Executive Function

How does it relate to learning?

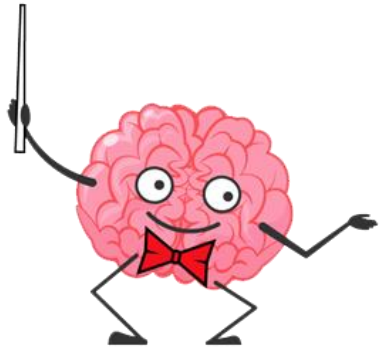
Brent

Kelly Stevens –
Educational Psychologist

BUILDING A BETTER BRENT

What is Executive Function?

- Executive function (EF) refers to a cluster of mental skills/functions that allow us to set goals and get things done.
- Involved in the control/regulation of behaviours, emotions, and cognitions.
- Cue, direct, and integrate all the processes, skills, and abilities when reading, writing, or doing maths. Like an orchestra's conductor.
- Relevant to all of us.



Executive Function Skills

- Emotional control
- Inhibition/ Impulse control
- Organisation of Materials
- Self-monitoring
- Cognitive flexibility
- Initiation
- Planning
- Working memory

Three Main Areas of Executive Function

1. **Working memory** (the ability to keep information in mind so you can put it to use)
   E.g., parent gives instructions → child processes and follows.
2. **Flexible thinking** (being able to see problems from multiple angles and find different ways to solve them)
   E.g., things do not go as planned → developing/adjusting to a new plan.
3. **Inhibition/Impulse control** (includes self-control; the ability to stop before you respond on impulse, to control your attention and behaviour, and to manage your emotions)
   E.g., child recognises they are feeling frustrated → before they react impulsively, they take a short break by getting a drink.

How does EF relate to learning?

Executive function skill	Example relevant to learning
Emotional control	Emotions (e.g., anxiety, frustration) distract from learning tasks; lack of perseverance
Inhibition 	Jumps into work without reading instructions; blurts out answers before giving proper thought; difficulty ignoring distractions
Organisation of materials	Not having the correct books/materials at hand; losing learning materials or having difficulty locating them due to a lack of systems; messy books
Self-monitoring	Checks for mistakes; supports independent working; goal tracking (e.g., am I properly following the task's instructions?)

How does EF relate to learning?

Executive function skill	Example relevant to learning
Cognitive flexibility 	Adapting to changes in activities; being able to see different solutions or strategies (e.g., maths problems); connecting existing knowledge to new subjects/contexts
Initiation	Beginning on tasks with little/no procrastination; supports good time management
Planning	Creating a plan to achieve a goal; identifying and scheduling relevant steps; meeting deadlines (e.g., homework due dates)
Working memory 	Able to recall and follow teacher instructions; reading comprehension; working through maths problems (i.e., holding the numbers in mind).

Supporting Inhibition/Impulse Control

- **Emotional literacy:** labelling feelings, noticing feelings
- **Co- and self-regulation.** E.g., validation/encouragement from a trusted adult, going for a walk, breathing exercises, yoga (modelling and supporting)
- Building **frustration tolerance.** For example, via **'Stop, Think, Do'.**
- **Play-based activities**, e.g., eye-tracking game; red light/green light

Supporting Inhibition/Impulse Control

- **Timer** at random intervals to remind to be on task or Pomodoro Technique
- **Minimise distractions** (e.g., visual, auditory)
- Using **‘first/then’**, e.g., first homework, then TV

Supporting Working Memory

- Use **visuals** / external memory aids / graphic organiser
- Play **memory games**, e.g., ‘What’s missing?’, ‘I went shopping’/body percussion, or ‘Twenty questions’
- **Break things down** into chunks (step by step)
- **Minimise distractions** (e.g., visual, auditory)

Supporting Flexible Thinking

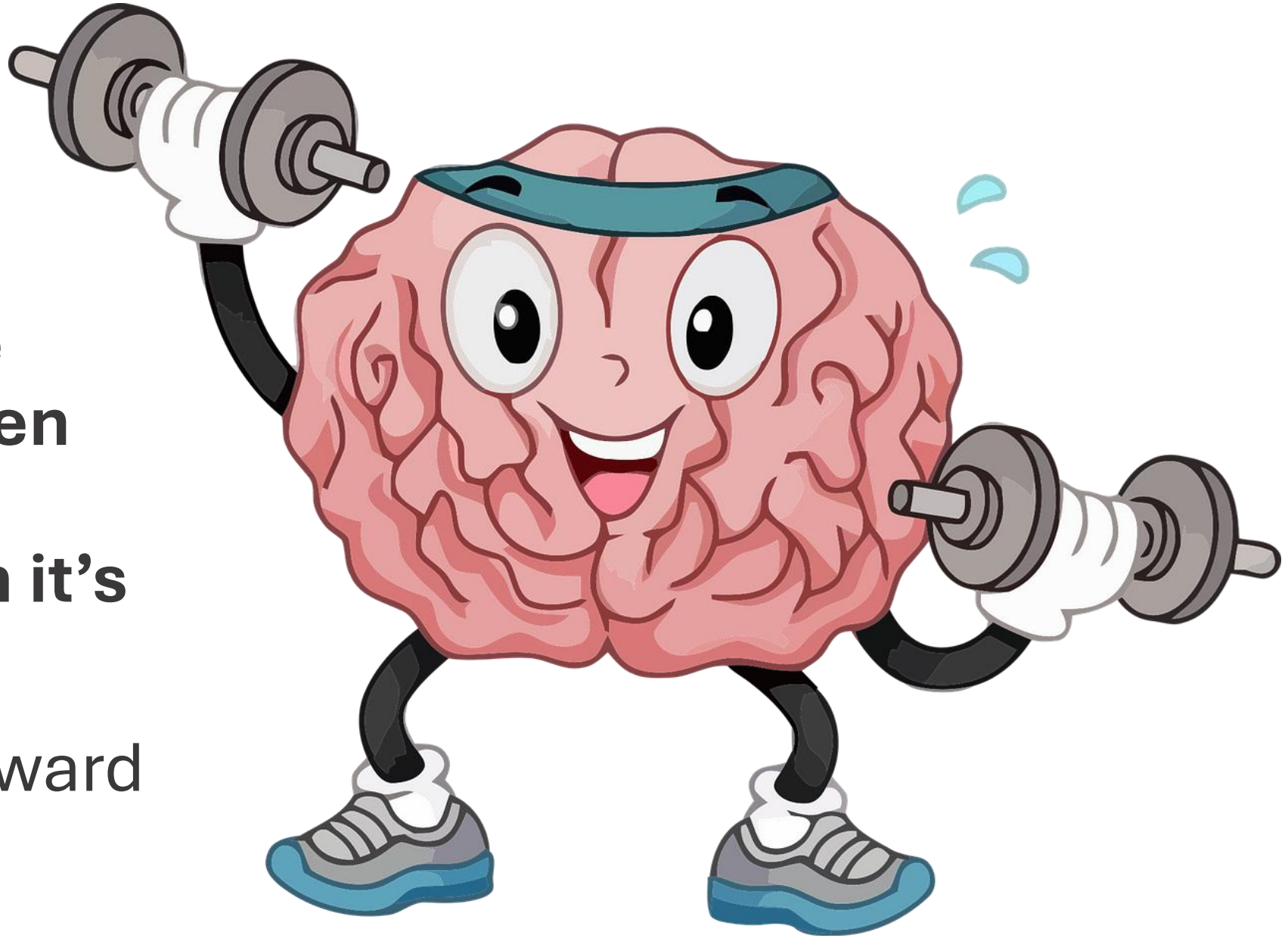
- **Link physical flexibility** to cognitive flexibility
- **Illustrate the power of flexibility**: **Silly putty** (Plan A/Plan B)
- **Growth mindset**
- **Language used*** – e.g., “How can we be more flexible here?”
- **Priming/pre-warning** ahead of changes to routine or an activity ending

Supporting EF – Generally

- **Personify each EF skill** – for example, ‘Stopasaurus’ (Inhibition)
- **Reducing demands** placed on other EF skills so that it is easier to practise a particular EF skill
- **Modelling** – e.g., narrate your own experiences of being flexible
- **Exercise** boosts our EF
- **Foundations**: sleep, nutrition, psychological safety.
- **Develop and practise strategies** ahead of time – for example, what to do if they get frustrated during maths…

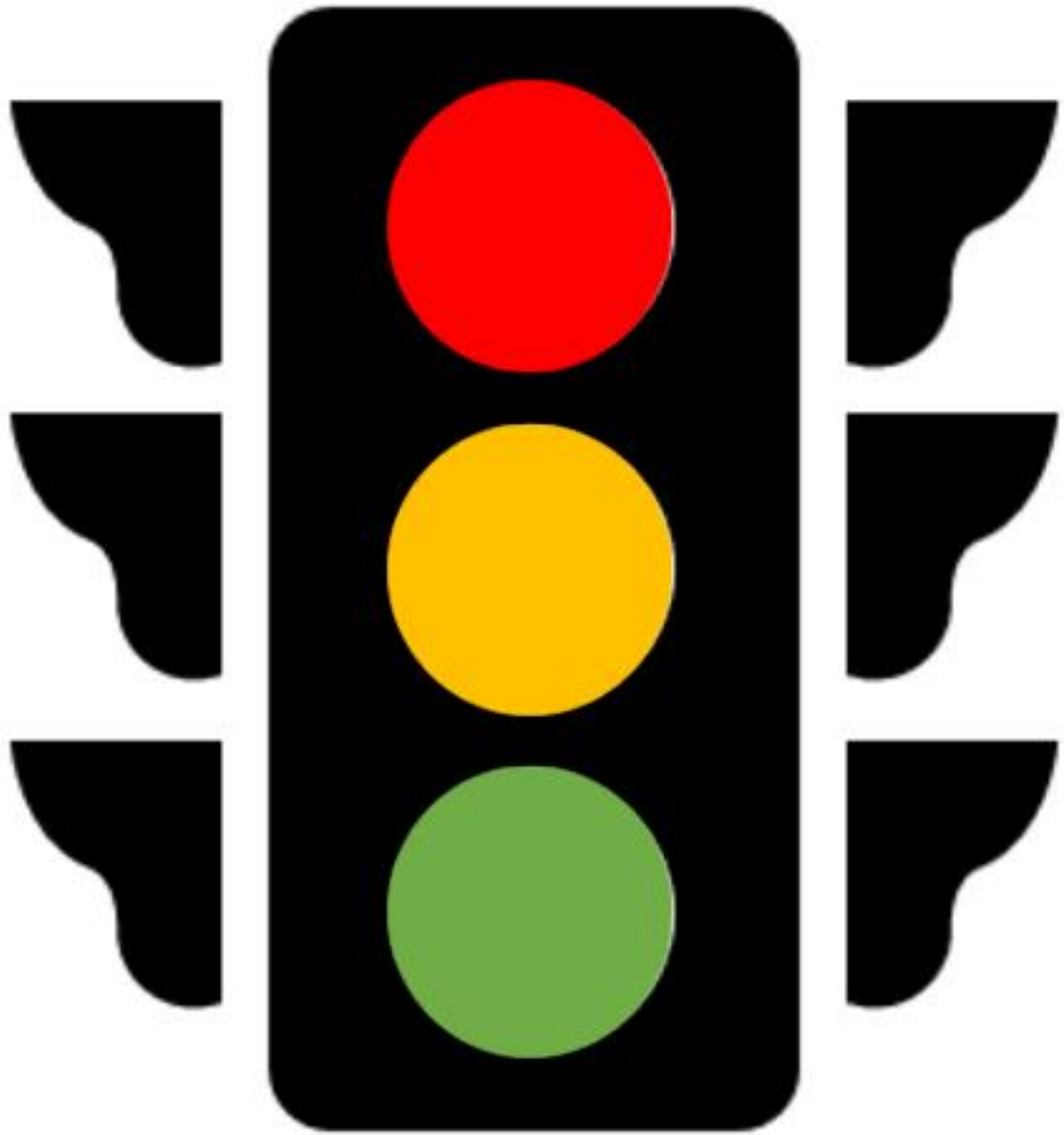
“If you practice these skills when it’s easy, it’s easier when it’s hard”.

Dr Emma Woodward



Any Questions?

Thank you and take care.



Scripts to Support Flexibility

- “Plan A didn’t work out. What’s your plan B?”
- “Is this a big, medium, or small problem?” → “How can we make it a small deal?”
- “You get a bit of what you want, and I get a bit of what I want”
- “Great job staying flexible. It was not what you expected, but you were able to stay flexible!”
- “Being flexible helps me get some of what I want”
- “It’s going to be different and that’s okay”.

3 Ways to Compromise

Each Gets Part	Something New	Take Turns
 or 		 then 

Reference: Unstuck and On Target

ADHD

- Inhibition (incl. emotional regulation)
- Working memory (attention)
- Planning
- Organisation

ASD

- Cognitive flexibility
- Self-monitoring
- Initiation
- Emotional regulation
- Planning