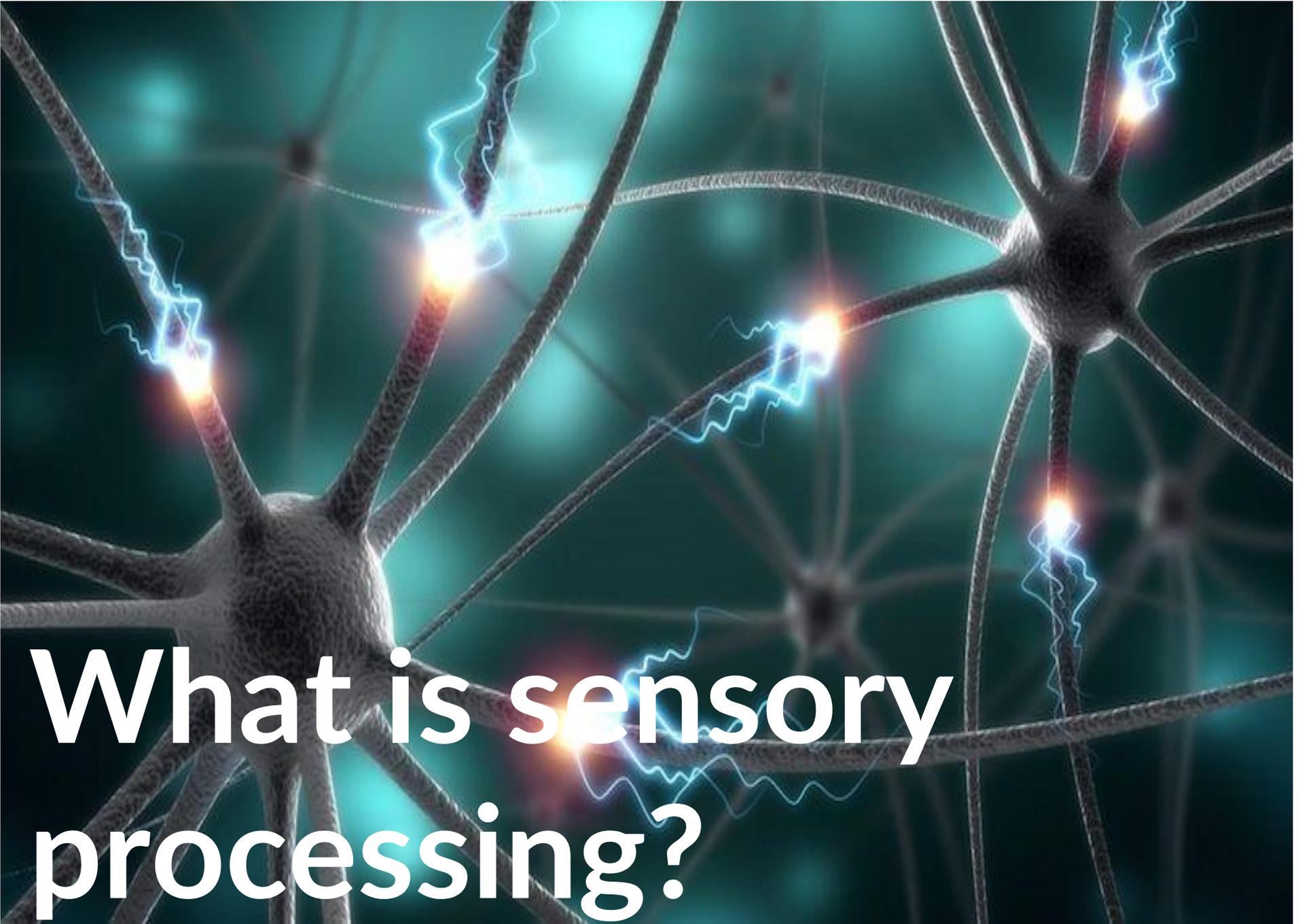


Interoception: Understanding our 8th Sensory System

Tamsin Cox

Principal Educational
Psychologist

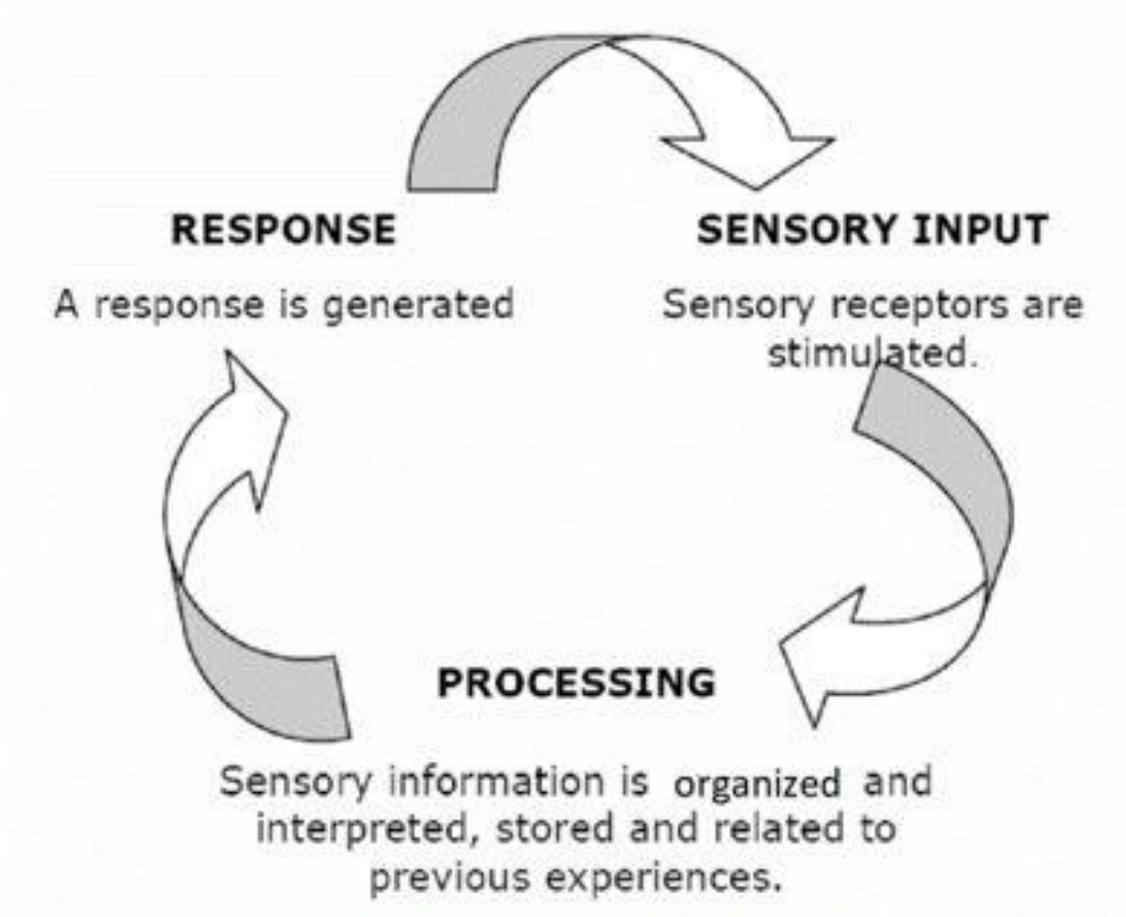


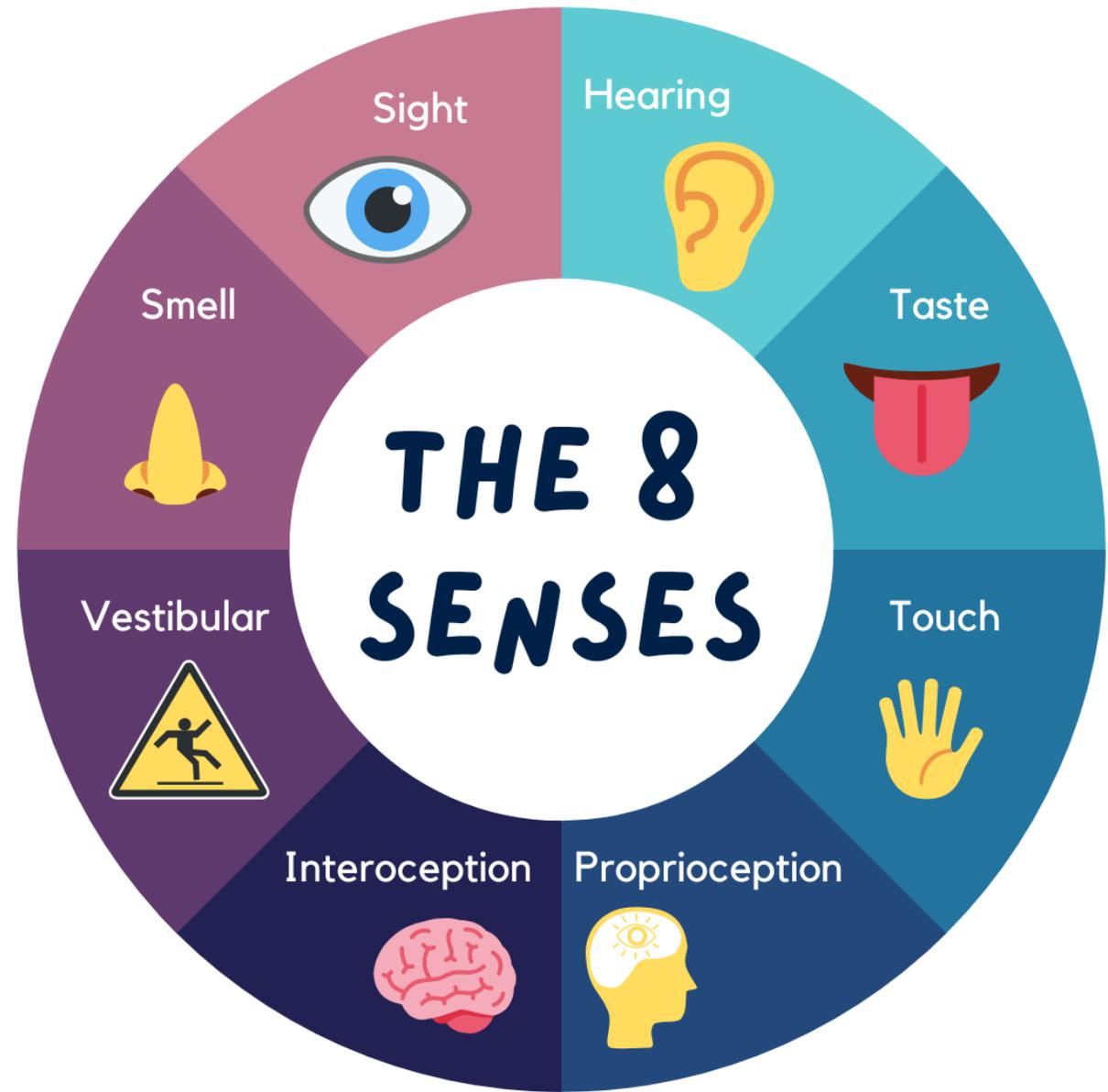


What is sensory processing?

What is Sensory Processing?

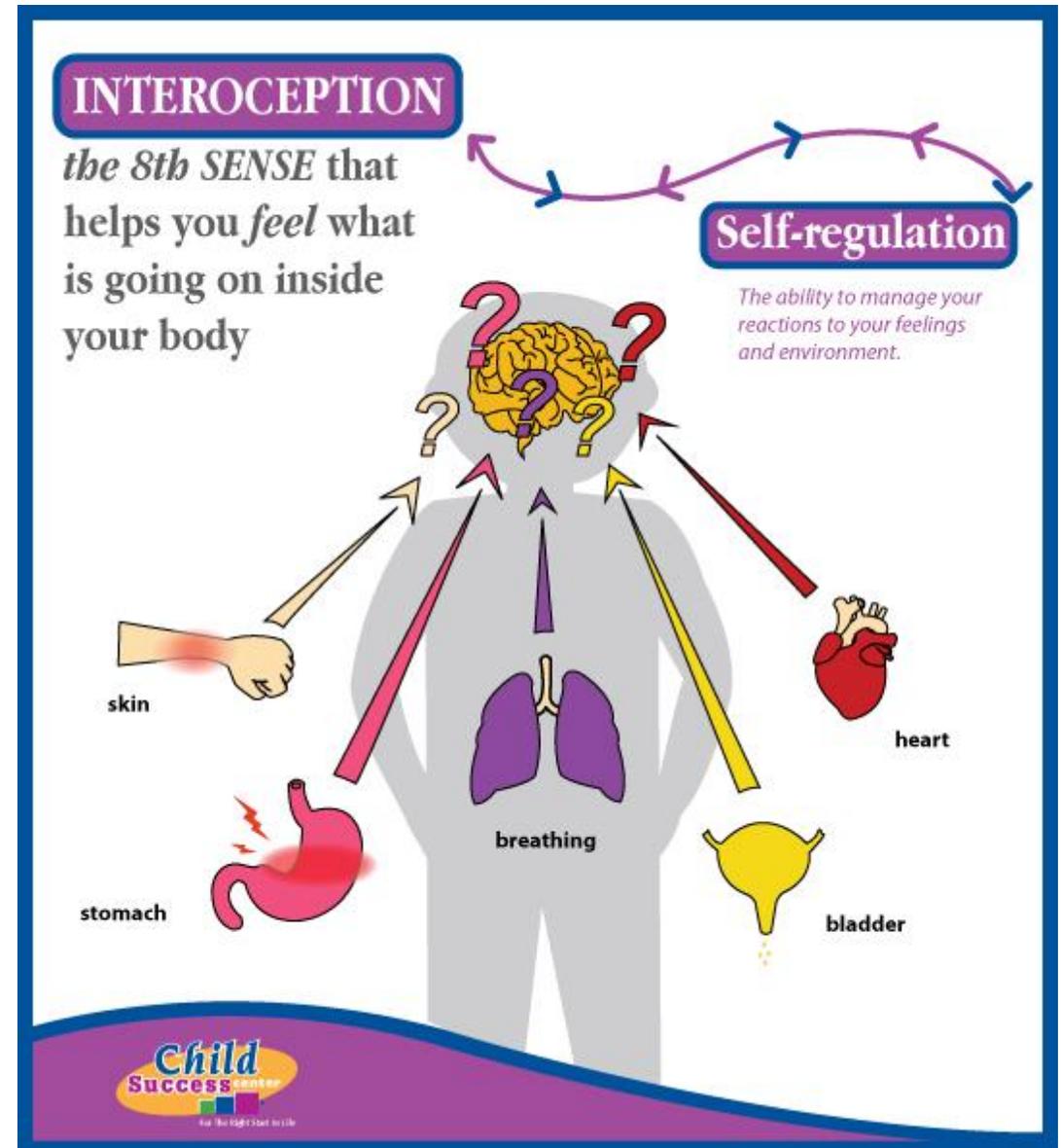
- Sensory processing is **NOT A DIAGNOSIS** it is a description of differences that can impact on participation and engagement in everyday life.
- Sensory processing is *the way our brain receives, organizes, and responds to sensory information from the environment.*
- *It uses information from our 8 senses* (sight, sound, touch, taste, smell and vestibular, proprioception and interoception).





What is Interoception?

- **Interoception** is our internal sensory system or '8th sense'.
- It helps us to **feel the signals and sensations** that happen inside our bodies. This includes recognising and interpreting internal body signals such as hunger, thirst, pain or the need to use the toilet.
- **Interoception** also helps us **connect physical sensations to emotions**, like a racing heart linked to anxiety or tense muscles linked to fear, and so is also important for emotional regulation.



Interoception: Body and Emotions

- It can help to think about **two aspects** of Interoception
 1. **Body States**
 2. **Emotion States**
- Although these two states are **connected**

What is Interoception?



Interoception

Broadly speaking interoceptive awareness provides us with information about our body states and our emotion states.

Body States

- Toileting Needs
- Thirst
- Hunger
- Pain
- Fatigue

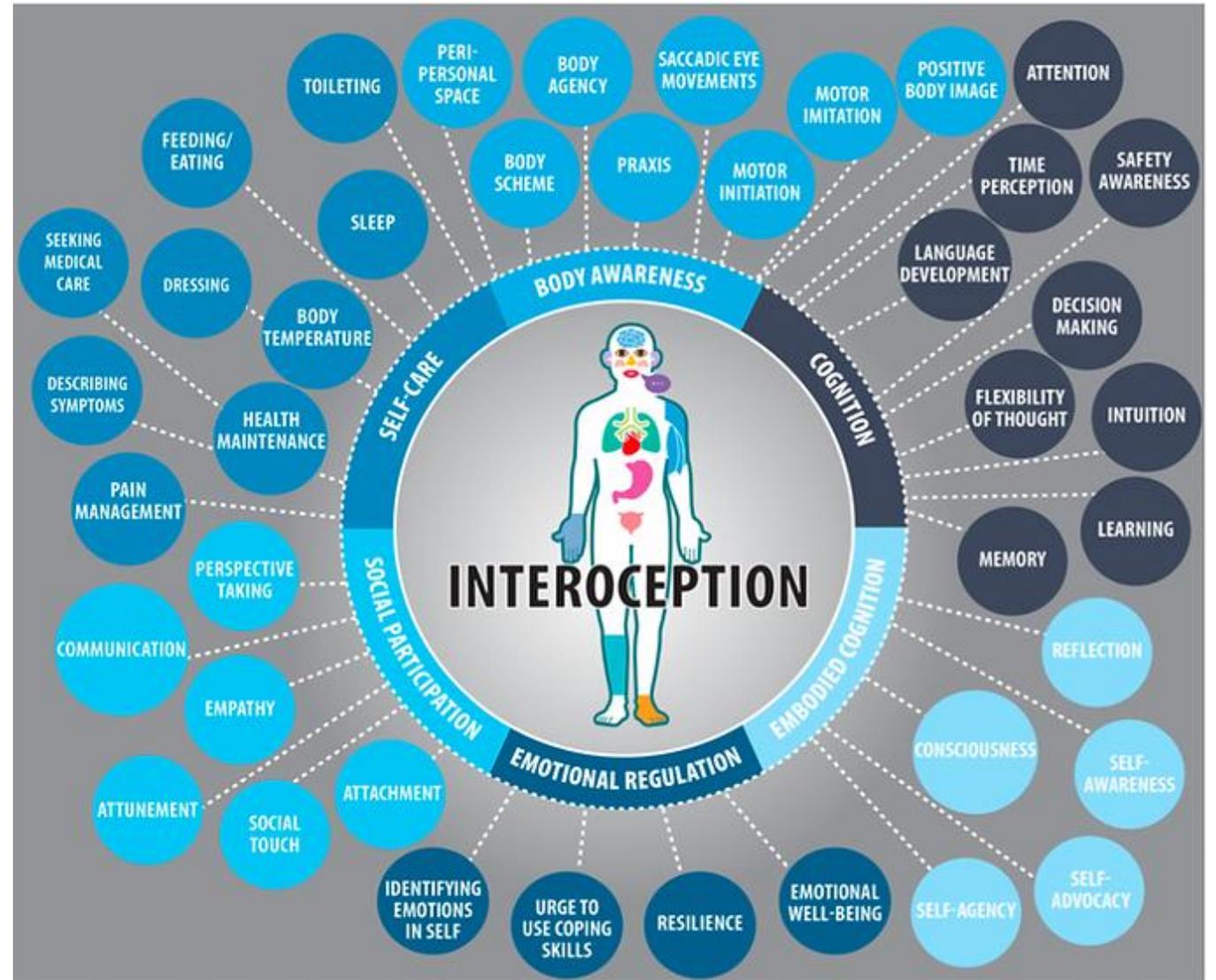
Emotion States

- Anxiety
- Anger
- Irritability
- Fear
- Sadness
- Excitement
- Joy

Interoception in more complex detail

Interoception impacts many aspects of development:

- ❖ Body awareness
- ❖ Cognition (learning)
- ❖ Emotional regulation (managing feelings)
- ❖ Self-care (looking after yourself)
- ❖ Social participation (interacting with and understanding other people)





Why is understanding about interoception important?

Just like our other senses, research suggests that interoception might be important for our survival, emotions, decisions, and well-being.

Whilst it is important to ask, “*How am I feeling?*”, we think it is just as important to ask, “***What am I feeling?***”

What might challenges with interoception look like?

- A child with poor interoception will have more difficulty registering and responding flexibly to their **internal body signals**, including their emotions.
- There is research to suggest that **children with ADHD and those with autism** (and associated sensory processing differences) struggle with interoception at higher rates than non-ADHD/non-autistic children.





Interoception and Physical Regulation (Body States)

- Hunger
- Thirst
- Pain
- Temperature
- Toileting needs
- Tiredness
- Digestion
- Heart rate



Tuning into, recognising and labelling body signals

Scanning	Body scanning
Mapping	Body mapping
Developing	Developing a vocabulary (building words) to describe body signals

Body Scanning

- Provides a structured activity to help children take notice of their bodies and their internal signals
- Helps to foster increased self-awareness
- Helps to make connections between physical body sensations and signals and emotions
- Once children have learnt how to do a '**body scan**', this can be used as a tool for regular body '**check-ins**' (e.g. in the morning before school, when they get home from school, before bed)

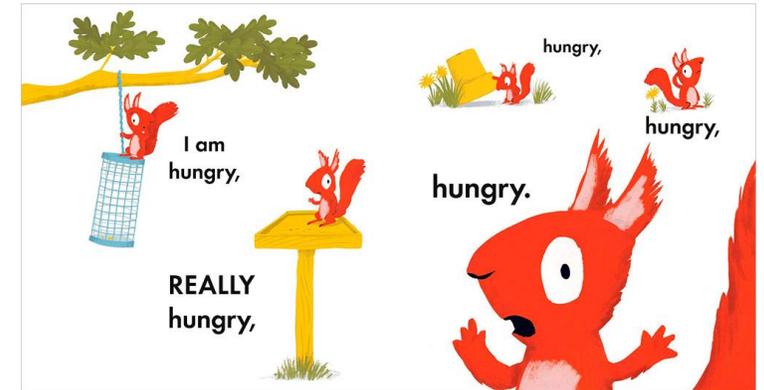
<https://www.youtube.com/watch?v=xLoK5rOl8Qk>



Supporting Interoceptive Awareness for physical body signals: modelling and games



- **Model Your Own Body Awareness:** Children learn through observation, so regularly describe your own internal sensations. For example, you can say, “I’m feeling hungry. My stomach is growling, and it feels empty,” or, “I need to go to the bathroom. My tummy feels full.” This helps children connect physical sensations with actions in a natural, everyday context.
- **Create Games Around Feelings and Sensations.** To build body awareness in a fun, non-threatening way, create games that focus on describing physical sensations related to emotions. An example would be to ask them how their tummy feels before eating, then asking them to describe how their tummy feels after eating. You can also answer these questions but be careful not to correct or suggest how your child should feel. The point of the game is to start trying to connect with feelings inside and to notice changes with bodily sensations.
- **Story books** are also a helpful tool (see resources at end of powerpoint) – image is from ‘I Am Hungry’ by Michael Rosen





Just like Dora!!

Dora wants me to remember these 3 things:

1. Keep my hands down
2. Use my words with a quiet voice
3. Keep working hard.




1. Follow a bedtime routine. Fireman Steve takes a bath, brushes his teeth, and reads for 15 minutes before turning off the light.
2. Close your eyes and try to lie still.
3. Stay in bed after the lights are out.



		
Spiderman  talks nicely.	Spiderman  helps his friends	Spiderman  looks after his clothes




Sometimes Spiderman gets upset too.
When Spiderman is upset,
he uses his words and talks to his teacher.

Supporting Interoceptive Awareness for physical body signals: visual prompts and tools

- **Use Visual Prompts and Tools:** For children who struggle with eating or recognising their hunger/fullness signals, tools like a [Snack Board](#) can be helpful. This visual guide shows how many snacks a child can have throughout the day. It reassures children who may feel anxious about food availability while helping them regulate how much they eat. For those who don't recognise hunger, the board serves as a reminder to eat regularly to maintain energy for daily activities.
- For mealtimes, a [Dinner Plate Visual](#) can indicate portion sizes and the types of food they should eat. This is particularly useful for children who may not recognise when they're full or may feel anxious about eating too little. A helpful tip is allowing extra portions of vegetables for those who crave large amounts of food, reducing feelings of restriction.
- Also see '**Power Cards**' in resources at end of Powerpoint (examples included here too) – they use characters that are motivating for the child

Supporting Toileting

- **Support Toileting with Social Stories and Visuals.** Children who struggle with interoceptive signals around toileting can benefit from social stories that explain the process in a simple, step-by-step way. Use visuals to show when and how to use the toilet. For example, you could set a timer for regular bathroom breaks and explain, “When the timer goes off, it’s time to check if your body needs the toilet.” This helps create a routine for those who may not feel the urge to go until it’s urgent.
- There may be children and young people who are sensitive to messages from their body and so interpret early signs of needing the toilet as an urgency to go. They will then go to the toilet with much greater frequency and may be anxious about not getting there on time.
- Also see **Toilet visual** in resources at end of Powerpoint

Below are some Helpful Toileting Resources from ERIC:

[Potty training: how to start & best age to potty train](#)

[Toilet anxiety and toilet phobia in children](#)

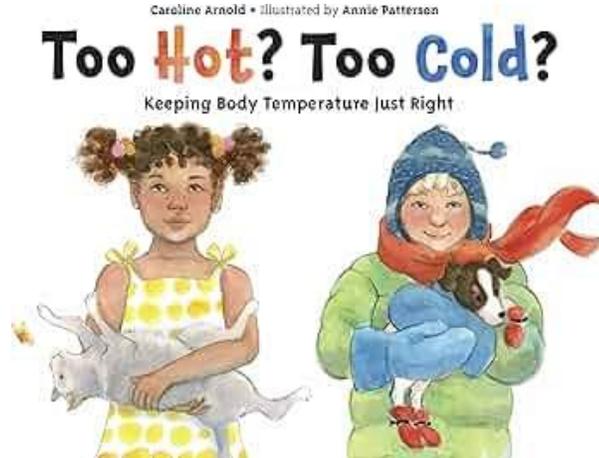
[Learning bottom wiping: a step-by-step guide](#)

[Episode 2 – Children that will only poo in a nappy](#)



Supporting Temperature Awareness

- **Temperature Exploration.** For children who struggle with temperature regulation, allow them to explore hot and cold objects like water bottles filled with cold or warm water. Use dressing-up games to practice putting on coats when it's cold and taking them off when they feel warm.
- The BBC have created some useful resources for [exploring temperature and the weather](#).



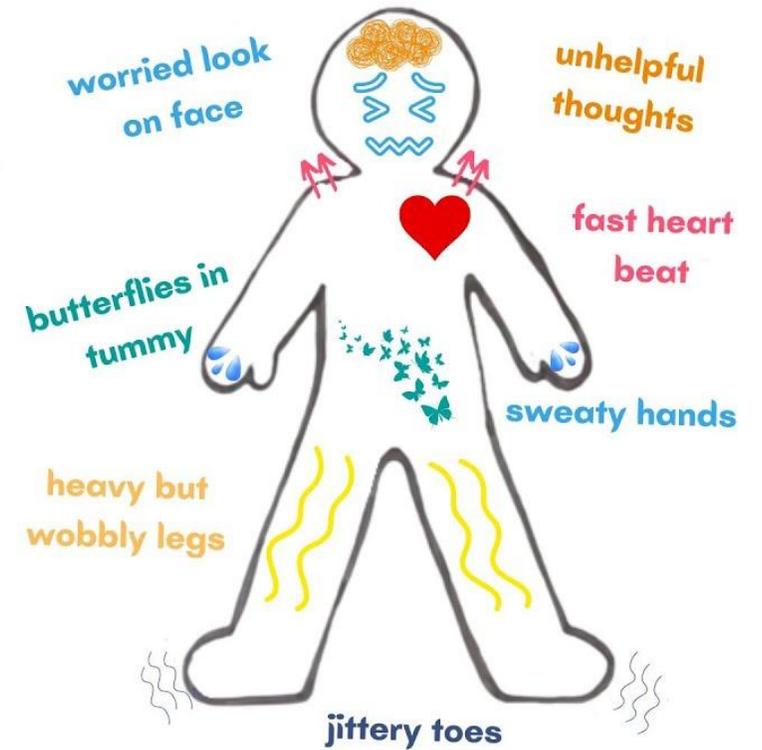
Body Mapping

Body Mapping

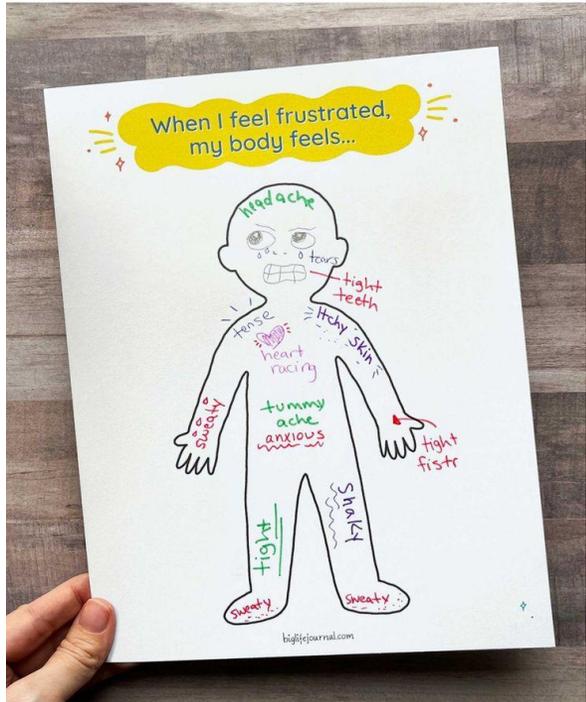
What is your body telling you?

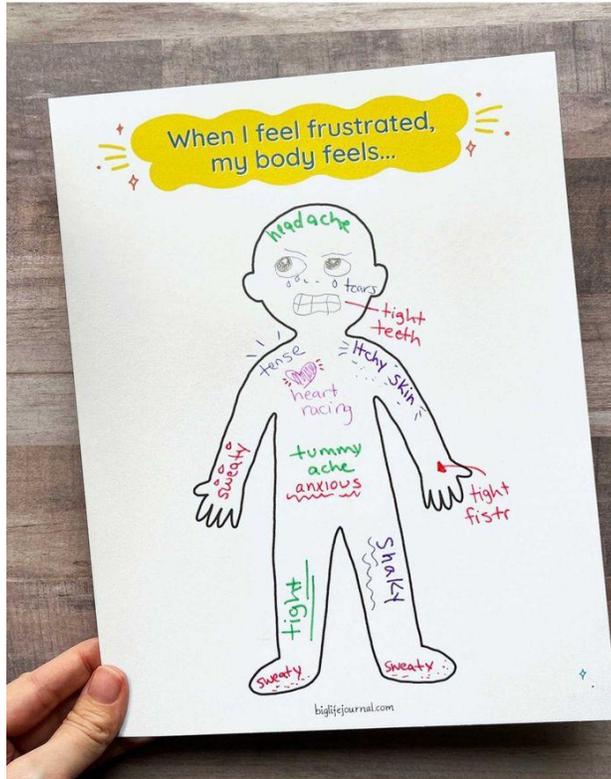


The Children's Society



A simple visual tool to help children start to identify and explore their internal signals and how these relate to different body states and then also their emotions





Activity

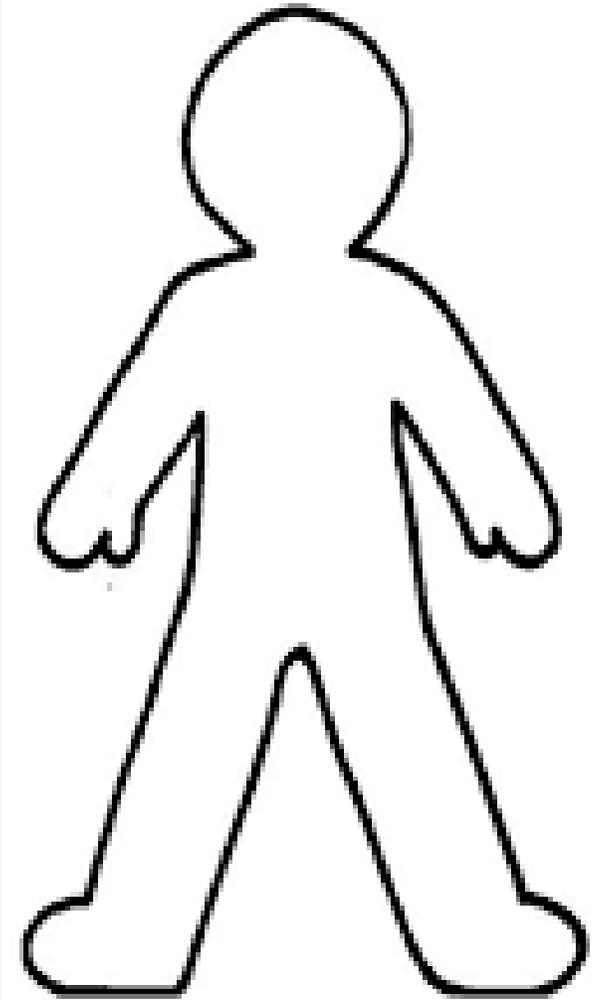
- Using the **body mapping template** have a go at thinking about how your body feels either:

a) *now*

or

b) *when you are calm and relaxed*

- If you want to - draw or write your thoughts on the template



Developing a word bank for body feelings

Linking words to different body states can help your child start to find a way to express what is happening in their body and how this links to their physical state

- ❖ Blue: tired,
- ❖ Green: calm, ready to learn
- ❖ Yellow: excited, nervous
- ❖ Red: angry, anxious

POSSIBLE BODY SIGNALS:

Heavy Limbs
Moving Slowly
Slow Heartbeat
Foggy Head

POSSIBLE BODY SIGNALS:

Relaxed Muscles
Comfortable
Body Temperature
Focused/
Engaged Brain

POSSIBLE BODY SIGNALS:

Wiggly
Heart Beating Faster
Body Warming Up
Muscles Tense
Thinking Faster

POSSIBLE BODY SIGNALS:

Heartbeat Fast
Skin Flushed
Hot/Sweating
Muscles Tense



(5 minutes)

Interoception and Emotional Regulation (Emotion States)

- Sad
- Frustrated
- Anxious
- Nervous
- Proud
- Surprised
- Joyful
- Excited
- Scared

FEELINGS LIST					
					
Happy	Peaceful	Fear	Surprise	Sad	Anger
Content Cheerful Proud Confident Silly Energetic Excited Enthusiastic Eager Hopeful Optimistic Elation	Calm Loving Affectionate Trusting Relaxed Thoughtful Caring Thankful Accepted Valued Inspired Passionate	Shy Nervous Worried Anxious Regret Excluded Insecure Embarrassed Scared Frightened Terrified Panic	Startled Confused Shocked Overwhelmed Speechless Curious Amazed Moved Awe-struck Crushed Stunned Bewildered	Bored Tired Lonely Guilty Disappointed Hurt Insignificant Inferior Rejected Hopeless Depressed Miserable	Annoyed Frustrated Irritated Jealous Offended Mad Disgusted Hateful Furious Agitated Enraged Hostile

How does interoception link to managing emotions (self-regulation)?

To manage emotions you have to be able to:

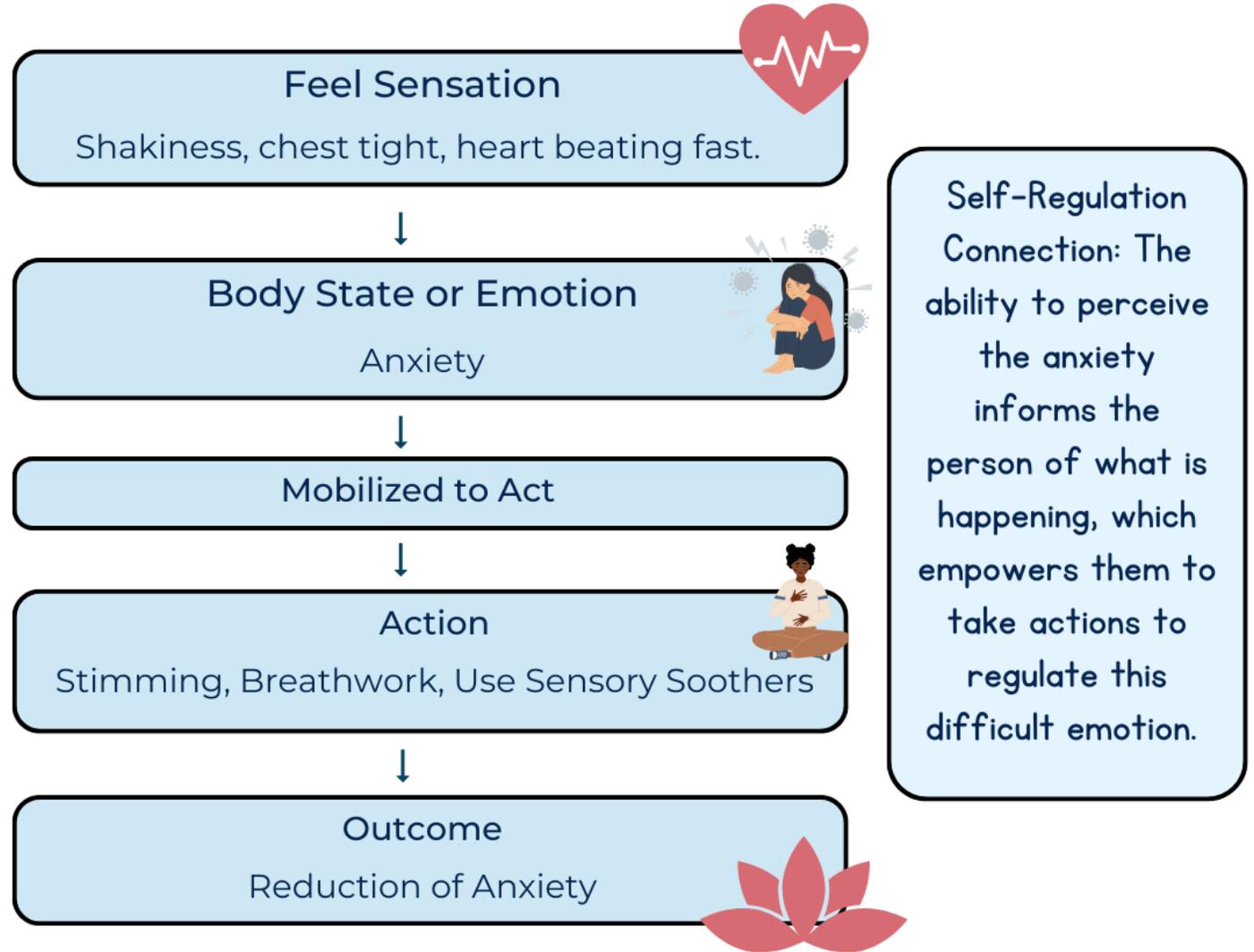
1. Be aware of inside body signals
2. Understand how our body signals can change with what we are experiencing
3. Understand that our body state and our emotions are linked

For example: anxiety....



Linking body signals, emotions and actions

- To understand and manage an emotion a child first has to be able to recognise the **body signals** associated with that emotion
- They then have to be able to **label the emotion**
- They then have to be able to **scale the signal / emotion**
- They then require a **toolkit of strategies** to 'manage' the emotion effectively



Linking Physical (Body) Signals to Emotions

Once a child can identify their body signals and is able to describe these, whether using words and / or visuals.....

Then we need to help them link those physical sensations to their emotions.

For example, I feel hot and sweaty, I have butterflies in my tummy and I feel sick inside.... I'm feeling worried.

Linking Emotions with Bodily Sensation Cards

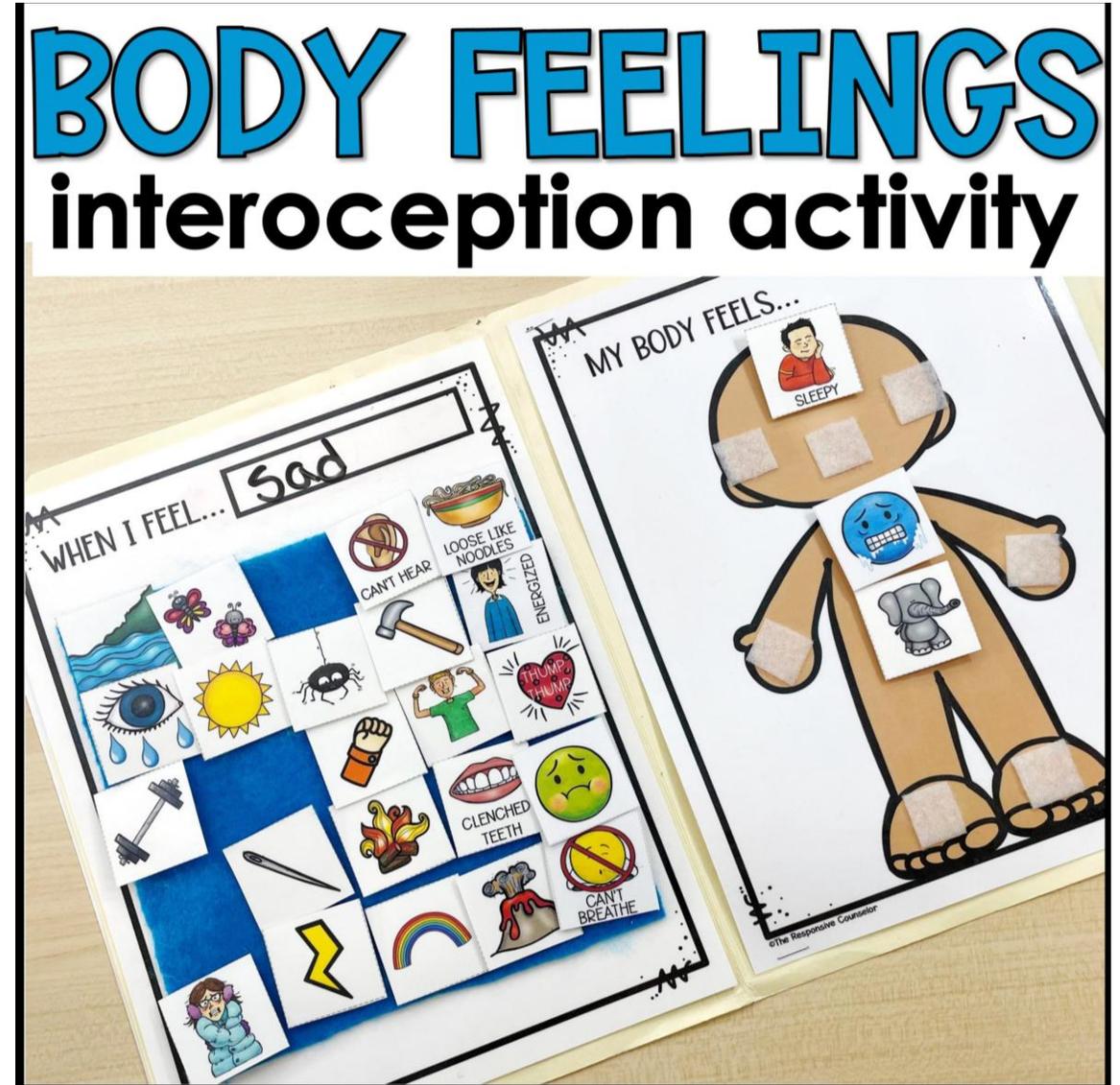
build interoception skills!

			fidgety foot tapping	need to move face scrunched	breathless speechless
ANGER 	SAD 	HAPPY 	When we feel insecure , we might feel bodily sensations like...	When we feel lonely , we might feel bodily sensations like...	When we feel joy , we might feel bodily sensations like...
hiding warm	heaviness cold inside	open energetic			

Visual support

Some children will need a lot more visual support to help them to:

- Identify and label their body signals
- Map these on a body template
- Match these to an emotion



Name: _____ Date: _____

Word Bank: Emotion Charades

Directions: Use the pictures and emotion vocabulary synonyms to describe how someone is feeling.

Image	Emotion Word	Synonym 1	Synonym 2
	worried	concerned	distressed
	angry	mad	irritated
	excited	animated	enthusiastic
	grouchy	testy	grumpy
	happy	glad	delighted
	sad	cheerless	gloomy

'Inside Out' Feelings Word Mat - Key Stage 2

JOY	SADNESS	FEAR	DISGUST	ANGER
				
delighted	crestfallen	afraid	appalled	angry
ecstatic	dejected	anxious	disgusted	annoyed
elated	depressed	apprehensive	dismayed	fuming
euphoric	despondent	frightened	repulsed	furious
happy	heartbroken	panicked	offended	incensed
overjoyed	miserable	tense	shocked	livid
thrilled	sad	terrified	sickened	outraged

My Emotions


astonished


happy


poorly


nervous


hot


scared


cross


sleepy


confused


cold


excited


surprised


embarrassed


sad

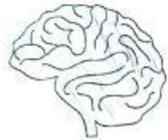
ink saving Eco

Developing a word bank for emotions

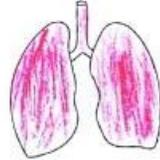
When I feel an emotion

*emotions include mad, sad, silly, happy, or frustrated. We can notice sensations in our bodies when we have emotions.

I can notice it in my:



Brain
Dizzy
Full
Distracted



Lungs (breathing)
Fast
Slow
Normal



Heart rate
Fast
Slow
Pounding



Hands
Loose
Clenched
Fidgeting



Tummy
Hurts
Tight
Normal
Butterflies



Feet
Want to run
Fidgeting
Normal

List some things you might feel and where you feel them

Brain - focused
Hands - hot
Lungs - out of breath

©Miss Jenn

HOW TO TEACH
INTEROCEPTION

Coping strategies

Once a child can *tune into* their body signals and can *recognise* and *label* an emotion, then they can develop coping strategies for managing that emotion.....

When I feel SAD



I can...

- Think about the things I am grateful for
- Draw or write down my feelings
- Listen to my favourite music
- Do my favourite activity to cheer
- Talk about my feelings with someone
- Spend time with my friends, family and pets

When I feel FEARFUL

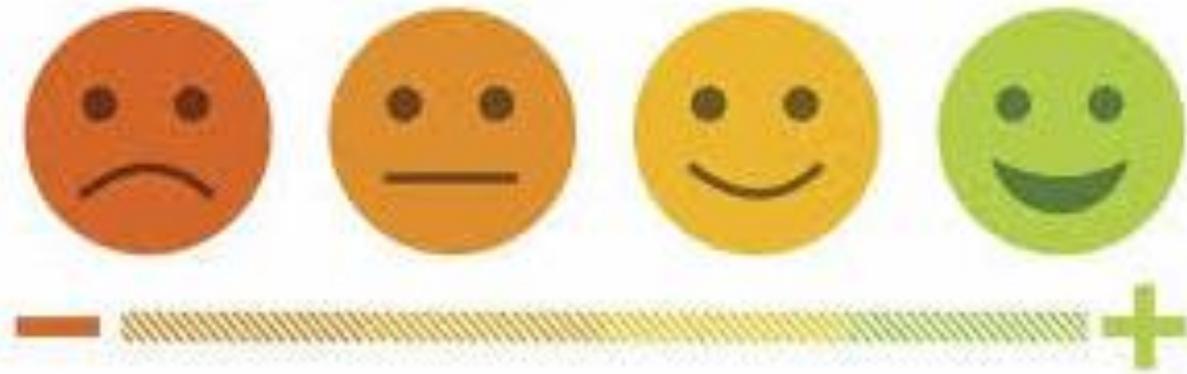


I can...

- Visualize my happy place
- Take slow, deep breaths
- Take time out, or move away from my trigger
- Focus on things I can control, such as my reactions
- Talk about my feelings with someone
- Be brave and try to face my fears

FEELINGS SCALE + COPING SKILLS

	HOW DO YOU ACT?	WHAT CAN YOU DO ABOUT IT?
AGITATED ANGRY DEVASTATED FRIGHTENED FURIOUS JEALOUS STRESSED OUT	ARGUING, REFUSING TANTRUM, SHUTTING DOWN, YELLING, STOMPING	STOP, AND WALK AWAY TAKE DEEP BREATHS COUNT TO 10 OR 100 TELL AN ADULT MOVE YOUR BODY OR EXERCISE TAKE A HUG PRACTICE DEEPCOINING TECHNIQUES
CONFUSED EMBARRASSED EXCITED IRRITATED NERVOUS SILLY WORRIED	AVOIDING, PACING, CLINGY, HYPER SHUTTING DOWN, OVERSTIMULATED	TAKE DEEP BREATHS TAKE A BREAK PAUSE, AND ASK FOR HELP USE POSITIVE SELF-TALK RELAX AND TRY AGAIN TENSE & RELAX YOUR MUSCLES THINK OF A PEACEFUL PLACE
CONFIDENT FINE FOCUSED HAPPY HOPEFUL PEACEFUL PROUD	SMILING, RELAXED, LAUGHING, ENGAGED, PAYING ATTENTION, ENJOYING YOURSELF	SMILE & PRACTICE GRATITUDE TAKE STEPS TOWARDS YOUR GOALS HELP SOMEONE ELSE EXERCISE KEEP LISTENING WRITE ABOUT YOUR SUCCESSSES
BORED DISAPPOINTED LONELY SAD SHY SICK TIRED	WITHDRAWN, DISENGAGED, CRYING, DEPRESSED, SLOW DOWN, UNDERSTIMULATED	GET OR GIVE A HUG OR FAMILY GET SOME FRESH AIR STRETCH LISTEN TO MUSIC MOVE YOUR BODY OR EXERCISE DO A HOBBY YOU ENJOY



Scaling: identifying how you're feeling or measuring an emotion

- Visual scales can be helpful for children to express and explore how they're feeling when using 'words' is difficult
- Scales can also be helpful to start helping your child think about the size/intensity of an emotion, e.g. 2 = cross, 6 = angry, 10 = exploding

My Check In

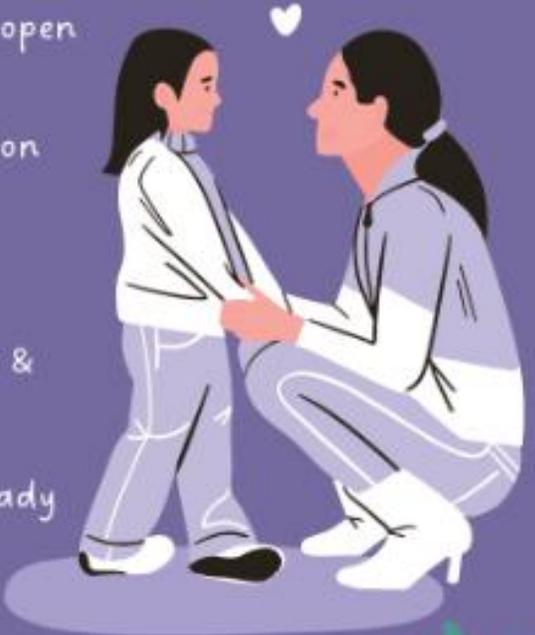


5		<p>Explode—I feel angry and I am not sure how to calm down. I need an adult to help me.</p>
4		<p>Rumbling—I feel like I am starting to lose control. I may need space and some support.</p>
3		<p>Bubbly—I am feeling frustrated or something is worrying me. I may need a break to calm myself.</p>
2		<p>Ok—I know something is not right but I know what I need to do.</p>
1		<p>Happy—I feel good about myself and what is going on around me.</p>

Co-regulation:
helping your child
to identify,
understand and
respond to their
body signals and
emotions

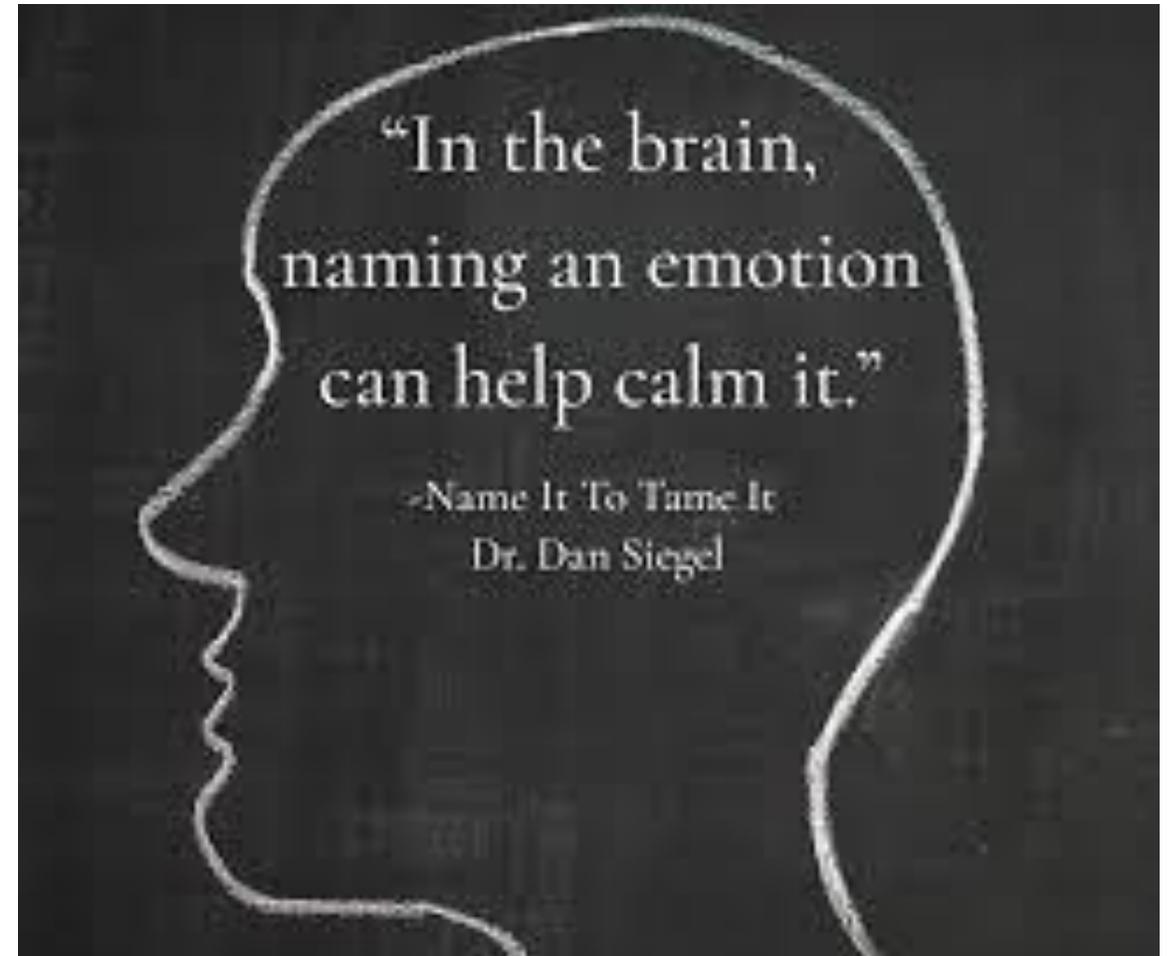
+ CO-REGULATION:

- Stay calm: warm and open gestures
- Offer Sensory regulation
- Support, ask 'what do you need?'
- Acknowledge emotions & describe them
- Help when they are ready

An illustration on a purple background showing a woman in a grey and white jacket crouching to hold the hands of a child in a white jacket. A small white heart floats above them. The background features decorative elements like a white crescent moon, a white plus sign, and a green gear-like shape at the bottom right.

Tuning into emotions: recognise and empathise

- As the adult we recognise, label and empathise with the child's emotions, e.g. *I can see that you feel angry because you lost at the game and that upset you*
- We must regulate our own emotions to help a child regulate theirs
- *(an adult is not in the right state to coach a child through their own feelings if they are close to reaching a heightened emotional state themselves and shout at the child, escalating the situation further)*



Name it to Tame it

Name it to Tame it

(How to listen to & label emotions)



1. Notice changes in the body.
2. Identify the feeling & get specific.
3. What is this emotion telling me? (needs, values)

1 "I'm noticing my heart racing."
↓
2 "I'm feeling nervous & apprehensive."
↓
3 "I care about my job."

1 "I'm noticing my stomach is in knots."
↓
2 "I'm experiencing grief & guilt."
↓
3 "I want to make amends."

THE NAME IT TO TAME IT TECHNIQUE



When faced with overwhelming emotions, it can feel like you're at the mercy of your feelings.

Name it to Tame It is a technique, rooted in neuroscience, that focuses on using language to process and regulate emotional experiences.

When you experience a strong emotion, the emotion centers of the brain hijack your rational thinking. Naming your feelings turns on the areas of the brain responsible for reasoning, decision-making, and self-control.

@SabrinaSmithTherapyPLLC

- Behaviour is a form of communication.
- Behaviour is driven by a complicated mix of emotions.
- To support the child we need to try and uncover the emotions underneath.



STAR approach

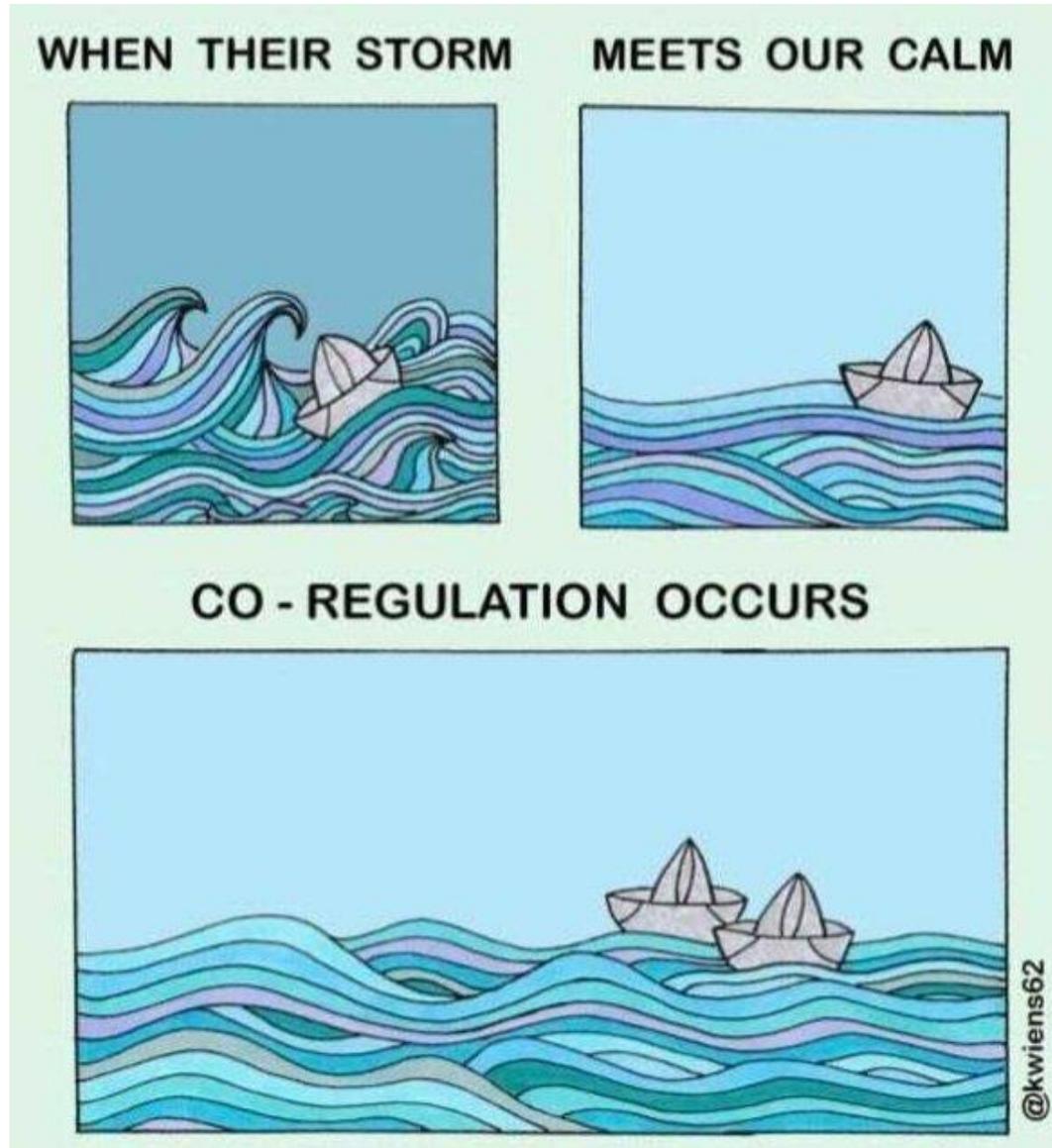
- **STOP**; pause, don't react, speak straight away. Notice any feelings the child's behaviour may be bringing up in you.
- **THINK**; what feeling might lay underneath the behaviour I'm seeing? What is going on for the child right now?
- **ATTUNE**; put yourself into the child's shoes.
- **REFLECT**; what would be an equivalent situation for you that could cause you to feel that way?

Taken from: Emotion Coaching with young people in schools – Gilbert, Gus and Rose



Regulating your own emotions

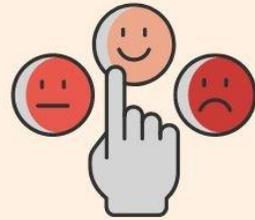
We cannot co-regulate if we don't know how to self-regulate.



What helps us regulate?

- Knowing about your emotional self, what situations make you 'flip your lid', how that feels, what happens and what helps you to feel calmer will give you a better understanding of your approach to emotions and how emotions inform behaviour.
- How you respond and your awareness of when you feel sad, angry, frightened will impact how you respond to a child who is sad, angry and frightened.

EMOTION REGULATION STRATEGIES



Name the emotion



Validate the emotion



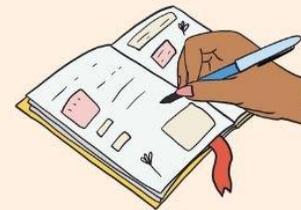
Identify triggers



Meditation or mindfulness



Talking through emotions



Journaling



Notice when you need a break



Good sleep hygiene

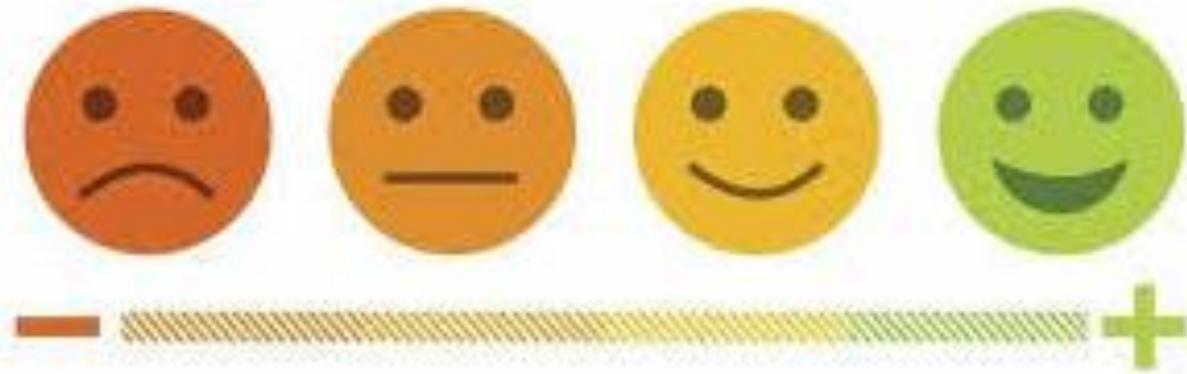


Consider therapy

Activity

- What tools do you have in your toolkit to manage different intensities of emotions, to calm yourself and regulate?
- Take a few minutes to think about what you do to help yourself when you feel:
 - ❖ *Stressed*
 - ❖ *Sad*
 - ❖ *Angry*





Scaling:
identifying how
you're feeling
or measuring
an emotion

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My Check In



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3		Bubbly —I am feeling frustrated or something is worrying me. I may need a break to calm myself.
2		Ok —I know something is not right but I know what I need to do.
1		Happy —I feel good about myself and what is going on around me.

Mindfulness and Interoception

Mindfulness and Interoception are linked as mindfulness improves the ability to:

- notice
- understand
- interpret

body signals like hunger, heart rate, or emotions such as stress.

This awareness helps to develop better self-regulation and emotional management.

Studies have shown that mindfulness-based programmes have a positive, moderate effect on enhancing interoceptive awareness.

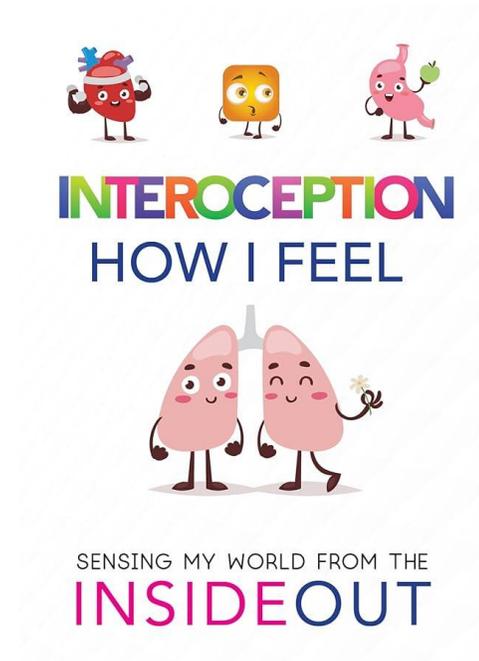
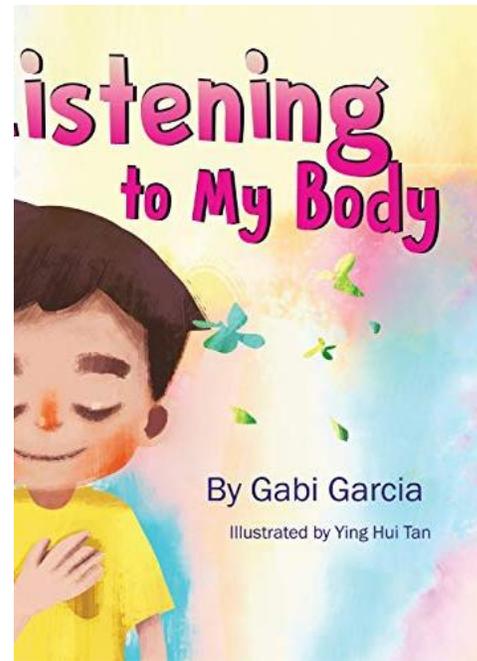
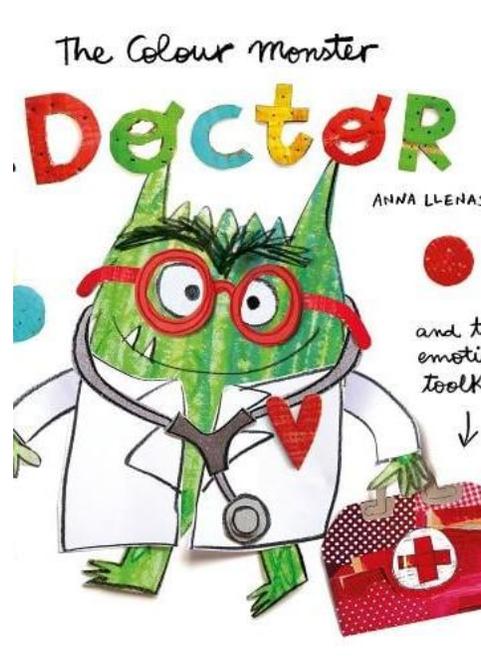
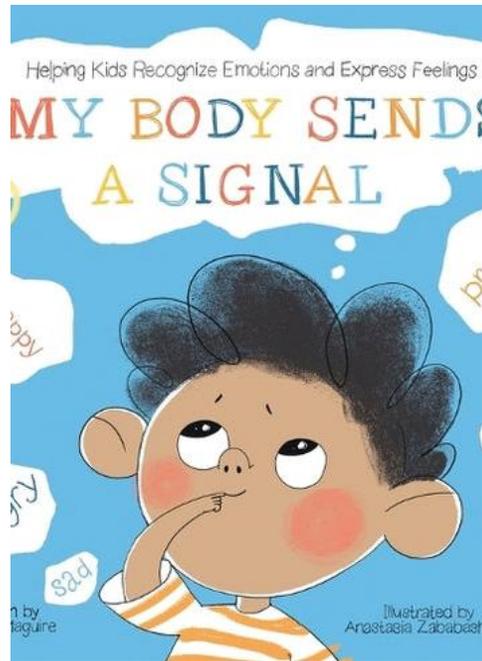
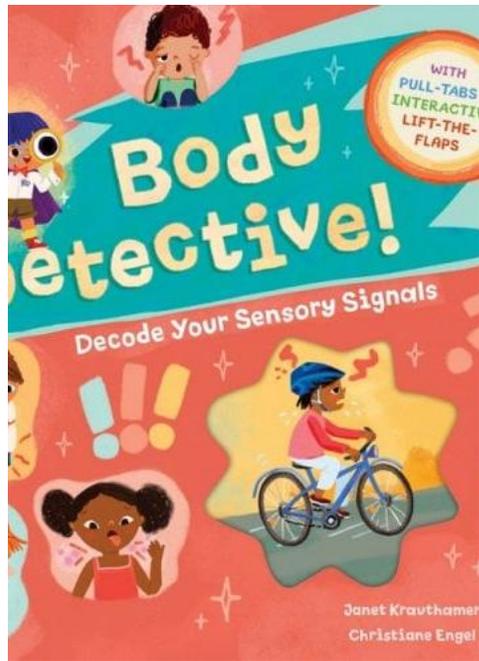
[Belly Breathing: Mindfulness for Children](#)

[Candle and Flower Breathing – Relaxing Mindfulness & Deep Breathing Exercise for Calm & Focus](#)

INTEROCEPTION



Resources





Resources continued:

- **Other Resources for Interoception:**
- [National Autistic Society Interoception Information.](#)
- [Drinking Water Power Cards](#)
- [Toilet Visual](#)
- [Article on Interoception](#)

In summary.....

- Building interoceptive awareness in children is a gradual process, requiring patience, consistency, and fun! Focus on the child's strengths, offering them ways to understand and engage with their body's signals in an affirming, non-pressured environment.
- By integrating visual tools, mindful practices, and fun activities, we can help children gain more control over their eating habits, toileting routines, and emotional regulation, allowing them to feel more connected to their bodies and empowered in their daily lives.

Questions

