

# Fit to Study PE Teacher Training



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# What is the Aim of Fit to Study?



Can a programme of vigorous physical activity during Year 8 PE improve brain function and raise academic attainment?





# The Physical Activity Background

# Defining Physical Activity

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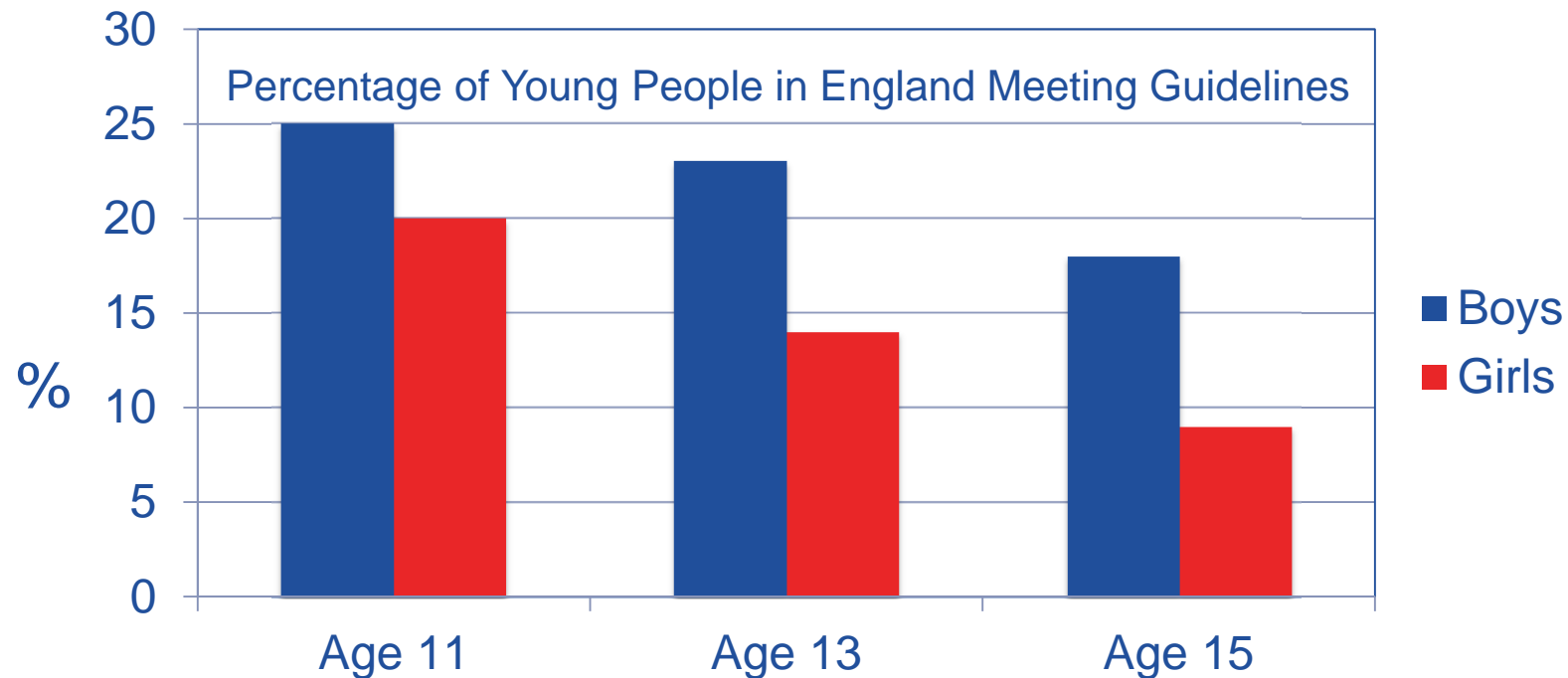


“Any body movement produced by skeletal muscles that results in a substantial increase over resting energy expenditure”

- Moderate intensity: brisk walking (heart rate 60-70% of max)<sup>1</sup>
- Vigorous intensity: running (heart rate 71-85% of max)<sup>1</sup>



# Declining Adolescent Physical Activity



- Proportion of young people completing 60 minutes a day of moderate-to-vigorous physical activity every day falls sharply during adolescence
- Targeting age 12-13 in Year 8



# Why Vigorous Activity?

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- Achieves similar health and fitness benefits to traditional aerobic training with shorter bouts of activity<sup>1</sup>
- Positive effects on:
  - Mental Health<sup>2</sup>
  - Sleep Quality<sup>3</sup>
  - Wellbeing<sup>3</sup>
  - More evidence needed for adolescents



Costigan et al., 2015<sup>1</sup>; Kilpatrick, Jung & Little, 2014<sup>2</sup>; Singh et al., 2005<sup>3</sup>





# The Neuroscience Background

# A Healthy Body and a Healthy Mind



- We know physical activity is good for heart health, bone strength and weight management
- But neuroscience research suggests that physical activity might also improve our brains and our mental abilities

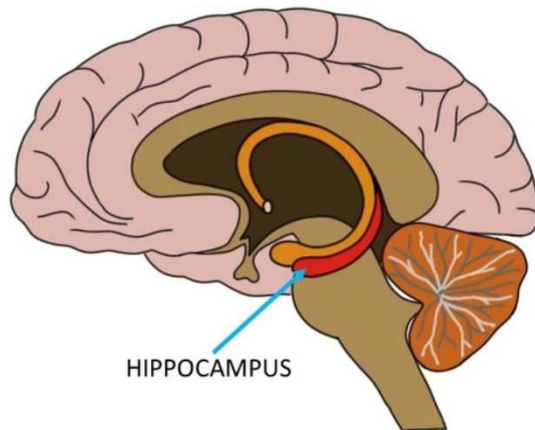




# Physical Activity Boosts Our Brains



- Brain cell development - neurogenesis
- Brain capillary growth - angiogenesis
- New connections between neurons - synaptogenesis
- More proteins that help neurons survive – neurotrophins



Our MRI Study will look  
for evidence of  
increased hippocampal  
volume

# Activity – Cognition – Attainment?

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- Activity can improve attention and memory
  - Over the longer term
  - Immediately after exercise <sup>1</sup>
- Research links physical activity with attainment<sup>2</sup>
  - But we need more and better evidence in schools



eg Hotting et al 2016; Etnier et al., 2016 <sup>1</sup>  
eg Donnelly et al., 2016; Lees & Hopkins, 2013<sup>2</sup>

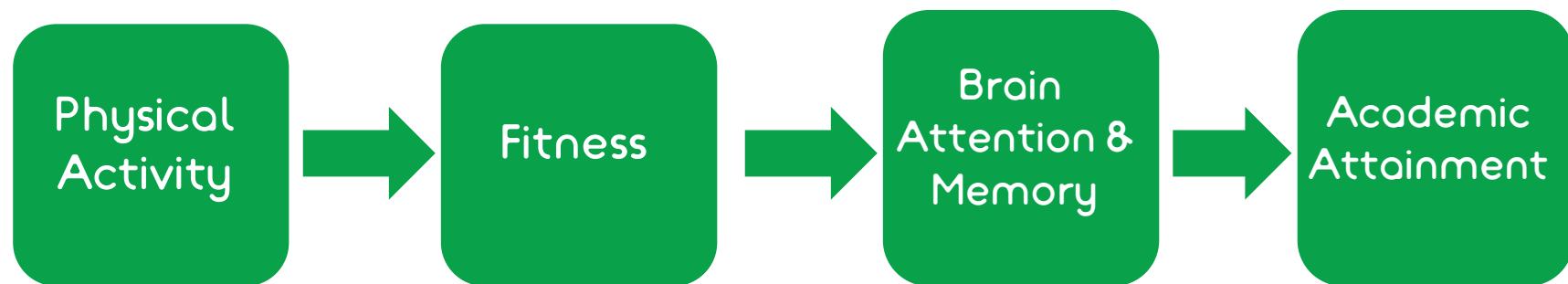


# The Neuroscience Pathway

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Fit to Study is measuring:





# The Psychosocial Background

# Activity Can Lift Mood & Maintain Mental Health

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- Better physical self-perception and self-esteem
- Reduced depression
- Increased feelings of wellbeing



# Activity - Health/Wellbeing - Attainment?



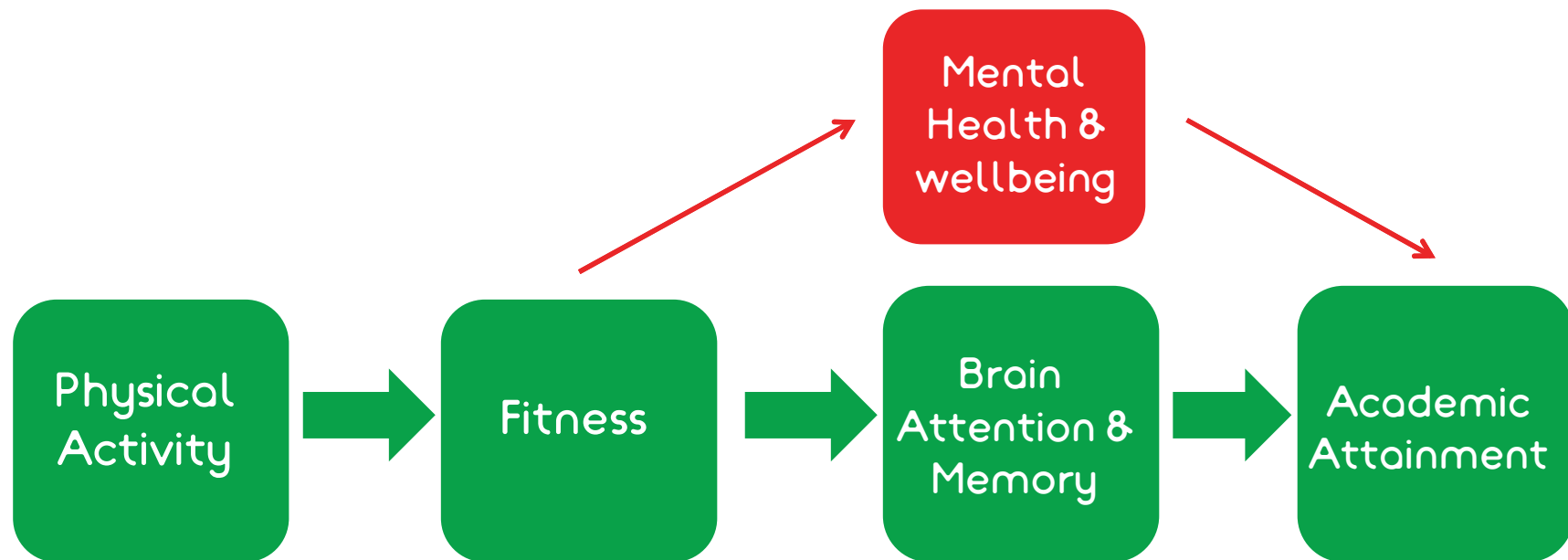
- Mental health and wellbeing are linked to attainment<sup>1</sup> but the mechanisms are not clear:
  - Improved overall self-esteem?
  - Better behaviour?
  - Less absence?
  - More and better sleep?
  - We need more and better evidence in schools



# The Psychosocial Pathway



Fit to Study is measuring:





# The PE Context



# Shaping our Childrens' Futures...



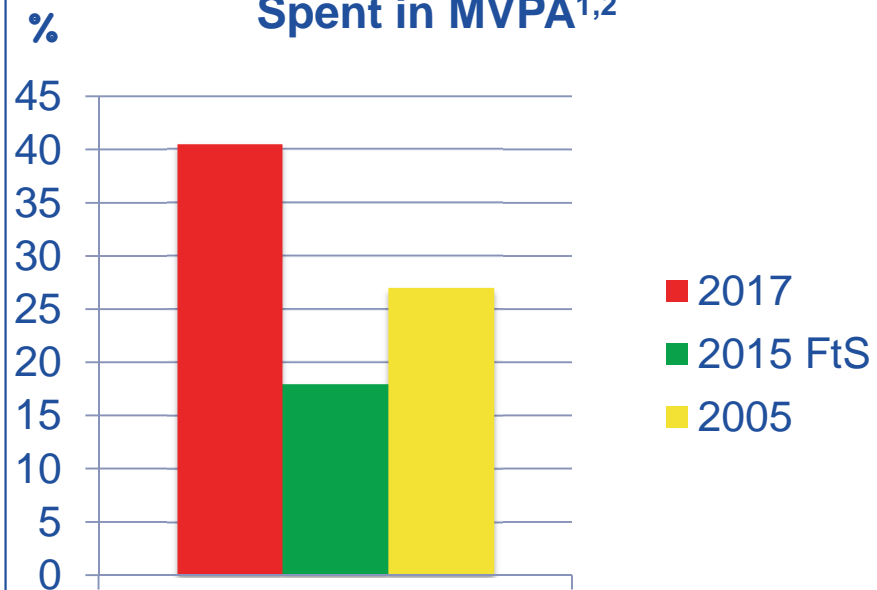
*“Events in early life affect health and wellbeing in later life. Whether this is through changes in genetic expression, how the brain is formed or emotional development...what happens in these years lays down the building blocks for the future. This is particularly the case at times of rapid brain growth in the early years and adolescence.”*

Dame Sally Davies, Chief Medical Officer, Annual Report 2012

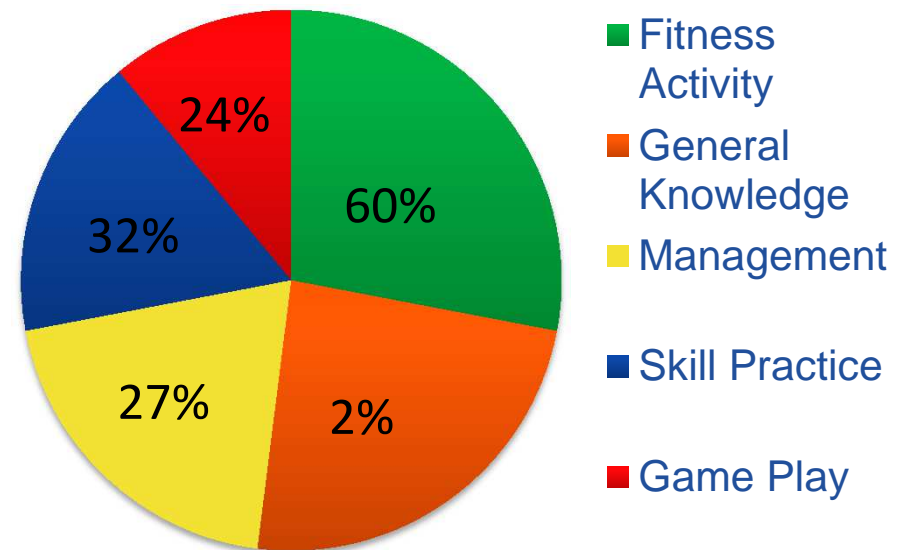
# Physical Activity During PE



**Proportion PE Lesson  
Spent in MVPA<sup>1,2</sup>**



**Breakdown of Activities During  
Typical PE Lesson<sup>3</sup>**



# Exercise 1 Your Typical Lesson

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- Consider a typical one-hour lesson
- For every five minute block, write down teaching context:
  - ✓ fitness activity
  - ✓ general knowledge
  - ✓ class management
  - ✓ skill practice
  - ✓ game play



# Key Stage 3 PE Curriculum Aims

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To ensure that all pupils:

- Develop competence to excel in a broad range of physical activities
- Are physically active for sustained periods of time
- Engage in competitive sports and activities
- Lead healthy, active lives





# The Fit to Study Intervention

# Ten Minutes, Twice a Week, All Year



The Fit to Study intervention:

- Active warm-up: 4 minutes' vigorous
- Fitness Infusion: 2 minutes' vigorous
- Fitness Infusion: 2 minutes' vigorous
- Fitness Infusion: 2 minutes' vigorous

- Simple
- Short
- Easy to Incorporate



# Active 10 Minute Warm Up

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- Start with 10-minute dynamic full-body warm-up
- Include 4 minutes of vigorous activity
- Maximise MVPA and minimise injury risk



# Active 10 Minute Warm Up



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<https://www.fit-to-study.org/interventions/>

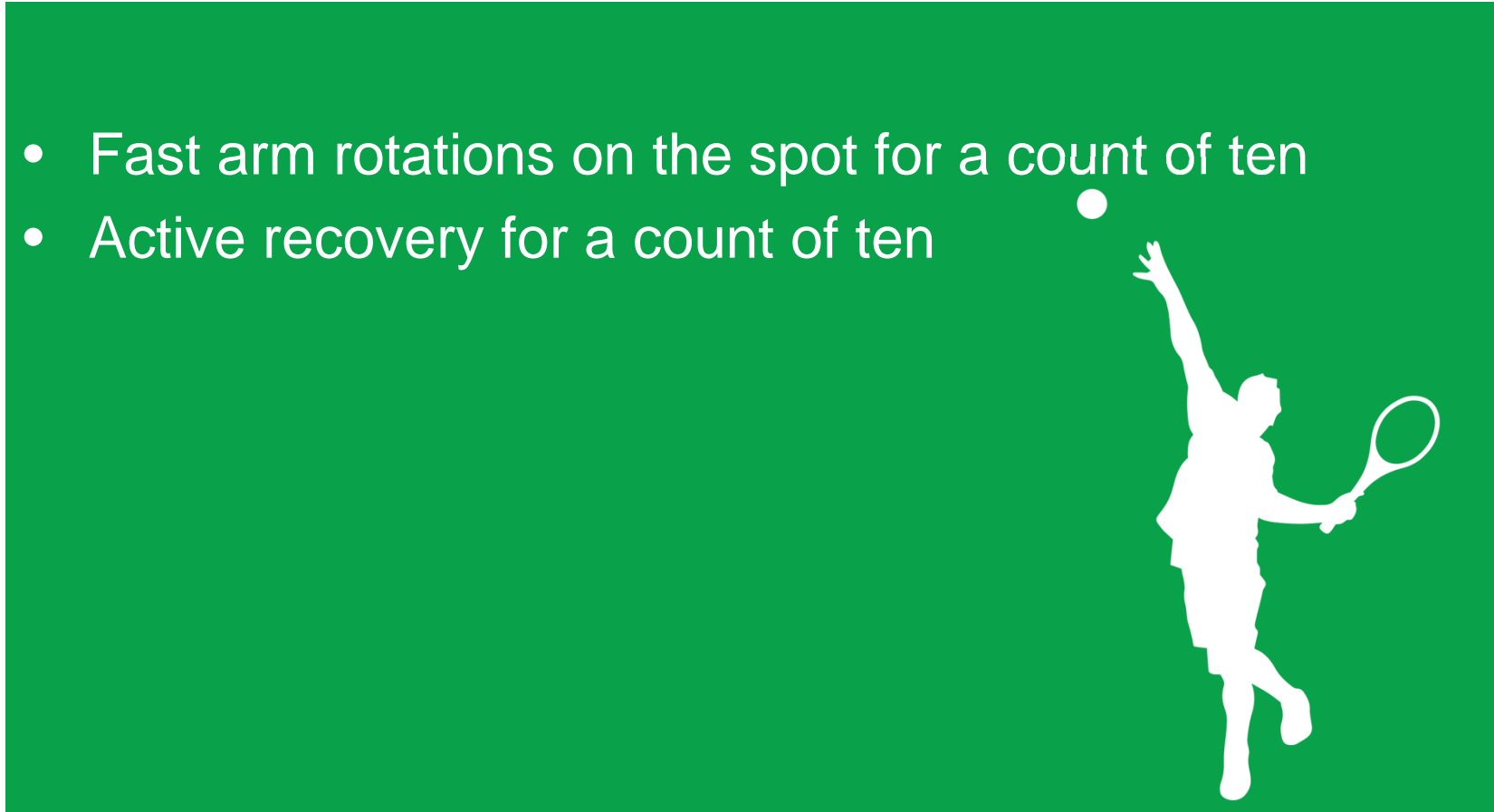


# Infusion 1 Fast Arms (2 mins)

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- Fast arm rotations on the spot for a count of ten
- Active recovery for a count of ten



## Infusion 2 Dynamic Balance (2 mins)



- Squats and lunges
- Aerobic plus resistance component
- Active recovery between sets



# Infusion 3 Fast Feet



- Sprinting on the spot for a count of ten
- Active recovery for a count of ten



## Exercise 2 PE Practical



- Nominate a colleague to devise and lead an infusion
- Put on your heart rate monitors
- Two minutes VPA!



# Exercise 3 Your Typical Lesson Now



- Go back to your lesson evaluation
  - Can you make time for the warm up?
  - Where might you fit in the infusions?



# We Are Asking You to...

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- Share Fit to Study with other school staff
- (But don't share it with other schools)
- Plan how to deliver the intervention next year
- Tell your students about Fit to Study
- Ten minutes, twice a week!





# Monitoring Intervention Impact

# The Lesson Log

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- Please complete and retain the lesson log!
- This covers **all** Year 8 PE lessons for the **whole year**





# Physical Activity Monitoring

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- Researchers will measure physical activity during PE in the autumn, spring and summer terms



# Academic Attainment

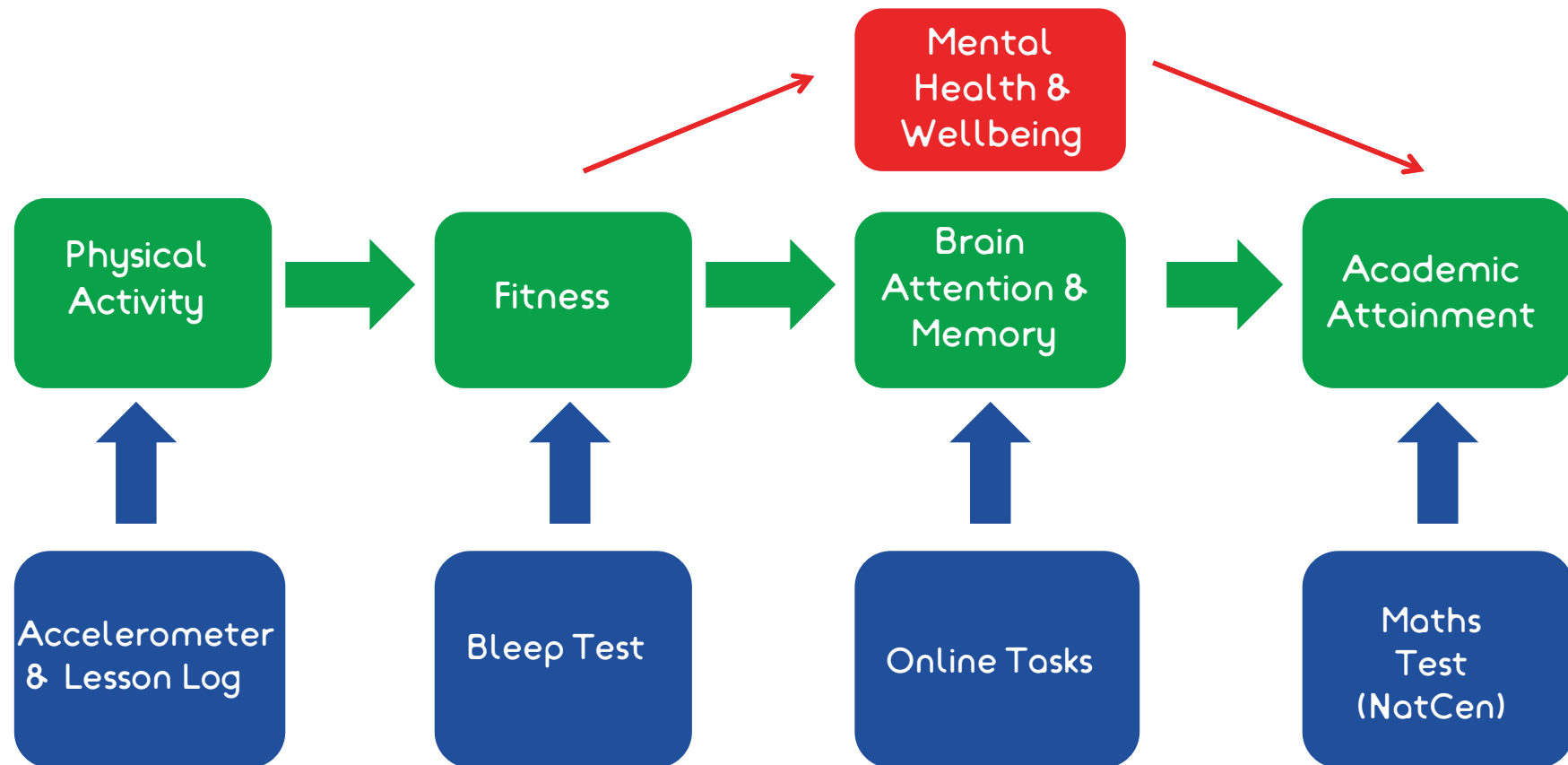
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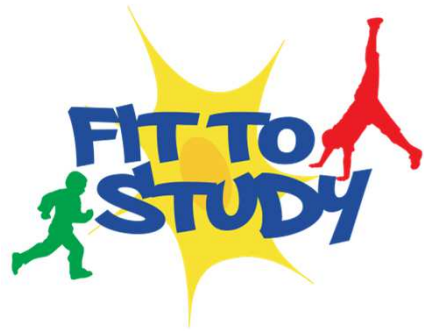


- Maths test in Term 6 of Year 8
- Independent evaluators NatCen to administer



# In Summary...





# Thank You for Participating!



## Any Questions?



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