Supporting your Child's Learning through **Brain-based Learning Principles**

P1 Parent Engagment Session
4 January 2022

or

FACT?

MYTHS

1. Night sleep is sufficient to maintain healthy brains and support learning. Naps are not encouraged.

FACTS

2. Sleep deprivation can result in behavioural problems.

MYTHS

3. Increasing sleep time from 6 hours or less to 8 hours does not really help to improve our memory.

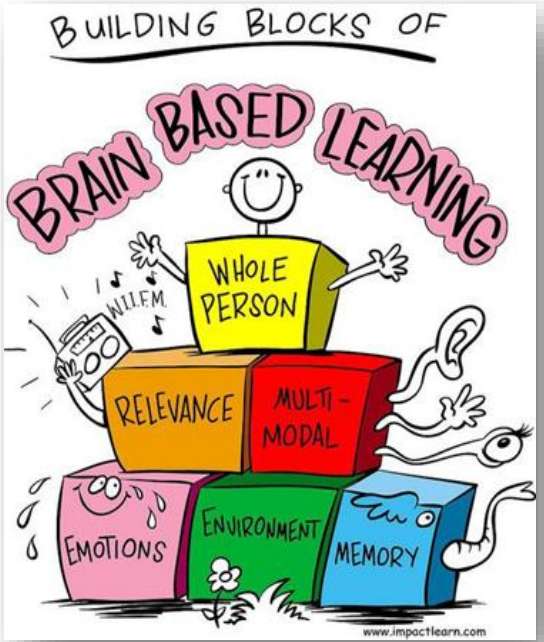
FACTS

4. When we sleep, the brain allows recently learned materials to be rehearsed and consolidated into long-term memory.

Session Outline

01

Overview of **brain-based learning principles**



02

Sufficient sleep to support learning

03

Brain breaks to refocus attention

04

Growth Mindset to stay motivated

01

Overview of brain-based learning principles

Using evidence-based research to help students learn better.

Brain-based Learning Principles

1. Every brain is uniquely organised.
2. Emotions are critical to learning.
3. Information is stored and retrieved through multiple memory and neural pathways.
4. Learning is often rich and non-conscious.
5. Patterns and programs drive our understanding.
6. A threatening environment or stress can alter and impair learning and even kill brain cells.
7. The brain is meaning-driven.
8. The brain develops with various stages of readiness.
9. Neuroplasticity – The brain can grow new connections at any age.
10. The brain is a complex and adaptive system.
11. The brain develops better in concert with other brains.
12. All learning is mind-body. Movement, food, attention cycles have powerful effects on learning.

Adopting Brain-based Teaching in the Classroom

Better support the learning of our students!

It's the Purposeful
Engagement

of effective
Strategies

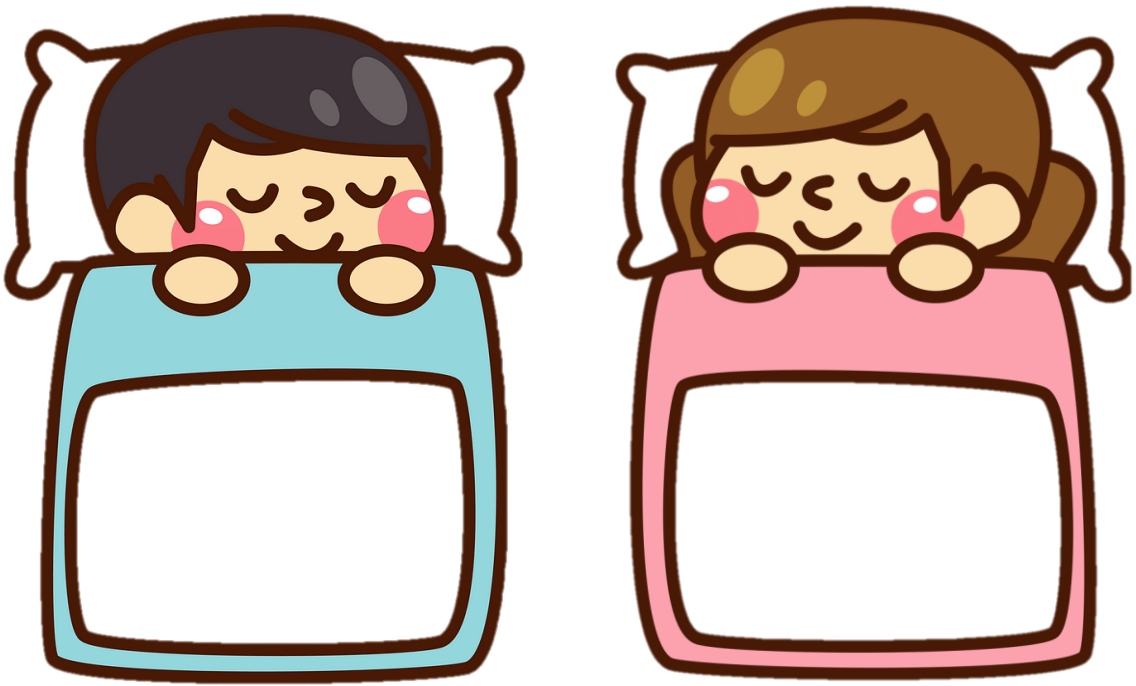
derived from
Principles

02

Sufficient sleep to support learning

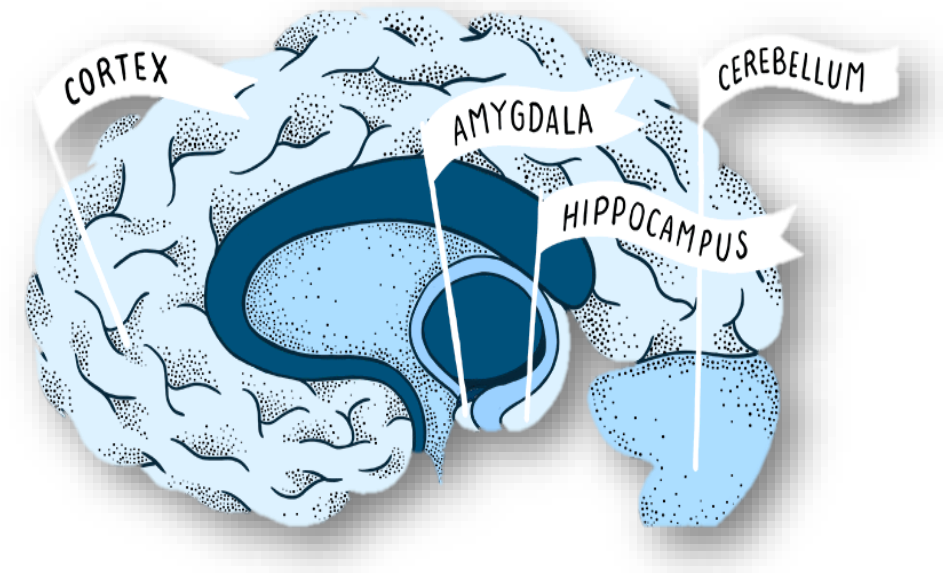
Sleep habits affect our cognitive function.

How Much Sleep does a Primary 1 Student Need?



9 to 11 hours

Sufficient Sleep Supports Learning



Have enough sleep at night and take a nap in the day.

1 - 2 hours

Memory is consolidated in the hippocampus

2 - 6 hours

Memory moves to cortex for long term storage

6 – 9 hours

Memory is rehearsed in the cortex

Importance of Sleep

THE STRAITS TIMES SINGAPORE

PUBLISHED MAR 15, 2021, 5:00 AM SGT

Chance for S'pore to relook attitudes on sleep, use of time

Pandemic offers reason to restructure way these issues are managed

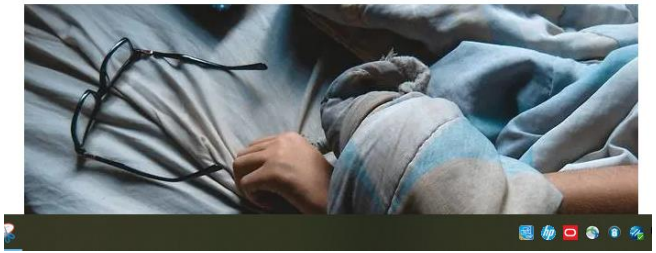
Science says that we need to pay attention to sleep. ST PHOTO: KUA CHEE SIONG

> Speed of processing and, critically, mood are also consistently affected by successive nights of inadequate sleep. Visual information is more slowly captured, distractions are harder to suppress, and temporary information storage capacity is lower when we are sleep-deprived. Adequate sleep is important for memory encoding. Sleep-restricted students show improved memory when allowed to nap. Insufficient sleep blunts the willingness to deploy cognitive effort to perform tasks.
>
> ”

Importance of Sleep

Commentary: Sleeping more is essential to performing well at work and school

Studies have shown that better sleep benefits health, productivity and cognition, say two sleep experts.



Interestingly, just this year, students from Baylor University were invited to take part in a challenge which offered incentives if students managed to sleep an average of 8 hours a night during the week of their final exams.

Using a fitness wearable to track their sleep, researchers found that those who attained 8 hours of sleep did better than those who slept fewer hours.

When their sleep improved during the exam week, their grades did not suffer. So sleeping does not necessarily come at a cost to academic performance, contrary to popular fears.

Studies from our own lab have also found more hidden productivity benefits of sleep. In one experiment, Singapore students learned a set of biological facts, after which they were given time to take a break, cram the same materials further, or take a nap.

When tested later that day, students who napped, and those who spent the same period of time further cramming the material, had better memory performance than those who took a break but did not sleep. One week later, this memory benefit was still present for the nap group, but not for the group that used the time to cram more facts.

03

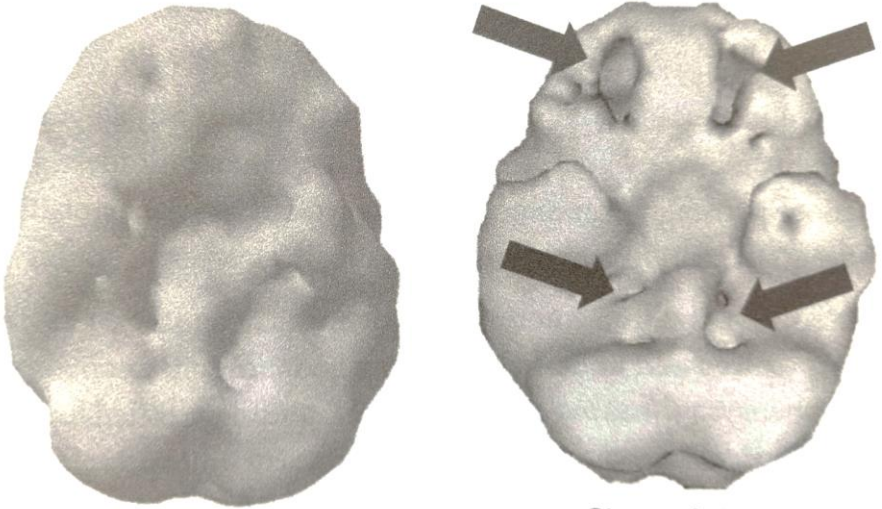
Brain breaks to refocus attention

Stress can impede learning.

Stress Impedes Learning

Stress causes gaps in activating learning.

Impact of Acute Stress on the Underside of the Brain as Seen with a SPECT Scan



Resting state
(smooth activation)

Stressed state
(gaps in activation)

Importance of Brain Breaks

The human attention span is limited.

AVERAGE CONCENTRATION SPAN BY AGE

Age x 2 to 5 minutes = Average Concentration Span

AGE	AVERAGE CONCENTRATION SPAN
4	8 – 20 MINUTES
5	10 – 25 MINUTES
6	12 – 30 MINUTES
7	14 – 35 MINUTES
8	16 – 40 MINUTES
9	18 – 45 MINUTES
10	20 – 50 MINUTES
11	22 – 55 MINUTES
12	24 – 60 MINUTES

TeachStarter.com

Importance of Brain Breaks

Brain breaks allow the mind to wander (reset neural activity).

Brain breaks are helpful in refocusing attention. (help with self-regulation)

Brain breaks consolidate learning. (sharpen short-term memory)

Examples of Brain Breaks

Physical movement

Dancing / Exercising / Playing “action” games / Taking a walk outdoor

Sensory activities

Playing with playdough / Solving puzzles & riddles / Singing / Drawing

Mindfulness breaks

Listening to calm music / Deep breathing / Stretching / Taking a “nature” eye break

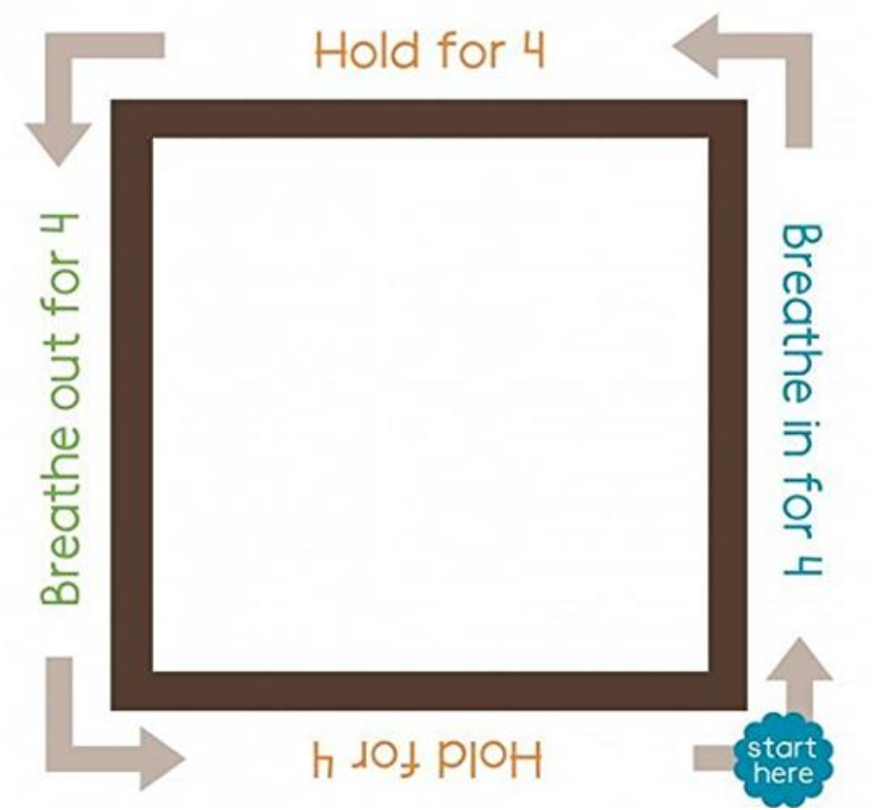
Brain breaks are short (3-5 min) and are pre-planned.

Mindfulness in New Town Primary

Mindfulness in New Town Primary

Mindful breathing

First period subject teacher to start the day with mindful breathing.



New Town Brain Break Exercise

1. Neck rotation

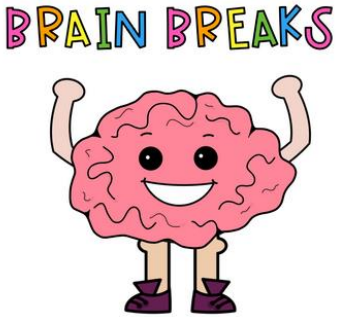
2. Double doodle

3. Sliding knees

4. Roly poly

5. Twisty twist

6. Foot flex



Infusing Brain Breaks and Nap Times into Revision Time at Home

HABIT 3: PUT FIRST THINGS FIRST
I PLAN MY TIME AFTER SCHOOL

I DO MY WORK FIRST BEFORE I PLAY.
I REMIND MYSELF TO STAY FOCUSED.

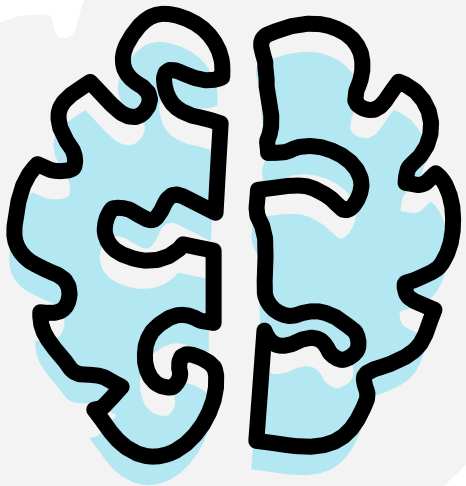
TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
2.30–3.30							
3.30–4.30							
4.30–5.30							
5.30–6.30							
6.30–7.30							
7.30–8.30							
8.30–9.30							
9.30–10.00							

04

Growth mindset to stay motivated

The brain has the capacity to reorganise – Neuroplasticity.

Neuroplasticity – A New View of the Brain



The human brain is dynamic.

It is capable of re-organising itself everyday!

Adopting a Growth Mindset

01 Recognise our children's strengths

02 Affirm our children's effort to try

"Growth mindset is the belief that abilities can be developed and improved through efforts."

03 See our children's mistakes as learning opportunities

04 Role model the Growth Mindset (process vs outcome)

An Evidence-based Approach to Developing our Children

Passionate Learners.
Critical Thinkers.
Anchored Leaders.