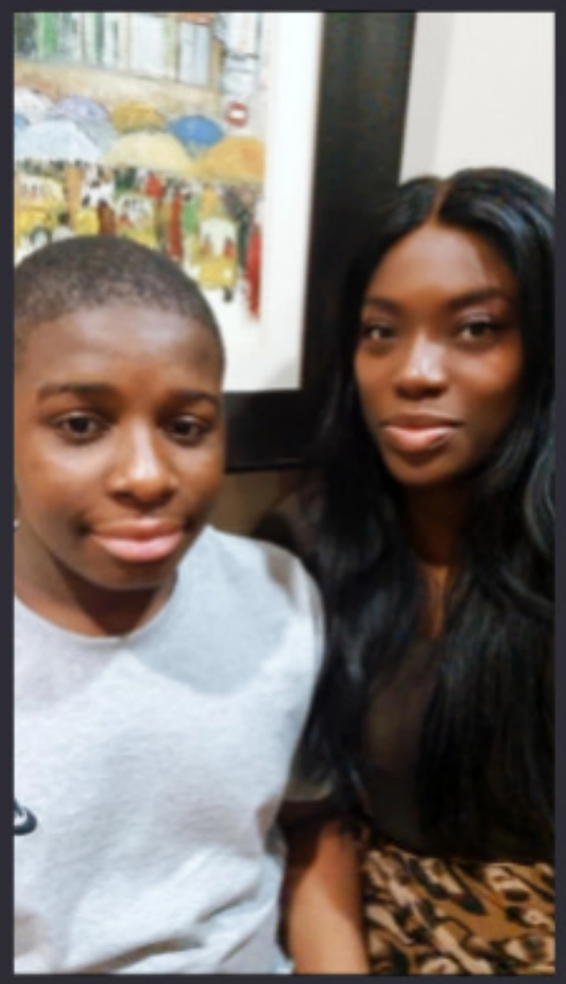
Sensory Integration in Children with Autism



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THE ZEEBAH FOUNDATION

Sensory Processing

WHAT IS IT?

- SENSORY INTEGRATION: The processing, integration, and organisation of sensory information from the body and the environment.
- This means how we experience, interpret and react to (or ignore) information coming from our senses.
- Sensory integration is important in all the things that we need to do on a daily basis, such as getting dressed, eating, moving around, socialising, learning and working.

The Theory

Our understanding of sensory processing/ intergration was initially developed in the late 60s and 70s by Dr A Jean Ayres, an occupational therapist and psychologist with an understanding of neuroscience, working in the USA.

Ayres defined sensory integration as:

"*The neurological process that organises sensation from one's own body and from the environment and makes it possible to use the body effectively with the environment.*" (1972)

Just Right State

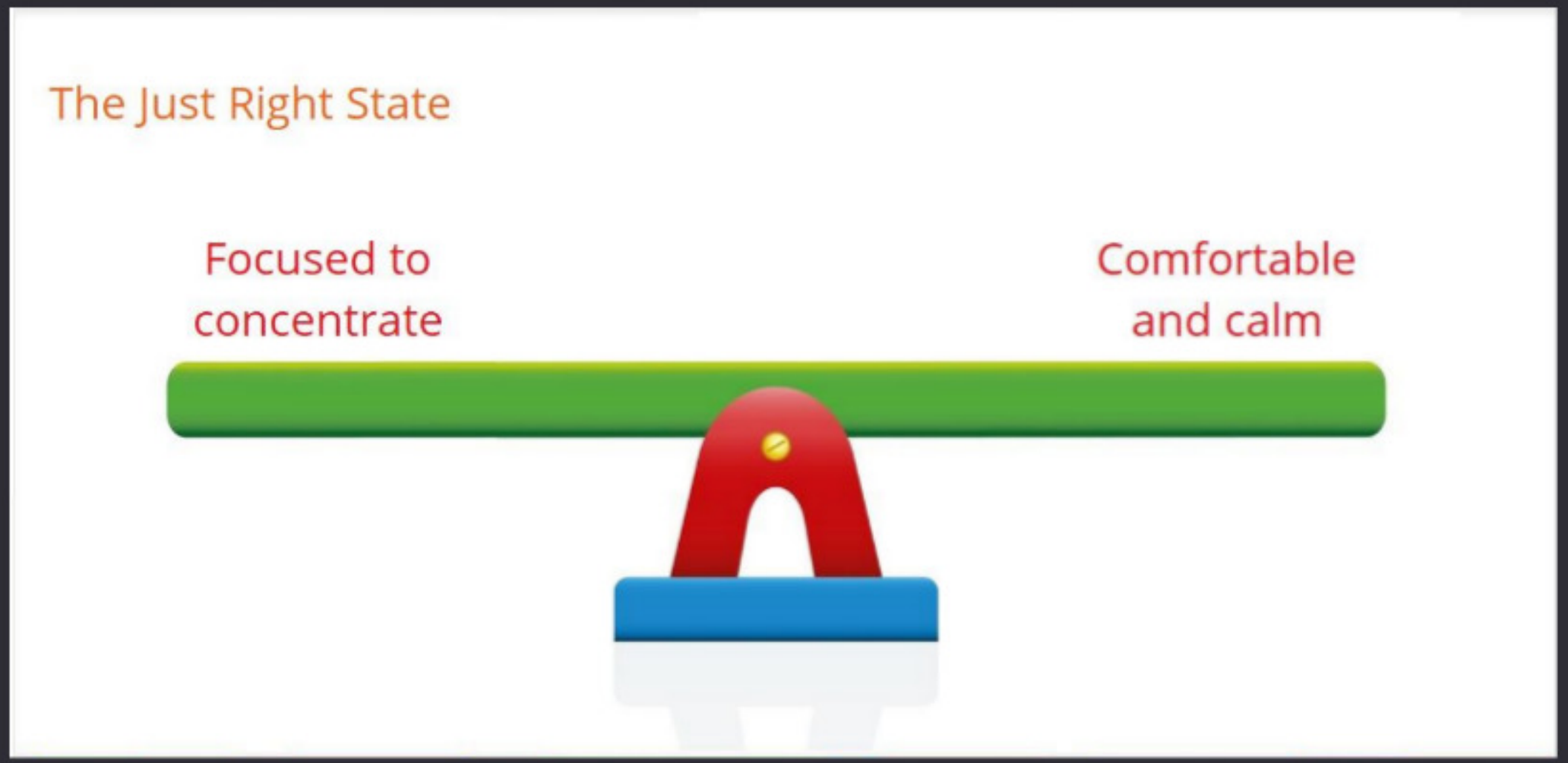
This is when the person is focused and ready for the activity they are about to do.

The sensory input coming along the nervous system to the brain is:

- intense enough to be noticeable and useful
- not so intense that its overwhelming.

The brain is able to interpret and make use of the information to discriminate well.

Just Right State



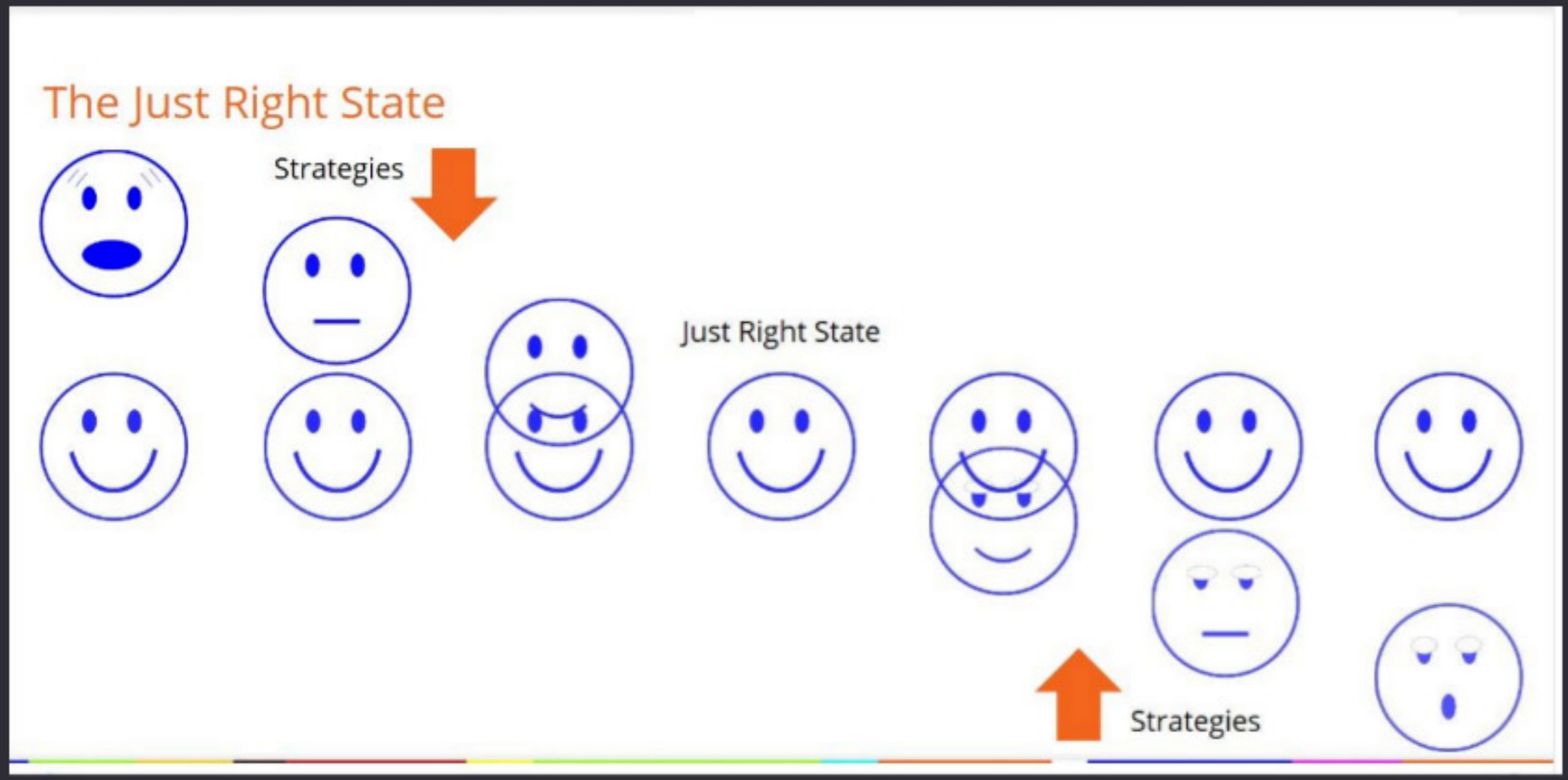
Just Right State

The Just Right State

Active Behaviours, e.g.:
restless, chaotic,
aggressive, melt-down

Passive Behaviours, e.g.:
sleepy, lethargic,
unenergetic

FINDING BALANCE



The 7 Senses

There are 7 different senses that help us to make sense of and act in our world.

Our senses work together to help us understand what is happening in our immediate environment and to respond to changes.

Each sense picks up information from

- outside our body
- inside our body

You probably already know five of our sense but lets test our knowledge here.

Sensory Processing

Sensory Information is received from our senses and is then processed by various systems in the body.

- Visual
- Auditory
- Tactile
- Gustatory
- Olfactory
- Nervous
- Interoception

Fill in the Blanks

balance proprioception toileting

movement, emotions coordination

fatigue, position hunger, taste

body hearing smell touch

SYSTEM	SENSE	WHAT IT IS
VISUAL	sight	light/pictures
AUDITORY	_____	sounds
TACTILE	_____	textures
GUSTATORY	_____	
sweet/salt/bitter		
OLFACTORY	_____	
fragrances		

NERVOUS _____ _____
awareness &

NERVOUS **vestibular** _____
_____

_____ **&** _____

INTEROCEPTION internal senses _____
_____

&
_____

needs...

The 7 Senses

write down 7 senses on your post it note first to submit will earn points towards our grand prize

Instructions

Collaborate Board

The 7 Senses

SIGHT / VISION

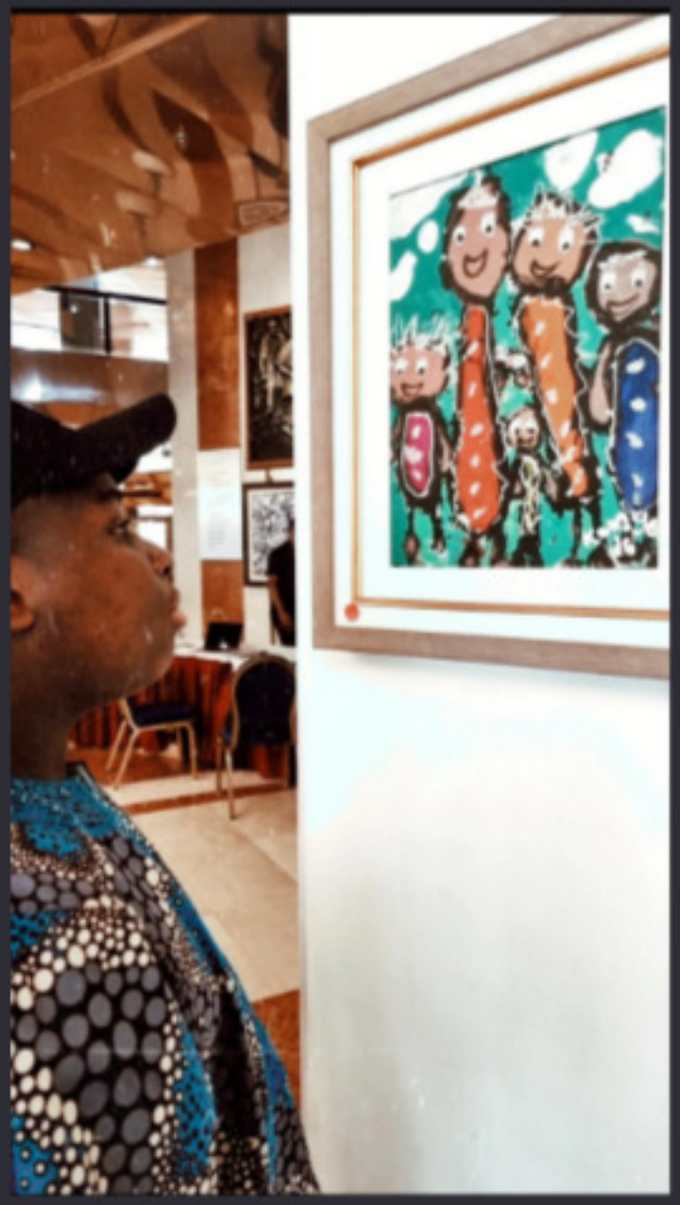
Receptors are found in the back of our eyes. This system helps us to interpret visually;

- colour
- contrast
- depth
- size
- shape
- texture

It, therefore, helps us to

- visually scan our environment
- recognise faces
- recognise the qualities of objects in our environment
- recognise different shapes, such as the shapes of letters or different toys

Visual Processing Difficulties



There are eight different types of visual processing issues, and people can have more than one. These issues often go undetected because most don't show up on standard vision tests.

- Visual discrimination issues
- Visual figure - ground discrimination issues
- Visual Sequencing issues
- Visual - motor processing issues
- Long or short term visual memory issues
- Visual Spatial Issues
- Visual Closure issues
- Letter and symbol reversal issues

- Visual Sequencing Disorder
- Visual Closure Issues
- Visual Discrimination Disorder
- Visual Motor-Processing Issue
- Visual-Spatial Condition

Instructions

ESSING DISORDER

WHAT IT IS

AFFECTS YOUR CHILD

Kids with this type of difficulty struggle using their sense of sight for noticing and comparing features and details of different items. They struggle to distinguish one item from another

A child with this type of disorder has difficulty ith discriminating a shape or object from the ground.

will struggle with utilizing visual on from the eyes to help coordinate ents with other parts of their bodies.

Many kids with this sequencing issue have problems with recognizing the order of symbols, letters, numbers and words.

Issues with remembering things seen a long time ago (long term) or recalling things seen recently (short term).

Difficulty seeing the difference between similar letters (b,d, and p,q).
Struggles with noticing the difference between certain coloUrs, shapes or objects.

Struggles with finding a piece of information on a page.
Difficulty seeing an object with a competing background such as a red bicycle next to a red building.

Does not write in lines or margins on paper.
Tends to bump into objects.
Struggles when participating in sports and other physical activities tied to coordination and balance.

Reverses letters, numbers or words.
Difficulty understanding the correct order of a math equation.
Struggles staying in the correct place when reading (skips lines, loses place and misses words).

Frequently misspells familiar words with irregular spelling.
Does not usually remember phone numbers.
Struggles using a calculator or keyboard with accuracy.

Drag & Drop

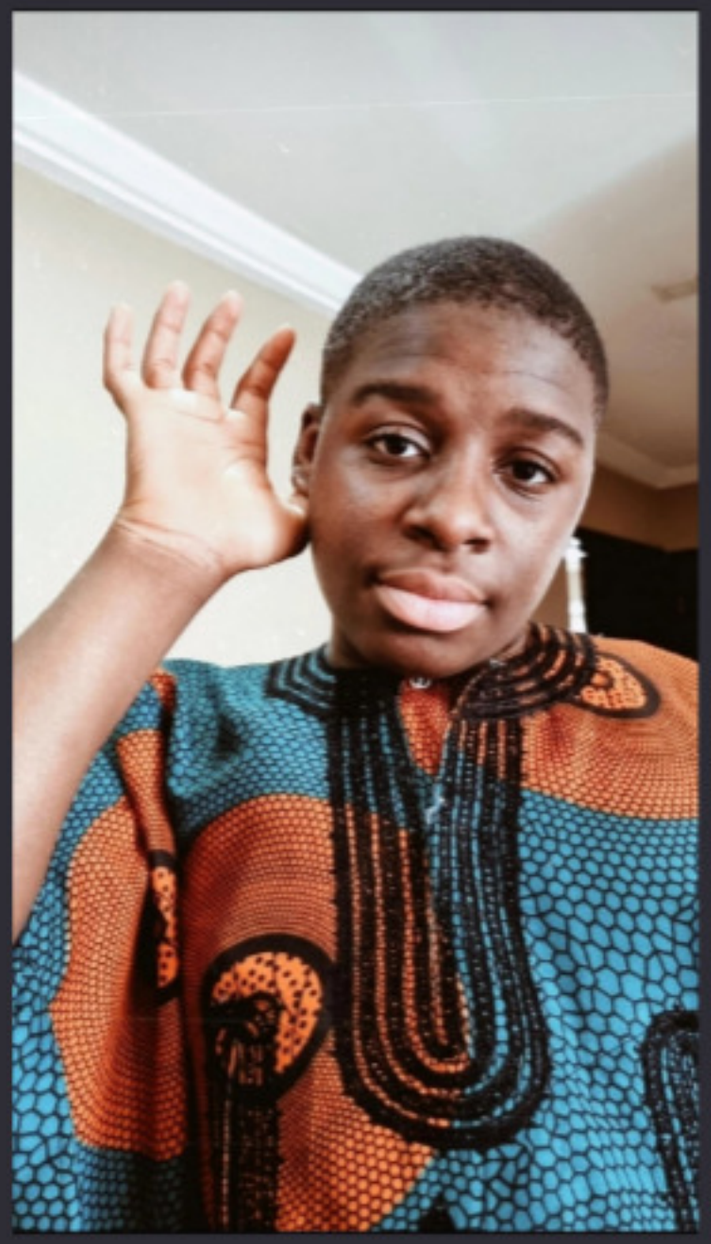
SIGHT / VISION

If your child is exceptionally sensitive to light you could:

- Use blinds to control the amount of light from windows
- Change the lights in the room to softer lighting, providing just as much light as is needed
- They might prefer to wear their hood up all the time, or to wear a cap
- Set up a pop-up tent to create a dark, calm space

If your child is very stimulated by visual information, you might think about creating a calm and uncluttered visual space in their bedrooms to help them get settled for sleep

HEARING



Receptors are found in the inner ear.

This system helps us to interpret frequency, tone and direction of sounds.

It, helps us to

- make sense of the words that we hear
- respond to important sounds
- know what direction the sound is coming from

And, alerts us to changes in our environment sometimes before our eyes.

Auditory Processing Disorder - Identifying Symptoms

Name That Household Sound

Video

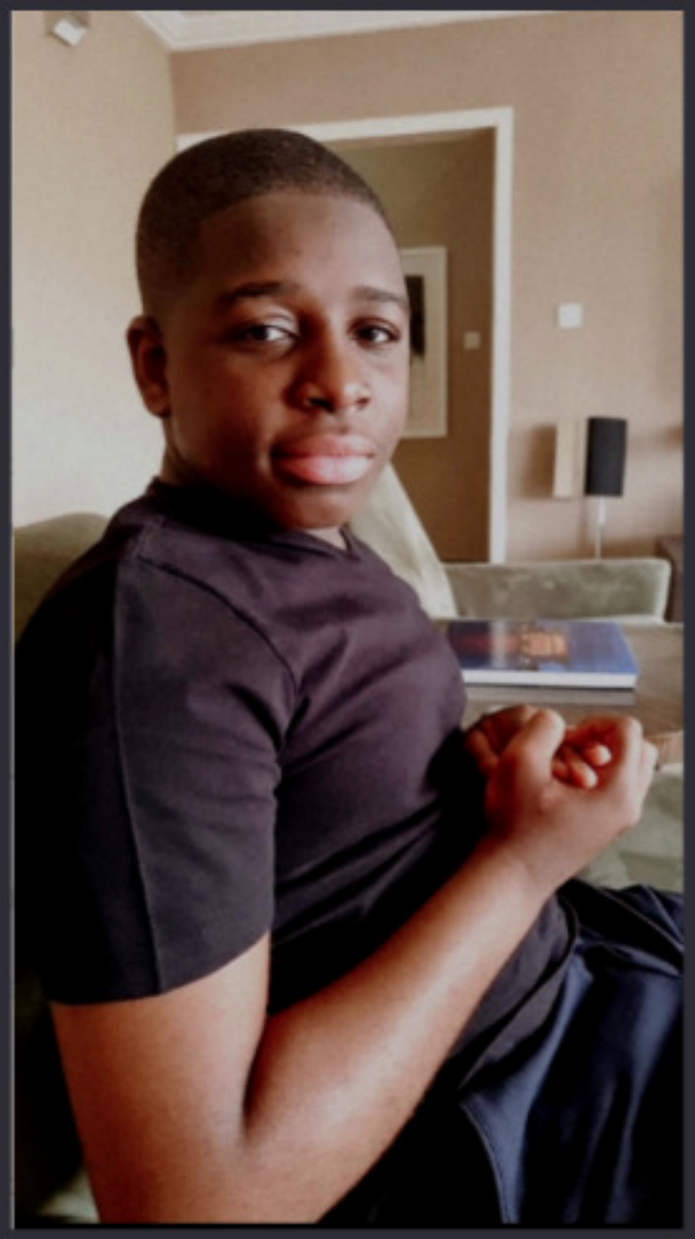
Quiz

Name That Household Sound Quiz

HEARING

Try to reduce background noise by closing windows and doors or turning off unneeded electrical items, lights or heating and air conditioning systems

TOUCH



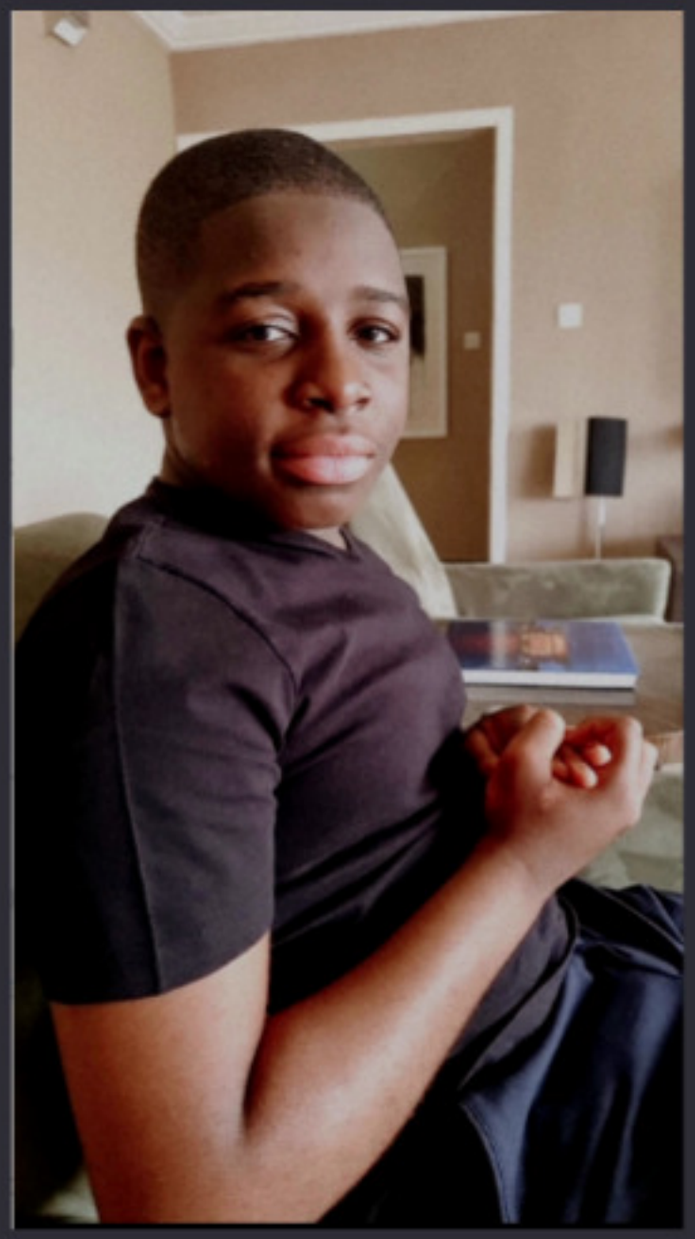
Receptors are found throughout the skin. This system helps us to interpret;

- different textures of what we touch,
- pressure through the skin,
- temperature, tickle, itch and pleasant touch

It helps us to differentiate the tatile qualities of an object. For example;

- if something is too hot to pick up,
- helps us to find the keys in our handbags without looking
- how much pressure we are using when we pick up a cup

TOUCH



- When your child has to concentrate, think about placing them where they won't accidentally be touched or brushed against as other household members pass by.
- Be aware of textures of clothing, chairs or rugs that may be distracting.
- They might feel more secure being positioned next to a wall

SMELL

Receptors are found in the back of the nose.

This system helps us to identify different smells;

It helps us to tell if something is burning or if food has gone off.

There is a strong connection between

- smells and memories
- smells and emotions

What are your favourite/ worst smells?

What does it remind you of?

Instructions

Collaborate Board

What are your favourite/ worst smells?

SMELL

- Manufacturers are making more items without added scents or flavours, including shower gels, toothpastes and household cleaning products

- Ease anxiety by warning before the smell happens (such as cooking smells), or they may find it easier to have an alternative scented item with them

TASTE

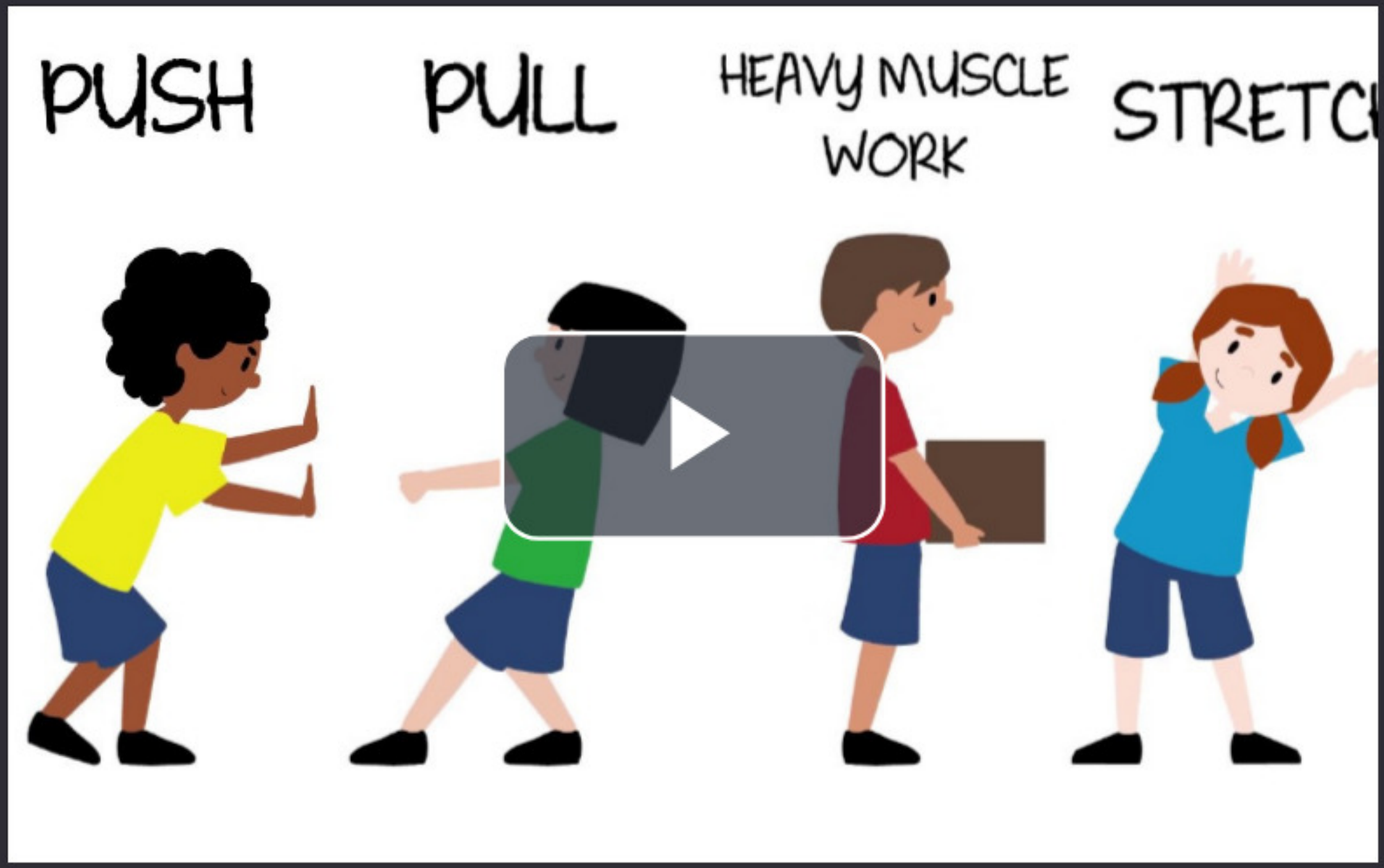
Receptors are found in the little buds on our tongue called taste buds

This system helps us to identify whether food should be ingested and different tastes;

It helps us to tell if something is

- bitter
- sweet
- salty
- sour
- Umami (savoury)

PROPRIOCEPTION



PROPRIOCEPTION

This is the awareness of the position and movement of your body.

- Tells you about the different parts of your body and how these parts are moving.

The information comes from tiny little receptors that pick up movement in your muscles and joints.

- Information about movement is sent to your spine and brain.

Helps you to understand where your body is and how it is moving.

Helps our brain to create a detailed map of where all our body parts are.

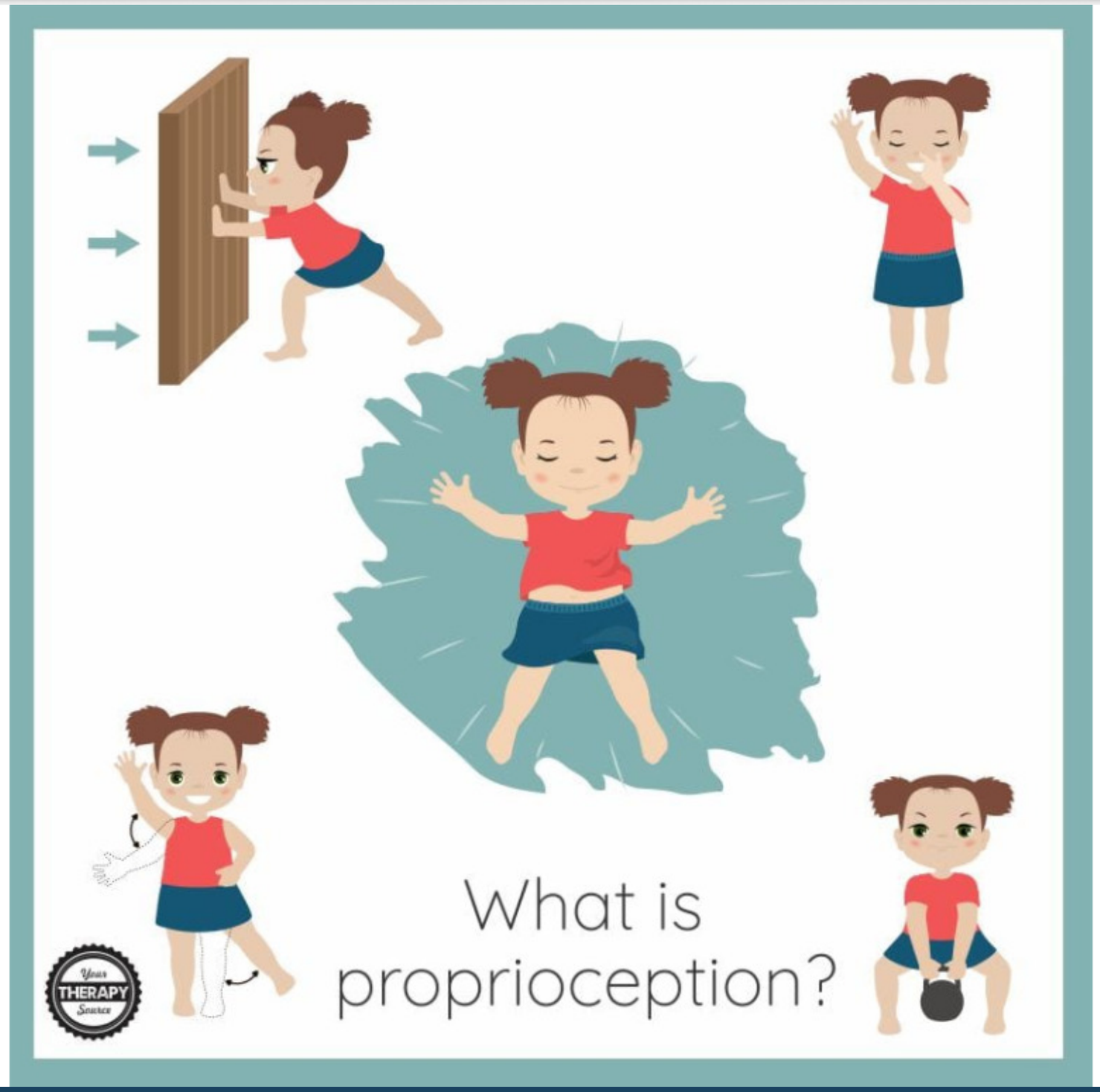
- We can adjust our posture and move quickly and smoothly when needed.

Helps us do things like;

- Maintain our posture (e.g. sit rather than slouch)
- Know where our hands and feet are when we are walking
- Know where our hand and mouth are so that we can feed ourselves.
- Know where our hands and arms are so that we can catch a ball

Draw It

Label the picture below.
Label the four activities depicted that require proprioception skills.
Circle the activity your child finds most difficult if applicable.



VESTIBULAR

VESTIBULAR

These are the skills needed for balance, speed, direction and movement.

- It tells you about the speed and direction of movements.

The information comes from tiny litorgans in our inner ear that detect movement of our head.

It tells us if we are;

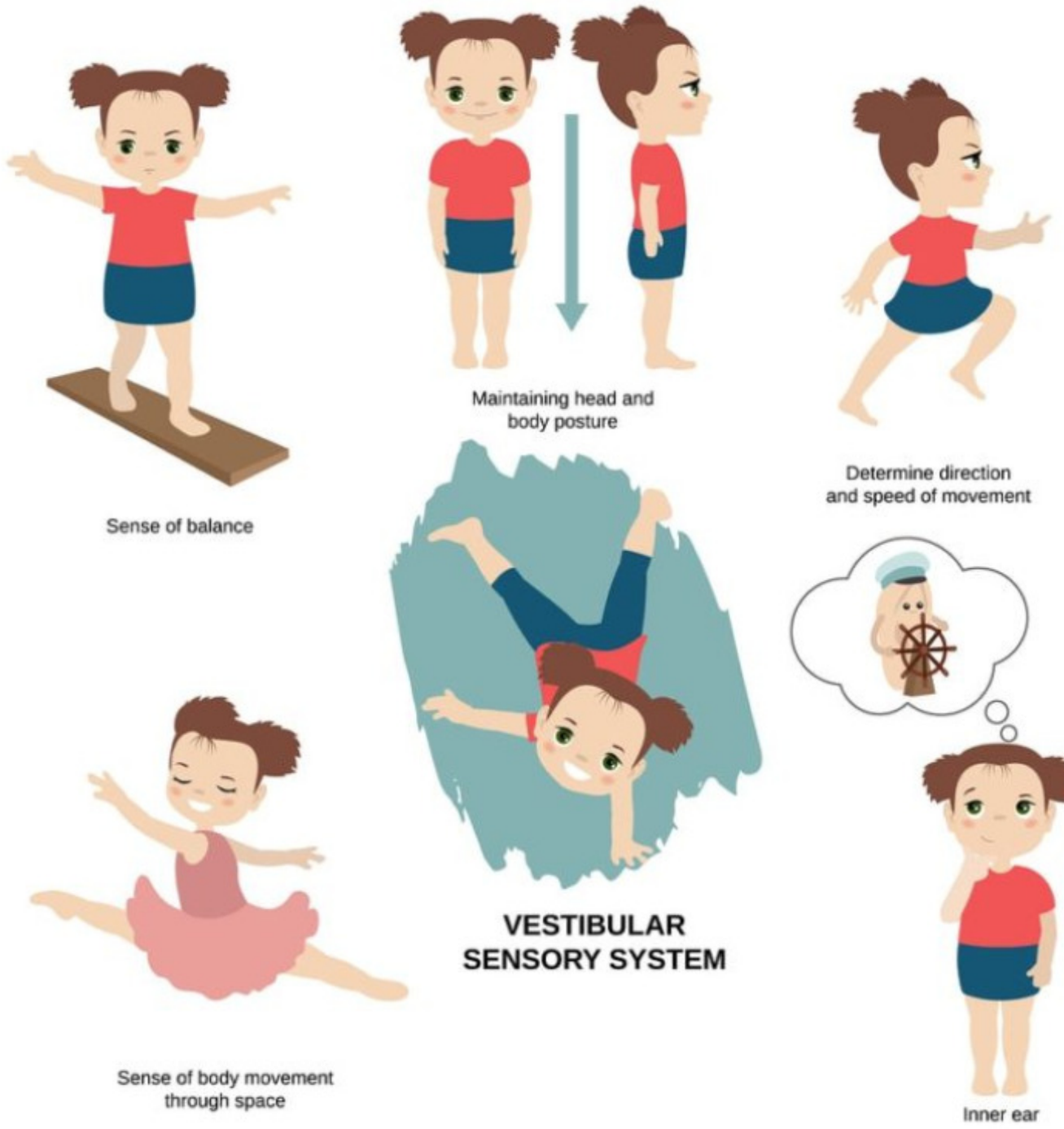
- Moving up against the pull of gravity
- down with gravity
- along in a straight line
- shaking our head
- nodding our head
- spinning
- subtle movements

It is crucial in helping us keep our balance

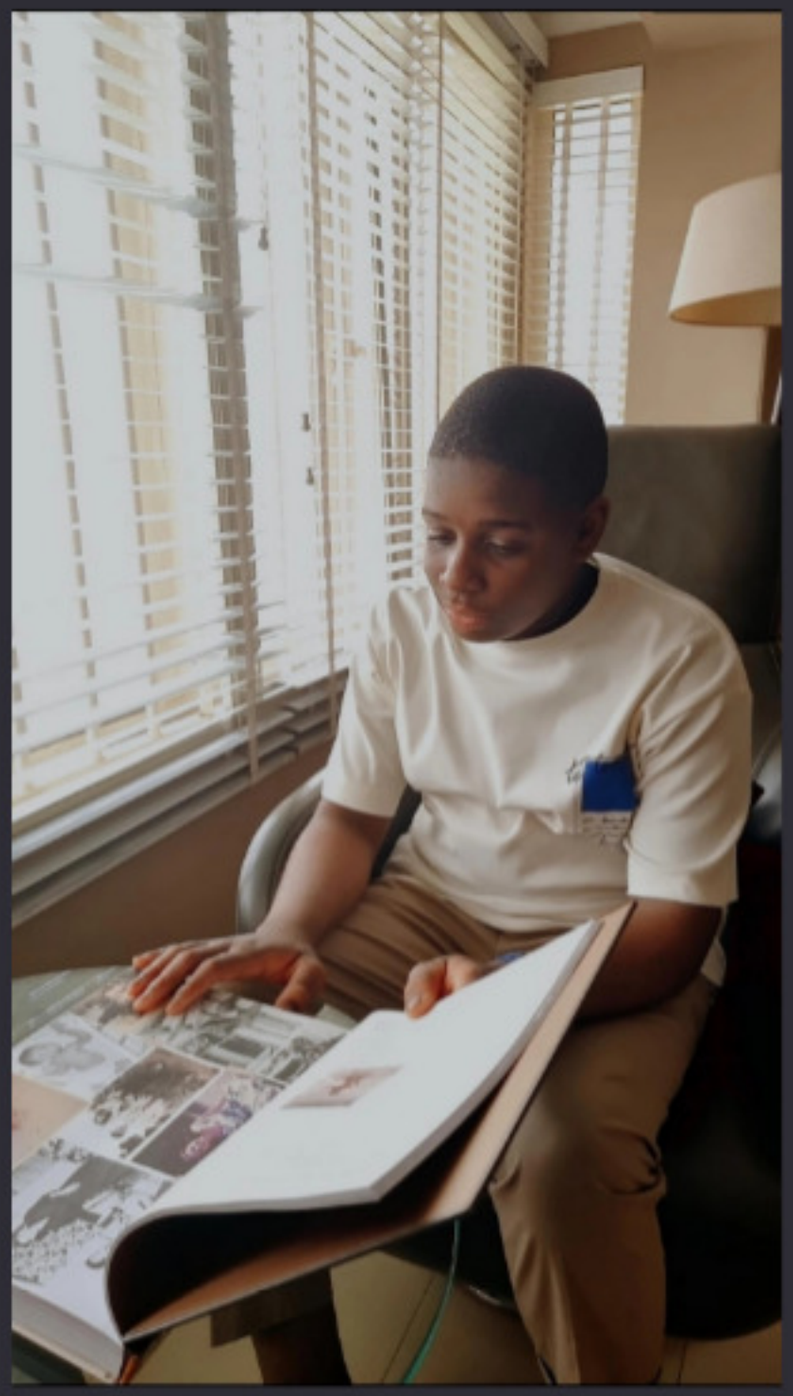
There are also important connections between this sense and the muscles that move your eyes

Draw It

Circle the activity your child finds most difficult if applicable.
Label what exercises you can do to develop this area



SENSORY PROCESSING

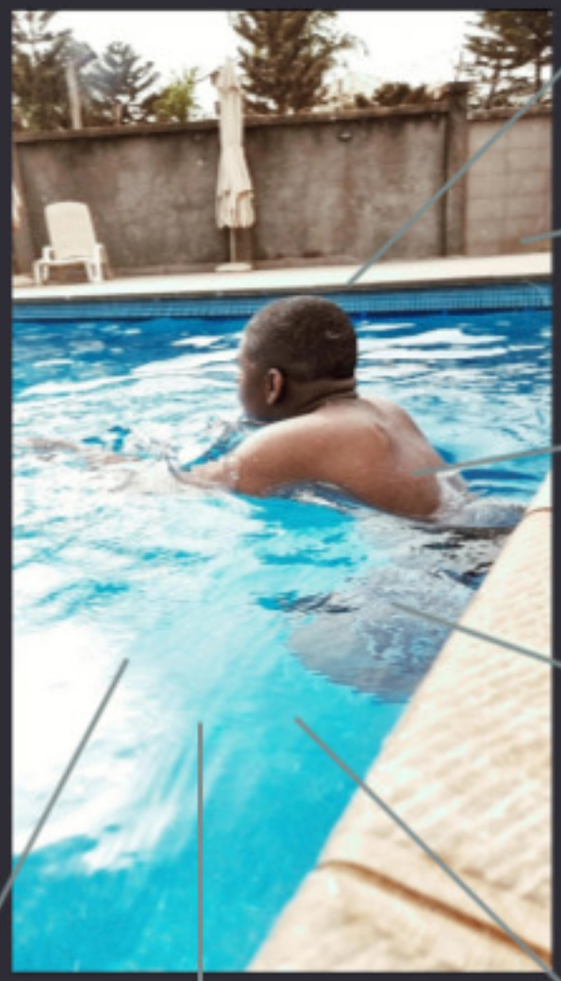


- Our senses pick up information from our environment or internally.
- Information is turned into signals which travel along our nervous system to the brain.
- The brain interprets those signals, along with other incoming signals and stored information in our memory, and either plans to ignore or respond to the signals.
- Some of the signals coming from our senses start being processed within the spinal cord even before they reach the brain.
- The brain processes sensory information at an incredible speed, making links and connections before we are even aware

SENSORY INTERGRATTION

Our sensory systems are not separate: they integrate (combine together), act on and are influenced by each other. Just think how many of your senses you need to do an everyday task like getting dressed or brushing your teeth.

What about swimming?



Vision: helps us find the edge of the pool

Taste: helps us know that the

Proprioception: helps us bring our feet and hands together. Know where our

Vestibular helps us keep upright whether on our backs. treading water or swimming breast stroke

Touch: helps us know how tight the swimming cap or goggles are. Know how cool or warm the

Smell gives the scent of chlorine

We get feedback from our hearing as to the sound of splashing,

SENSORY PROCESSING & INTEGRATION

Types of SI Difficulties

Difficulty with Sensory Reactivity / Sensory Modulation Difficulty

If a person's nervous system:

- doesn't pick up sensory information quickly or transmit it effectively to the brain
- responds too quickly or too strongly to sensory input

- Reaction that seems "over the top"
- Seem not to notice sensory input

Inadequate processing of:

Visual
Vestibular
Proprioception
Tactile
Auditory
Olfactory
Gustatory

Sensory Discrimination or Praxis Difficulties

The brain has difficulty making sense of the information it receives the person can have difficulty:

- recognising the features of sensory input
- with body position and movement
- understanding their own body

SENSORY MODULATION/REACTIVITY DIFFICULTIES

When a Person Over- or Under-Reacts to Sensory Information

Difficulty with Sensory Reactivity / Sensory Modulation Difficulty

If a person's nervous system:

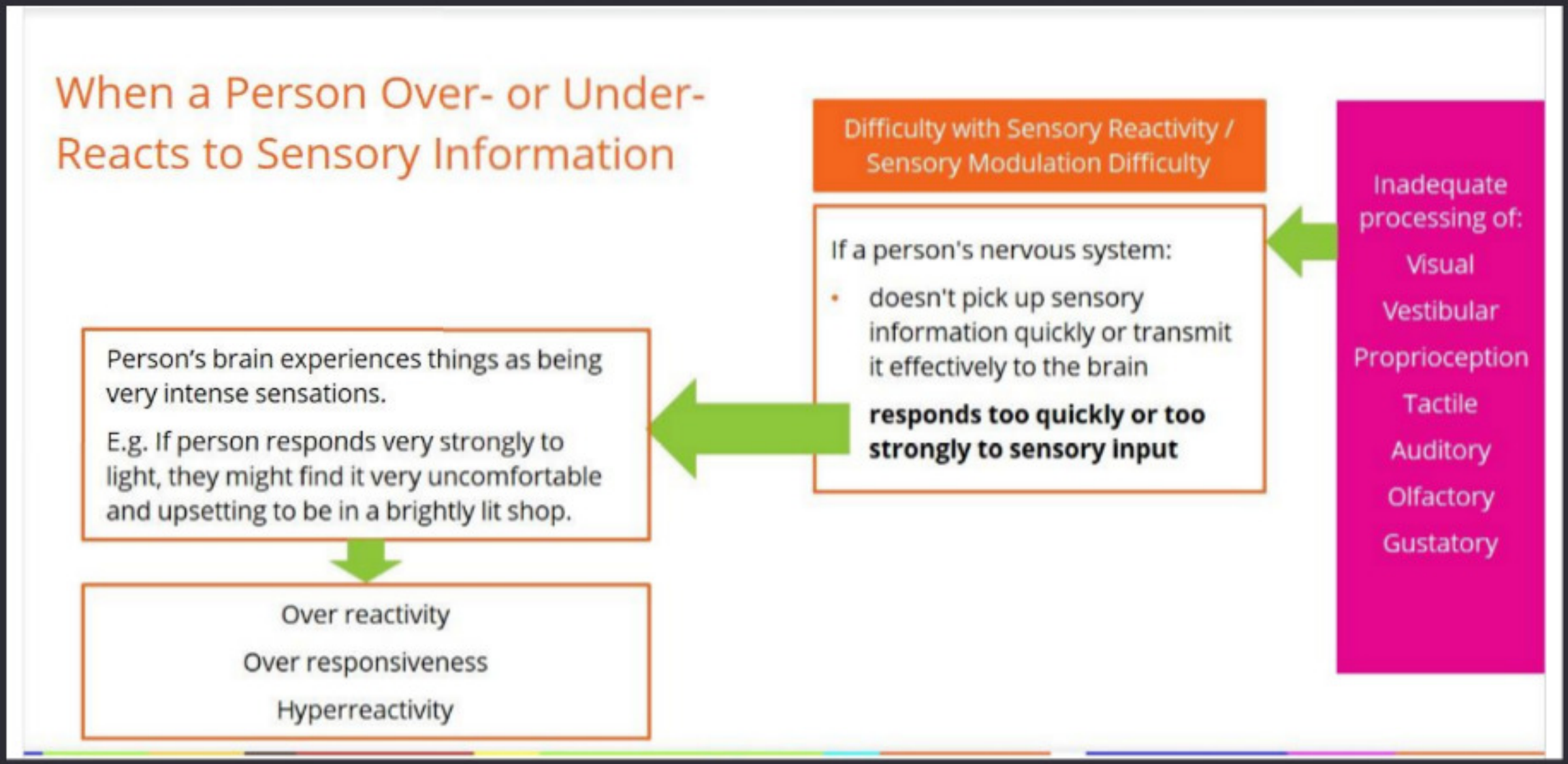
- **doesn't pick up sensory information quickly or transmit it effectively to the brain**
  - Person may seem slower to respond or react to things around them
  - E.g. not feel quickly that they had their hand against something hot
  - Under reactivity
  - Under responsiveness
  - Hyporeactivity
- responds too quickly or too strongly to sensory input

Inadequate processing of:

- Visual
- Vestibular
- Proprioception
- Tactile
- Auditory
- Olfactory
- Gustatory

SENSORY MODULATION/REACTIVITY DIFFICULTIES

When a child OVER reacts



WHEN YOUR CHILD OVER OR UNDER REACTS

These difficulties can occur in just one of the sensory systems or more than one.
For some people the degree to which they under or over react impacts on their ability to do the things they need to do in everyday life.
Difficulties with sensory reactivity can cause the child to become anxious, fearful, angry and frustrated or very passive and under reactive

How do they cope? COMPENSATION

- they may avoid certain sensory inputs
- Seek sensory opportunities with other senses to try and block out too much sensory input
- If they are not getting enough information, they may seek more of that sensation.

WHEN YOUR CHILD OVER OR UNDER REACTS

TYPES OF COMPENSATION

- Removing clothes
- Fidgeting constantly
- Putting inedible objects in mouth
- Requesting hugs, tickles, or to be carried
- & many more

It is possible to be overreactive in one sense and under reactive in another.
Reactivity can be dependent on a situation

SENSORY REACTIVITY/MODULATION DIFFICULTIES

Can you list some of the ways your child compensates?

Instructions

Collaborate Board

SENSORY REACTIVITY/MODULATION DIFFICULTIES

SENSORY DISCRIMINATION OR PRAXIS DIFFICULTIES

Inadequate processing of:

Visual

Vestibular

Proprioception

Tactile

Auditory

Olfactory

Gustatory

Sensory Discrimination or Praxis Difficulties

The brain has difficulty making sense of the information it receives the person can have difficulty:

- **recognising the features of sensory input**
- with body position and movement
- understanding their own body

Difficulties Making Sense of Sensory Information

Although the information from the sensory systems is reaching their brain, they find it hard to interpret and make use of the information effectively.

Some examples:

Touch

Seeing

Sound

Proprioception

SENSORY DISCRIMINATION/ PRAXIS DIFFICULTIES

TOUCH

- A child might not easily be able to locate whereabouts something is touching their body, so they would fumble doing up buttons.
- It may be harder for them to know whether something touching is cold or wet.

SOUND

- A child might find it harder to pick out the sound of their teacher talking over the background noise in the classroom.

SENSORY DISCRIMINATION/ PRAXIS DIFFICULTIES

VISION

- A child might have difficulties with finding objects in cluttered environments or finding a word on a page

PROPRIOCEPTION

- A child can seem clumsy
- They can use too much or too little force when doing things

SENSORY DISCRIMINATION/ PRAXIS DIFFICULTIES

POSTURE

- The way a person's brain organises their body position and movements to be able to move around.
- Maintaining a good posture is an extremely important role our body plays in helping us do the things we need to do in everyday life.
- Our brain relies heavily on information from;
  - proprioceptive and vestibular senses as
  - touch and visual senses to maintain posture.
- Means we can maintain a good balance in sitting, standing, walking and running.
- Our brain is constantly receiving information from our senses to make tiny adjustments so that we don't fall over

SENSORY DISCRIMINATION/ PRAXIS DIFFICULTIES

BODY PERCEPT/MAP

- It is an internal map that we have of our body.
  - When a child has body percept difficulties they can;
  - appear clumsy, uncoordinated
  - bump into things often
  - find it particularly hard to use cutlery to eat, and tend to use their hands to feed themselves

DYSPRAXIA

Their experience might be that they know what they want their body to do, but they struggle to put together and carry out the coordinated muscle movements to achieve it.

it's not a question of trying harder - it's a difficulty with the underlying components of carrying out a coordinated action.

STRATEGIES: PROPRIOCEPTION

Run Errands

Get child to run an errand: can they fetch an item from upstairs or another room?

Home Push-ups

Get your child to push against a wall with both hands as hard as they can for a short interval.

Or, get them to do pushups against a table or a chair.

Garden Games

Play chase in the garden or park.

Do handstands, cartwheels or wheelbarrow races.

Play tug of war.

Get your child to hang from a climbing frames.

Gardening

Get your child to help in the garden: raking grass or leaves, digging up weeds.

Household Chores

Bring laundry bag down stairs, help load and unload the washing machine, peg washing out, sweep the floor, help to carry stuff to the recycling bin, drag the wheelie bin to the kerb on collection days, help to make beds, help to put the shopping away, wash the car.

Hopscotch

Chalk hopscotch on the patio / drive.

Movement

Clapping games, action rhymes like "Row Your Boat".

Dance to favourite music tracks.

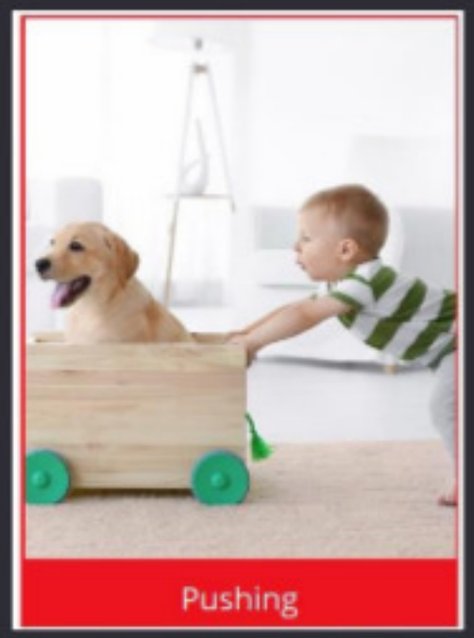
Do yoga stretches.

Put sofa cushions on the floor and get your child to jump from one cushion to the next.

Get your child to do animal jumps / movements: bunny hops, frog jumps, snake slithers and elephant stomps.

MOVEMENT MATTERS


Pulling


Pushing


Heavier (carrying)

HOW MOVEMENT HELPS

The benefits of active movement are that it:

- Helps a child who is in "fight-flight-freeze" to get calm and organized
- Helps a child who needs more sensory input to "top up".
- Builds strength, stamina and core stability
- Helps develop great coordination, and
- Helps a child to be ready to sleep well at night