

Neuroscience for Teacher & Student Success

with *Dr Hayley North*



>>> HOW THE BRAIN LEARNS



The brain contains 86 billion neurons that constantly reshape their connections. Neuroplasticity means the brain changes in response to repetition and experience. Growth mindset increases motivation, effort and performance.

Boost neuroplasticity by: Repetition, new and unexpected things boost dopamine, persevere through the error and frustration phase of learning, exercise before learning, consistent sleep, and manage stress before burnout.

Memory: Passive strategies like rereading are inefficient. **Active recall** is the most powerful method for long term memory (e.g. self testing).

Spaced repetition helps too. Review at intervals roughly 10-20% of the time remaining before the exam. E.g. exam in 6 months review monthly; exam in 1 month review weekly; exam in 1 week review daily.

>>> BRAIN HEALTH = PERFORMANCE



Your brain performs at its best when you support its biological needs. This includes managing stress before it becomes chronic, getting regular exercise and maintaining consistent sleep habits.

Stress: Short term stress can help with focus and productivity, but chronic (long-term) stress shrinks neurons and increases errors, illness risk and exhaustion.

Breathing: Longer exhales than inhales can shift the brain from fight or flight into rest and digest. Use this trick to calm and regulate your system.

Exercise: Moderate cardio reduces stress, boosts neuroplasticity and supports healthy brain blood vessels.

Sleep: Seven to nine hours, with consistent sleep and wake times supports memory, learning and emotional regulation.

>>> BOOST FOCUS & MOTIVATION



Ninety percent of brain functioning happens outside of conscious awareness, including how we direct attention. Phones create novelty driven dopamine surges which reduce our ability to sustain focus on other tasks.

Task switching: drains mental energy and makes deep work more difficult.

Productivity windows: Energy is highest one hour after waking and declines across the day, esp. after lunch. Save simple tasks for low energy periods.

Motivation: Driven by dopamine. Increase motivation by pairing tasks with external rewards and breaking work into smaller steps.

Procrastination: Reduced by mindfulness, which improves self regulation and lowers negative emotions.

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www.UnderstandYourBrain.com.au/schools