	Log rolls	Beanbag squeezes	Roll over a therapy ball	Lay under a blanket (can be weighted) and listen to relaxing music
Week two	Squat jumps	Skipping	Shuttle runs	Log rolls	Mountain climbers	Relay race passing objects	Bounce on a gym/ therapy ball	Hopscotch	Sensory bottles	Roll over a therapy ball	Squeeze and stretch Thura putty/ playdough/ model me foam
Week three	Relay race (Running only)	March on the spot	Wall pushes	Commando crawl	Sit-ups	Hands to knee using resistance bands	Log rolls	Bounce on a gym/ therapy ball	Roll a therapy ball over the pupil (deep pressure)	Switch between Down dog and cat stretch yoga poses	Lay under a blanket (can be weighted) and listen to relaxing music
Week four	Star jumps	Wall pushes	Shuttle runs	Skipping with a rope	Crawl through tunnel	Bounce on a gym/ therapy ball	Balance on a beam/line	Mountain climbers	Curl up in a ball or wrap up in a blanket like a Taco	Roll a therapy ball over the pupil (deep pressure)	Squeeze and stretch Thura putty/ playdough/ model me foam

Conclusion

- In conclusion, today you have learnt:
  - What is a sensory need
  - What is sensory integration
  - What is SPD
  - What is a sensory avoider and seeker
  - The senses and their jobs
  - What a sensory diet is and how to give sensory diet input in daily life
  - Sensory circuits - activity ideas, how to set one up, how to plan
  - What good practice looks like