

Executive functions

Early childhood learning trajectories



What are executive functions?

Executive functions (EFs) are a set of skills that enable humans to control impulses, stay focused, prioritise, and achieve our goals. They have been described as an ‘air traffic control system’ for the brain. EFs include 3 higher-order thinking skills that emerge during early childhood:

- [Working memory](#) emerges first. It enables the brain to retain and use new and increasingly complex information for a short period of time.
- [Inhibitory control](#) emerges next. It is the ability to use thoughtful, rather than automated, responses and stay focused while managing distractions.
- [Cognitive flexibility](#) emerges last. It is the brain’s ability to switch perspectives and refocus attention.

These skills continue developing throughout the early years, reinforcing and supporting one another, as well as providing the foundation for many other capabilities and behaviours.

EFs support the high-level thinking skills necessary for planning, problem-solving and goal-directed behaviours. EFs are also closely related to self-regulation or self-management, which enable children to control emotional impulses and behaviour. The cognitive component of self-regulation depends on EFs, for thinking as well as feeling.

Early Years Learning Framework

AERO’s Early Childhood Learning Trajectories align with the principles, practices and outcomes of the [Early Years Learning Framework V2.0](#). The [Early Childhood Learning Trajectories: User Guide](#) provides further information and demonstrates how the Learning Outcomes can be mapped to domains.

National Quality Standard

[Quality Area 1 – Educational program and practice](#)

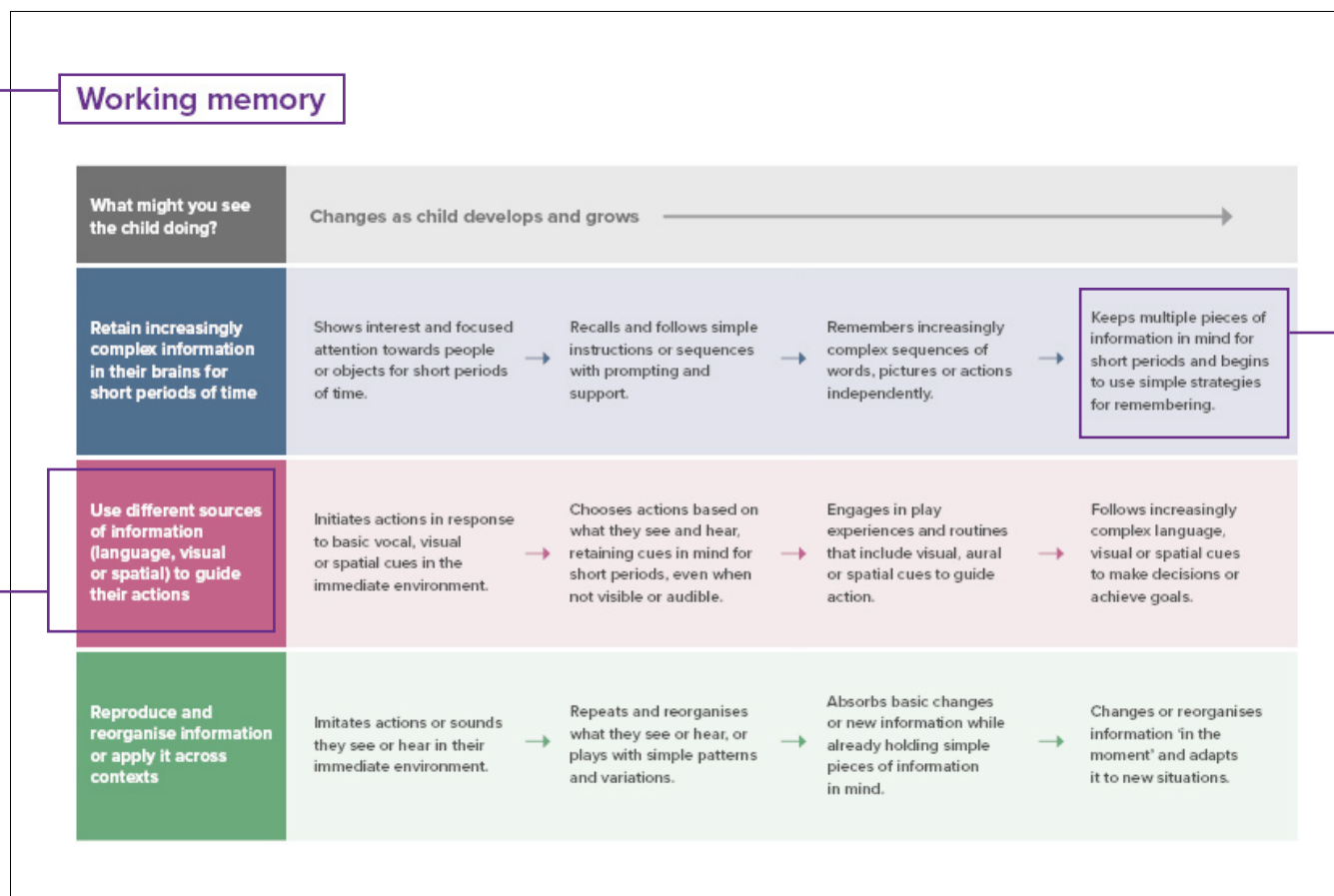
How to use the Early Childhood Learning Trajectories

These learning trajectories will help you observe children’s progress in executive functions and plan the next steps in their learning and development. They provide language and ideas for documenting children’s learning and development, and for your conversations with families and colleagues about children’s progress. The trajectory is not a checklist. You are encouraged to use your professional knowledge and judgement in determining how each child may demonstrate progress along each trajectory, and how best to support their learning.

The domain for this set of learning trajectories is executive functions.

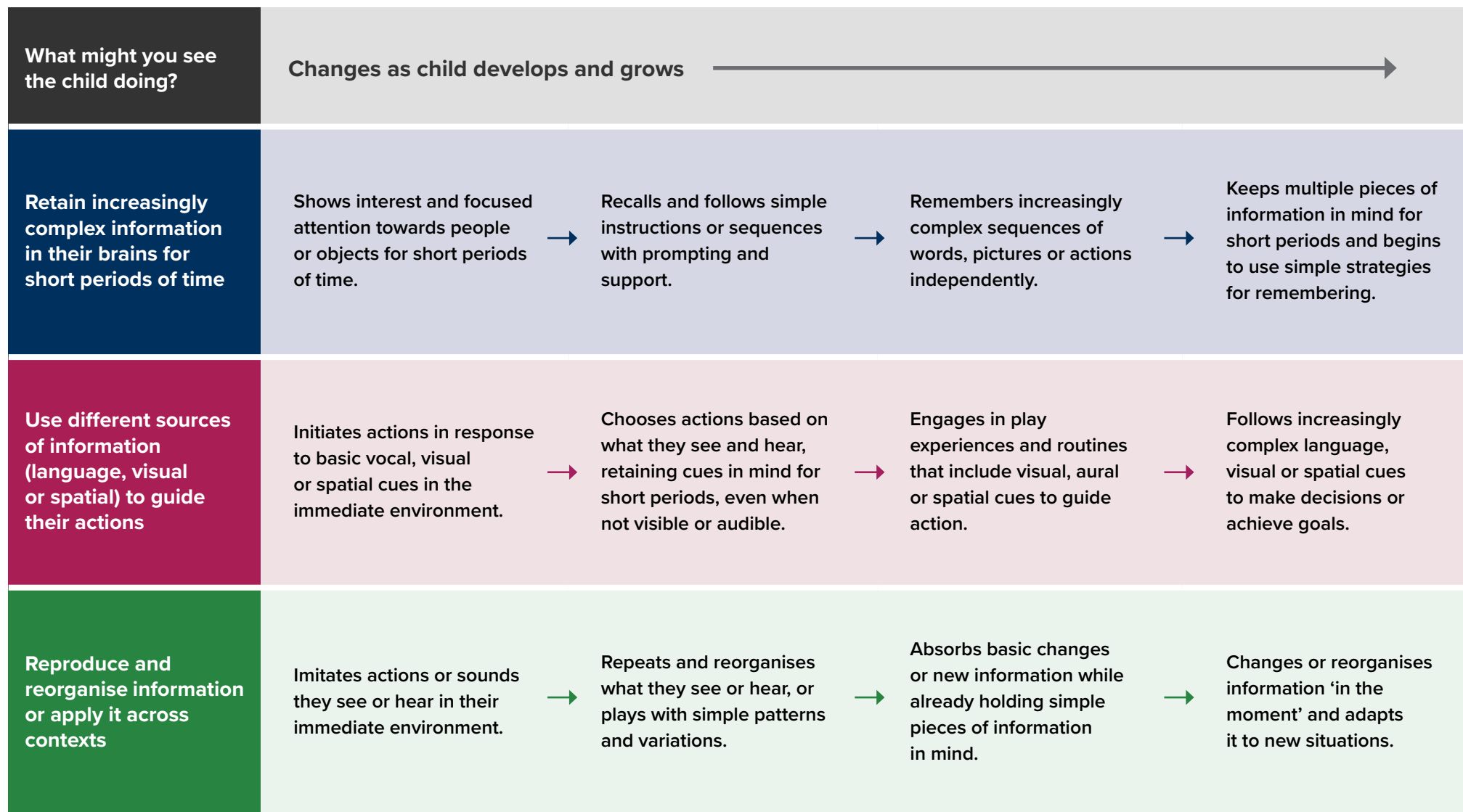
Within this domain, there are **3 subdomains**: working memory, inhibitory control and cognitive flexibility. Each subdomain is presented in a separate table.

Within each subdomain, there are **3 strands**, describing the capabilities that change over time as children learn and develop.

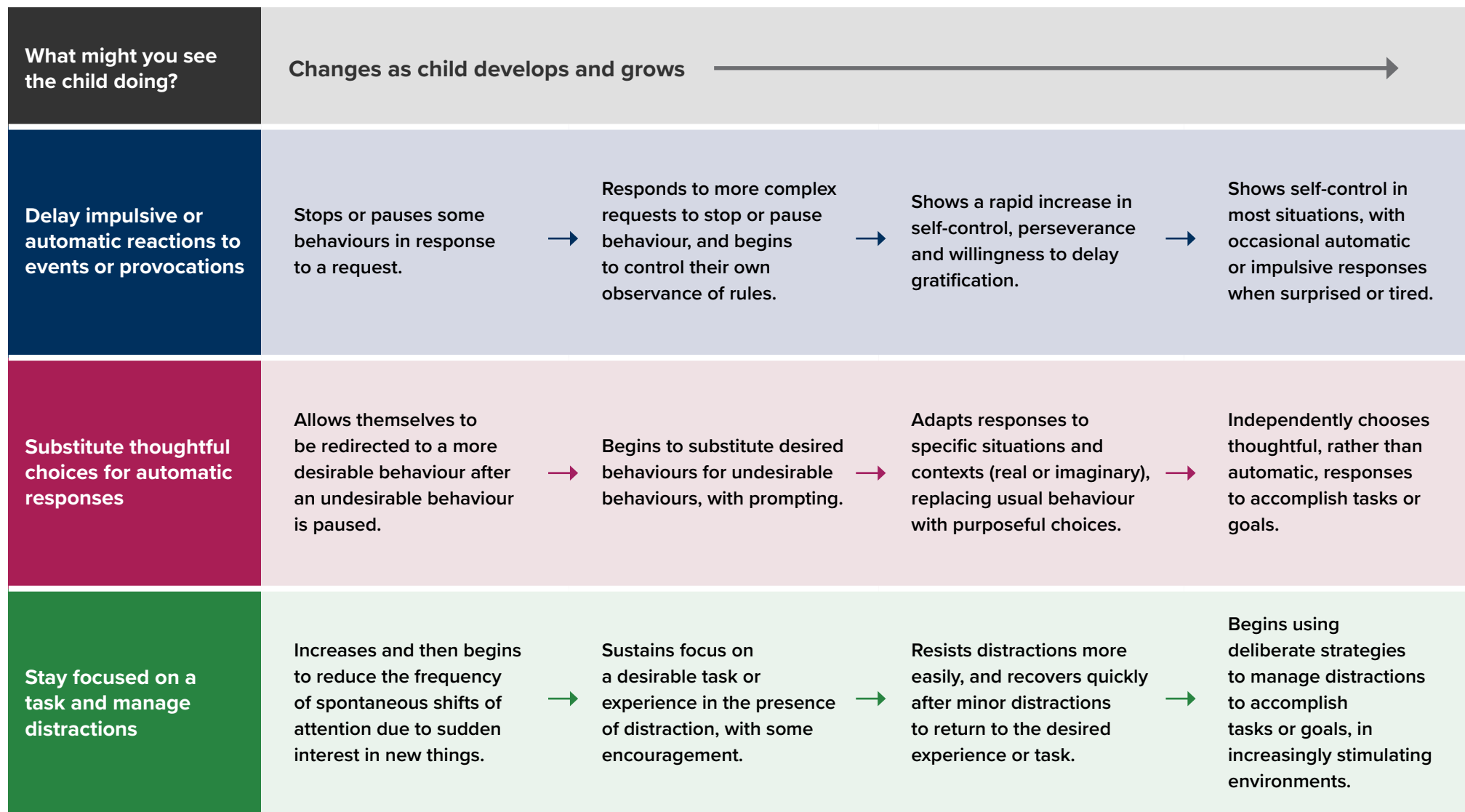


Within each strand, there are **indicators** that describe what you might observe as children progress along the trajectory. These indicators build on one another over time.

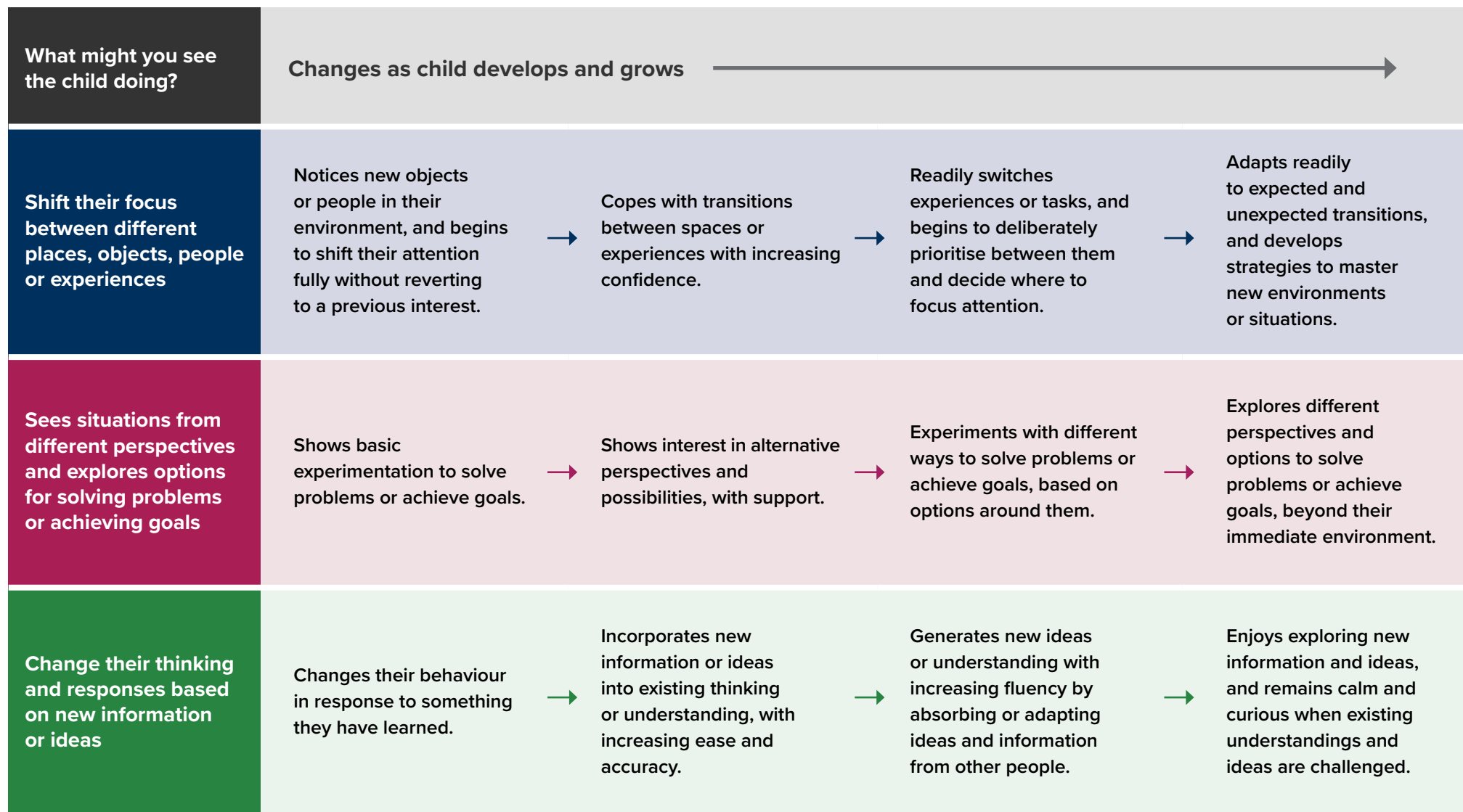
Working memory



Inhibitory control



Cognitive flexibility



Creating opportunities to support children's executive function skills

Working memory

- Encourage children to take breaks to calm their mind between periods of focus, to prevent being overwhelmed or overloaded.
- Engage in experiences where children remember and repeat actions, sounds or words, adding small changes on each repetition.
- Use 2-way conversations to practice absorbing and manipulating new information, gradually increasing complexity when the child shows signs of readiness.
- Involve children in helping with tasks that include sequences of actions or simple instructions, or ask them to teach these steps to others.

Inhibitory control

- Play games that encourage children to wait, persist or resist temptation. For example, Hide and Seek or singing songs during wait times in routines.
- Engage in experiences involving turn taking or paying attention and suppressing reactions. For example, Simon Says or Red Light, Green Light'
- Help children set their own rules and limits in play, such as designating roles or actions, or defining the physical space or resources.
- Encourage children to share responsibility for routines that involve delaying gratification (such as packing up before going outside).

Cognitive flexibility

- Prepare children for transitions in daily routines by alerting them in advance and using action songs as prompts.
- Encourage children to make decisions and share opinions in a range of situations, exploring options in new and familiar environments.
- Use 'wondering aloud' and open-ended questioning to explore different perspectives and possibilities.
- Experiment and problem solve with children, encouraging them to overcome challenges with 'just enough' support.
- Engage in experiences that involve change and flexible thinking (such as manipulating different objects or playing games with changing rules).

About this resource

Our Early Childhood Learning Trajectories are designed for teachers and educators working in early childhood education and care (ECEC) services with children in the years before school. They can support ongoing professional learning, for individuals, and entire ECEC services and teams.

The Early Childhood Learning Trajectories describe how children learn and develop in these key domains:

- Executive functions
- [Social and emotional learning](#)
- [Mathematical thinking](#)
- [Language and communication](#)
- [Physical development](#).

While each learning trajectory describes children's progress in a single domain, they are designed to be used in interconnected ways. A single experience may support progress in multiple domains at the same time. Progress in one domain may depend on progress in another.

Further reading

For more information on our learning trajectories research:

- [Early Childhood Learning Trajectories: User Guide](#)
- [Early Childhood Learning Trajectories: The Evidence Base](#)

More information

The AERO website features [further guidance](#), including practice guides and case studies for early childhood practice. Visit edresearch.edu.au for more information.