

Teachers' Guide: Neurosky MindWave Mobile II or NeuroSky Sichiray: Doc 4

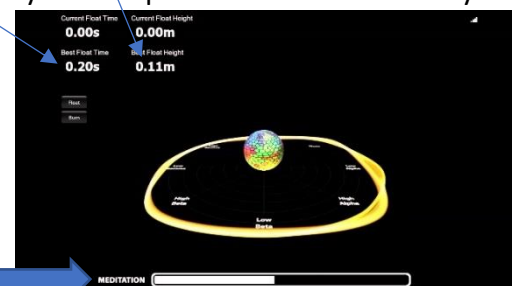


Using the games – activities and experiments

The two games that come with the BrainWave Visualizer II (Float and Burn) are good for individual or group activities.

The **FLOAT** game measures Theta and low Alpha brainwaves. Quite simply, the more a person stills their mind and produces Theta and Alpha waves, the higher the ball will rise. Another way of saying it is that the lower the electricity generated in the brain, the higher the ball will rise. When the electricity is high, the ball will drop. Students can measure their Theta/Alpha by:

1. The **INTENSITY** (amount) of Theta/Alpha. This involves seeing how **high** they can get the ball to rise
2. The **MAINTENANCE** of Theta/Alpha. Students see **how long** they can keep the ball in the air in any one period of time. Some students are terrific at stilling their mind & keeping it there. We find the best way for a student (who doesn't normally meditate) is to be conscious of their breathing & slowly count to 4 repeatedly. 1-2-3-4 ... 1-2-3-4. The counting must be slow & to themselves – not out loud.



The white bar below the ball indicates the intensity of Theta/Alpha. The aim is to get it to 90 or even 100%.

Activity 1: Give each student a set time to reach their best score and record that score on paper or a phone. We find 2.5 – 3 minutes is good. This is a good time to introduce 'controls' in research.

HINT: The game will show how high and the time for each person. Don't turn the headset off between students, but **DO** click on **Graph** to get back to the home screen. Then click on **Games** and the **Float** game again. The last student's score will be cleared and the new student can start afresh.

Then, introduce certain stimuli or deprivation to see what stimuli/deprivation will increase Theta/Alpha for different individuals. Some stimuli/deprivation may be:

- Looking at a piece of chocolate (looking and anticipating something produces higher neuronal activity than actually eating/doing it)
- Eating a piece of chocolate just before the timing starts
- Having earmuffs on / Closing the eyes / lying down
- Listening to certain music through headphones
- Smelling fresh cut grass / drinking chamomile tea
- Having the forehead or forearm slowly massaged

The above activity can be organised into a full experiment and works very well with the **Investigating Science curriculum**. It is great for teaching concepts like reliability, sample size, controls, validity and variables.

Note 1: Students with diagnosed ADHD love this game & the feeling they get from 'relaxing' their mind.

Note 2: The science community is divided as to if chocolate or other 'sweets' produce Theta. Our experiments over the past years have repeatedly found that those who can meditate well and achieve high scores in FLOAT, do far worse with chocolate. Those who are poor at FLOAT do better when chocolate is introduced. One reason could be

that the chocolate gives poor meditators a 'focus' point and decreases the Beta/Gamma thinking load.

Activity 2: The BURN Game

Those who are initially poor at the FLOAT game will probably be good at the BURN game. The activity here is virtually the opposite of the FLOAT game. Students see what stimuli, actions, memories, tastes, deprivations etc change their burn score. Students can also see who is the quickest to make the barrel explode. Extra stimuli or actions could be:

- Dancing to loud music (students may have to wear a headband to keep the MindWave in place.
- Remembering a fear
- Doing maths
- Doing push-ups
- Reading Shakespeare

Activity 3: The Maths Games

These are very self-explanatory. What is interesting in that once finished a test and looking at the results, you can scroll along the graph to see what equation created the most attention (hard) and which made the brain slow down (easy). When an individual has to work hard at an answer, they have more electricity and will be in Beta. When the maths is easy, they will have less electricity and be in Theta or low Alpha.

Activity 4 +: Using the MindWave to actually 'do' things

Neurosky have a developer section where students can become developers and create interfaces that will enable mind controlled – anything. The web address is <http://neurosky.com/resources/>

These projects take some coding and basic electrics knowledge. Students who have experience working with Arduinos will have a head start.

APPS

Neurosky have lots of Apps for use with the MindWave. Most of these are only suitable for smartphones and some are free. Others are quite cheap. Just look up Neurosky Mindwave on google Play or the App Store.

The web address for Apps is <https://store.neurosky.com/collections/apps>