

Stage 6 Investigating Science

Session Type: Research – Fact or Fallacy

Number of students actively involved: Up to 20 (4 x groups)

Time: 90 -120 minutes + 70 minutes set-up: Total time half day

Space needed: large area where up to 4 x groups of 5 students can work without distraction.

Equipment required: Data projector or large monitor, 1 x laptop per group.

What we provide: We provide 2 x EEG headsets (to use), 2 x laptops, software, A2 answer sheet templates for school printing.

Time: 90 – 120 minutes

Group size: Maximum 25

Number of students using EEGs: 20

Our set-up time: 70 minutes

Total: Half a day: Cost \$520 + gst

What happens during a session?

1. **Introduction.** A 30-minute overview of the workings of the brain including the role of neurons and the different brainwaves (electrical states) created from levels of neuronal activity.
2. **Technology.** EEG headset explained demonstrated with one student. Group divided into '**Research groups**' of 3 - 5 students. Their investigation task and terms explained.
3. **Reference/Control Task:** Taking measurements of a **particular brainwave** from group in controlled manner. This involves observers, timekeepers, recorders and subjects where all students are involved. The results of this form a '**control**' for the group.
4. **Fact or Fallacy.** Group then repeats the task outlined in **3** but with certain stimuli added **that represent commonly held beliefs about brainwaves**. The teacher usually chooses one or several of these beliefs to test. The results are recorded for each student. We provide the stimuli. Some examples could include:
 - That a physically horizontal position increases Theta waves.
 - That chocolate relaxes people and produces increased Theta brain states.
 - That heavy metal music decreases Theta waves and increases Gamma waves.
 - That peppermint essential oil does **NOT** relax people and create increased Theta brain activity.
5. **Results / conclusion:** Students discuss the results with reference to **fact or fallacy**. They then make a conclusion about their research and complete the worksheets.
6. **Science and Society.** Students create a 3-sentence summary of how the findings, technology or both can be used to make a difference in society.



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