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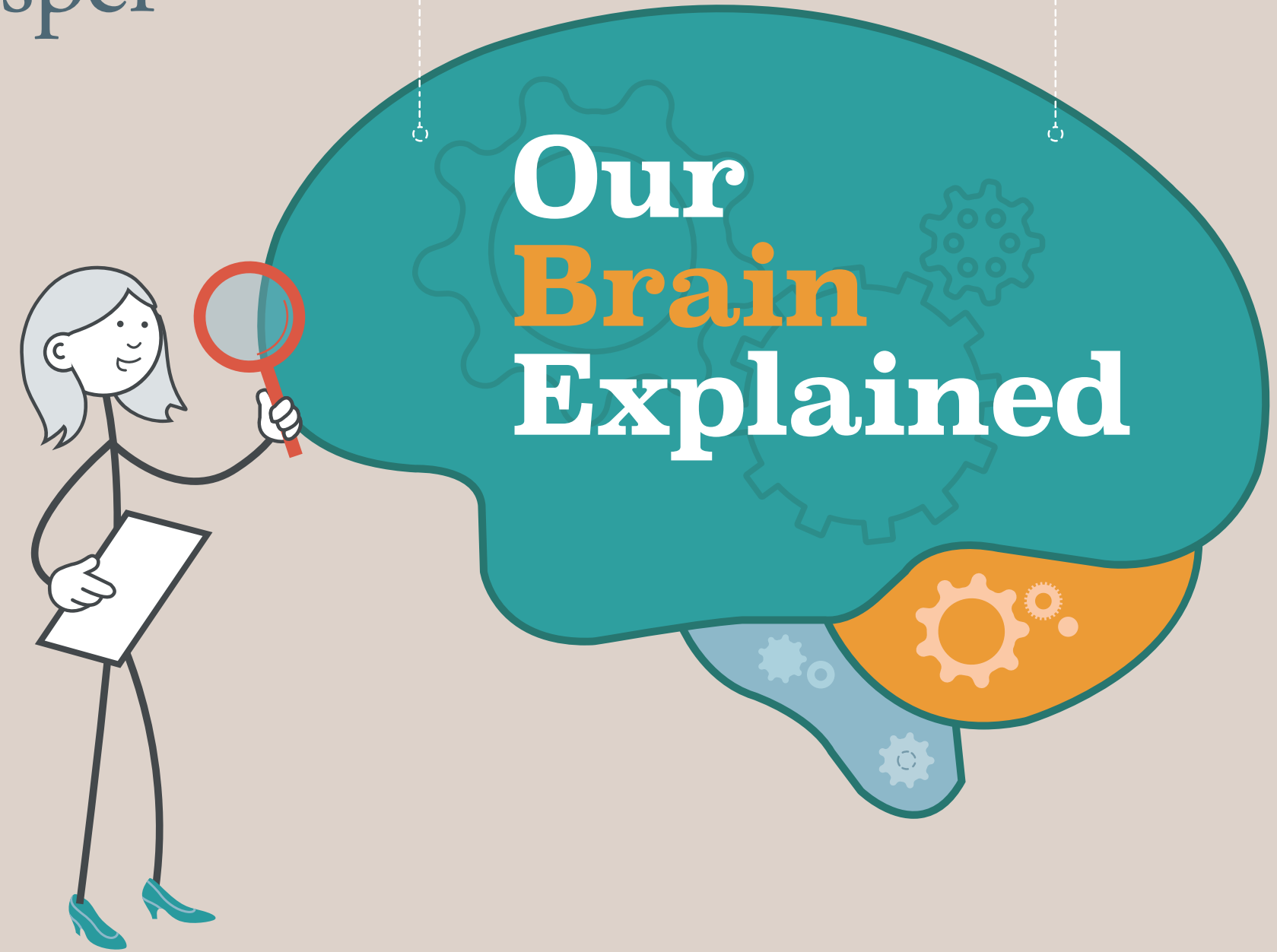
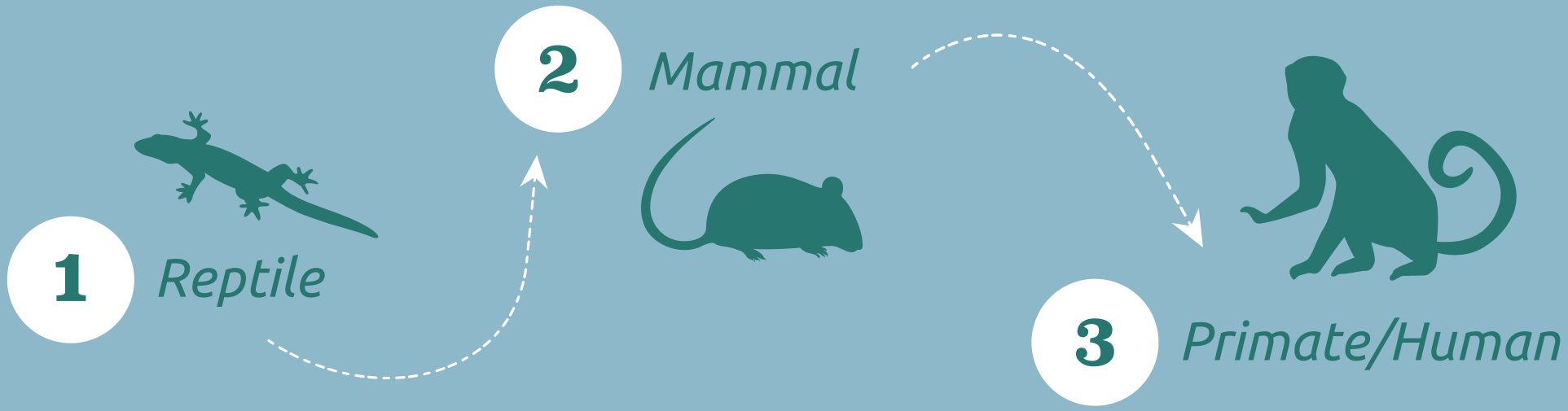
Our Brain Explained



One mind, three brains - The evolution of our brain

The brain is considered the most complex of human organs. In the 50's and 60's a simple way to explain the brain's different but necessary functions was developed. It divided our brain structure into three layers – the brain stem and cerebellum, the subcortical region, and the neo-cortex. Each layer can be loosely associated with the reptile, mammal, and primate/human phases of our evolution.



As neuro-science has developed over the past decades this highly simplified description has become less accurate as the inter-connectivity and cross functionality of these brain areas blurs the boundaries but it remains helpful when building a general understanding.

1 Reptile Brain

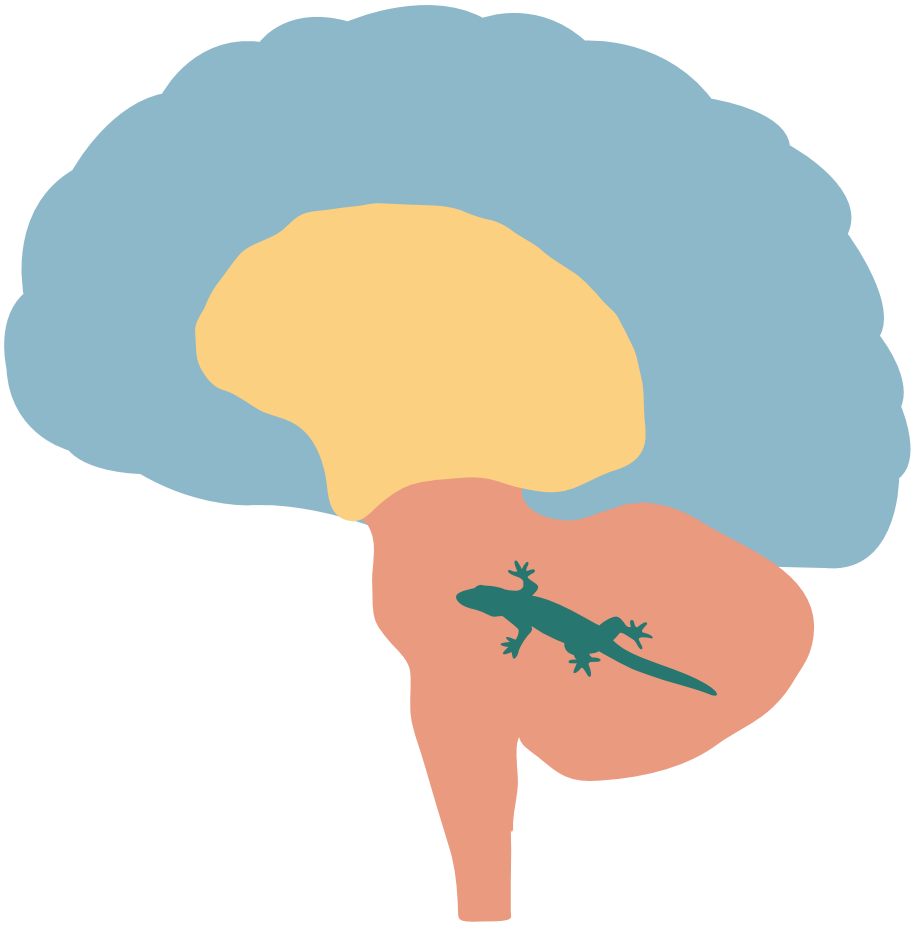
Where is it: **BRAIN STEM + CEREBELLUM**

Also known as: **Survival Brain, Instinctual Brain, Primal Brain, Dinosaur Brain, Lizard Brain**

This is the most ancient part of the brain and the first part of our brain to evolve. It shares a similar function to the brain found in simple creatures, just like, you guessed it, "Reptiles". Every piece of information that enters your brain passes through this part. If this information is too complex or we perceive it as a threat, our response comes from the reptilian brain, not our more evolved areas. This part of the brain gives humans the "fight or flight" response when faced with a potentially dangerous situation.

Responsible for:

Safety, survival and threat detection, aggression and dominance factors, regulation of appetite, heartbeat, breathing and other vital organs.



If it's basic needs are met:

We feel **peace**

If they're not met:

We feel **fear**

2 Mammal Brain

Where is it: **SUBCORTICAL REGION (Limbic)**

Also known as: **Emotional Brain, Social Brain, Middle Brain, Paleomammalian Brain**

This region is thought to have developed sometime after the "reptilian" or "primal" brain. This is where we started to form simple emotions, ideas of hierarchy, and attached some meaning to different social interactions. This system also controls the natural reward circuit, where dopamine is released following sensory stimulation, reinforcing positive experiences.

Responsible for:

The motivation and emotion required for feeding activities, reproductive behaviours, parental behaviours, learning behaviours and memory formation.

If it's basic needs are met:

We feel **contentment**

If they're not met:

We feel **frustration**

3 Primate/Human Brain

Where is it: **NEO-CORTEX**

Also known as: **Thinking Brain, Rational Brain, Logical Brain, Smart Brain**

The Neo-Cortex is much larger and more sophisticated than the other two evolutionary areas of the brain. This area of the brain is responsible for the development of human language, abstract thought, imagination, creativity and consciousness. It also houses much of our memory, which is essential to talking, writing, walking, playing instruments, and countless other familiar activities. It's important to remember the neo-cortex can be "hijacked" in the event of a perceived threat (whether imagined or real) by the less sophisticated parts of the brain.

Responsible for:

Regulating attention, feelings and desires, complex reasoning, abstract thoughts, imagination, language, empathy

If it's basic needs are met:

We feel **love**

If they're not met:

We feel **Heartache**

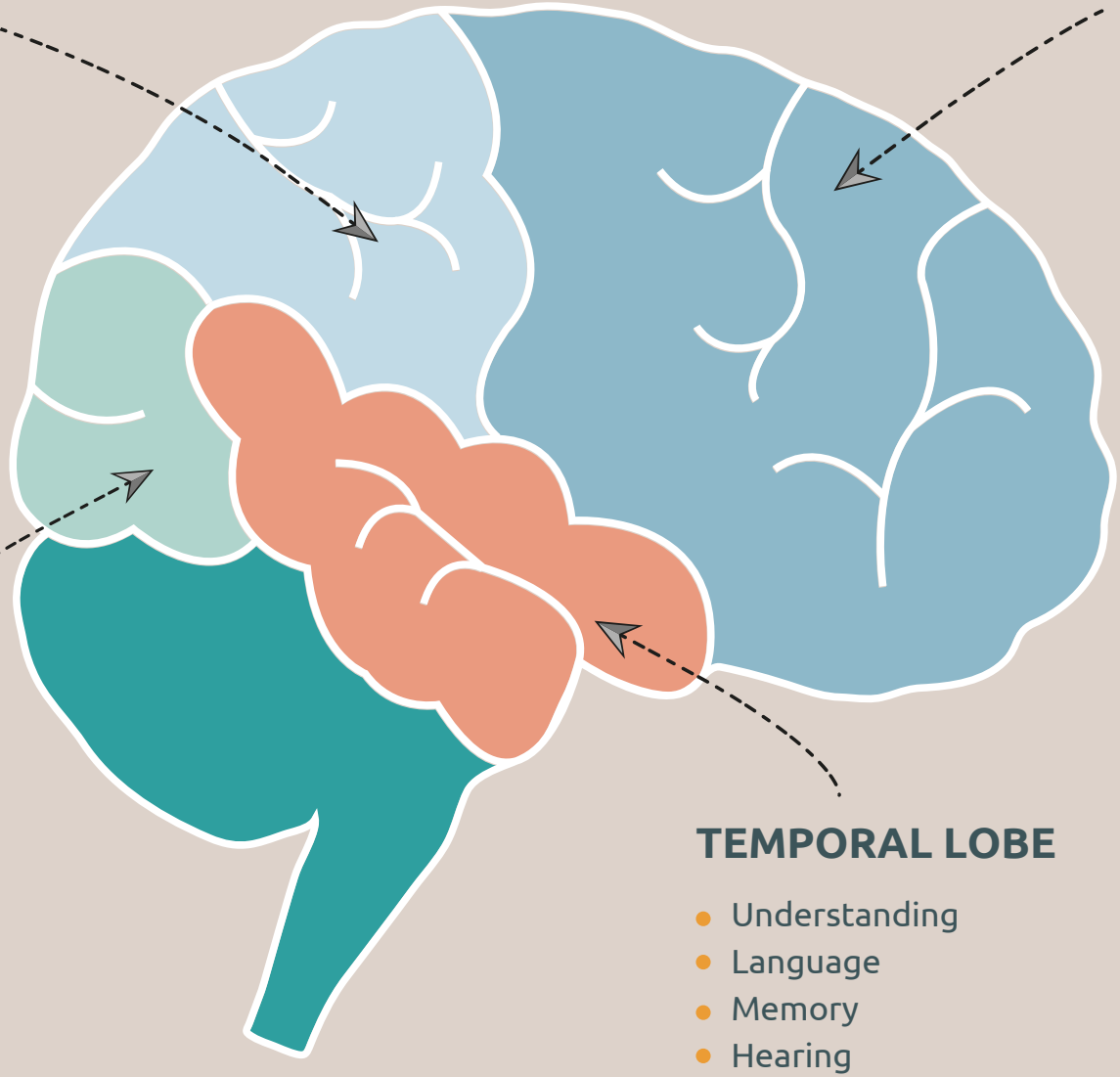
A more detailed look at our brain functions

PARIETAL LOBE

- Sensation
- Reading
- Reasoning
- Body Orientation
- Recognising Left and Right

FRONTAL LOBE

- Problem Solving
- Speaking
- Emotional Traits
- Reasoning (Judgement)
- Voluntary Motor Activity



OCCIPATAL LOBE

- Vision
- Colour Perception

TEMPORAL LOBE

- Understanding
- Language
- Memory
- Hearing
- Object Recognition
- Behaviour

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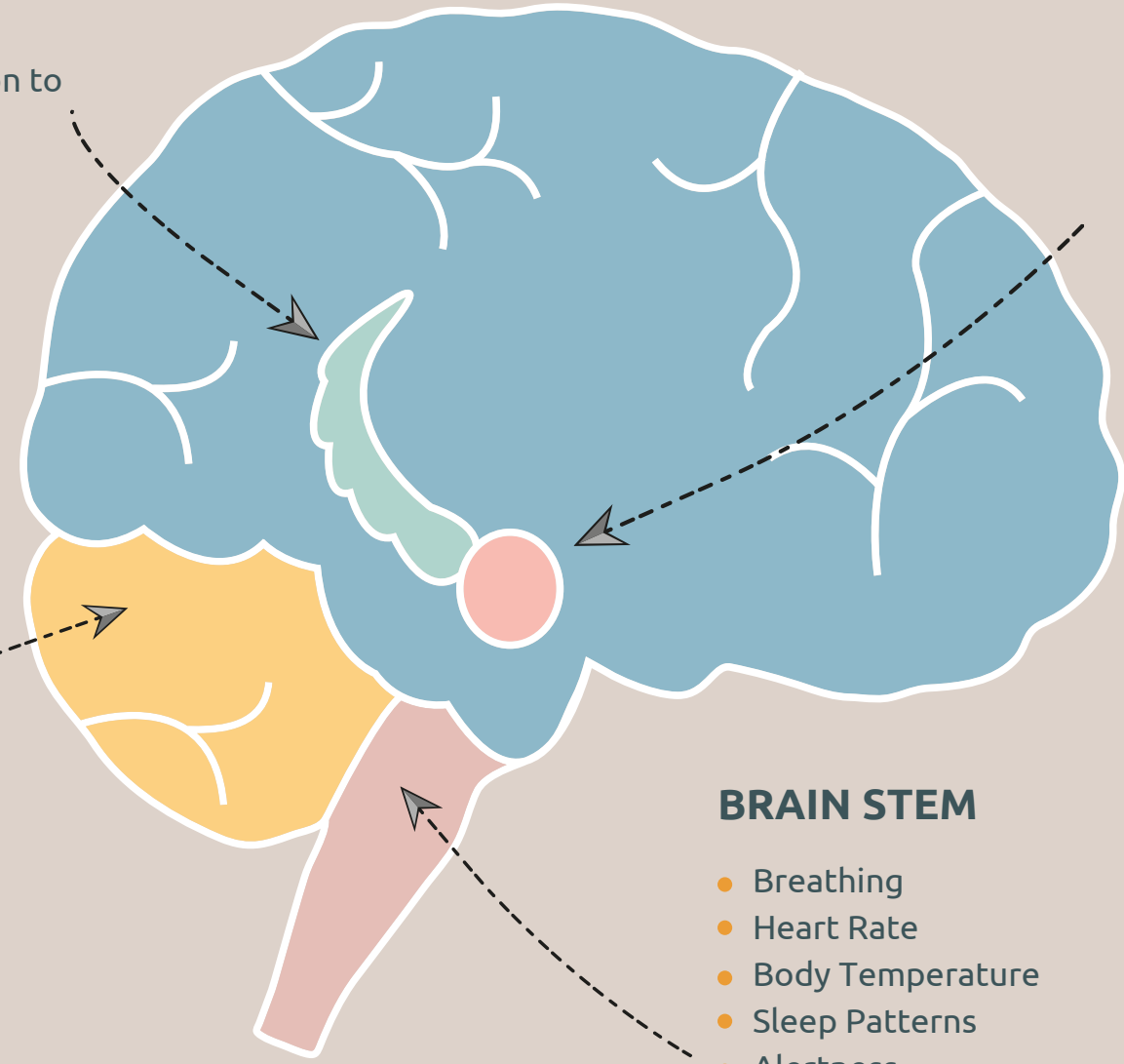
HIPPOCAMPUS

- Supports spacial awareness
- Manages memory
- Associates emotion to memories

AMYGDALA

- Manages the release of stress hormones
- Helps us regulate, understand and control our emotions
- Helps us recognise and process the emotions of others
- Helps us to coordinate and mange our response to threats or dangers



CEREBELLUM

- Balance
- Control & Coordination
- Fine Muscle Control
- Voluntary Movement

BRAIN STEM

- Breathing
- Heart Rate
- Body Temperature
- Sleep Patterns
- Alertness
- Swallowing
- Digestion

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