

Teachers' Guide: Neurosky MindWave with the Brain Vizualiser Program

Understanding and interpreting what you see



1. What you see

When you first start the brain visualiser you will see a graph, 2 x meters and a moving shape called the Dynamic Brainwave Visualiser.

The **Dynamic Brainwave Visualiser** is an 'artistic' representation of how your brainwaves are fluctuating. While interesting, we don't use this visualiser tool in any student activities.

On the right – **The Brain Activity Graph**. This separates the different brainwaves into 8 bars which has an overlaid line graph. By clicking on each bar you can get a general explanation. Here's an overview.



1. **Red = Delta.** The slowest brainwave present in sleep. We decrease Delta when wide awake or trying to focus.
2. **Brown = Theta.** Deep focus, relaxation and learning. Present in 'automatic' tasks and meditation. Good for single focus and often low in individuals with ADHD. Great for learning & information retention.
3. **Yellow and Green** = low and high Alpha. Normal relaxed waves. Good for information retention (low Alpha) and visual processing (without sound – sound reduces Alpha).
4. **Light blue and dark blue** = low and high Beta. Beta is when someone is in active attention. When a student is doing maths or listening to a teacher explain a problem Beta is present. Beta is also a multi-skilling wave and for people engaged in sport or busy work. High Beta has been connected to anxiety and overthinking leading to obsessions.
5. **Dark and light purple** = low and high Gamma. This is high cognitive processing and is present in extreme intellectual activity or in athletes where body & mind must work together. It is present in fearful situations & the flight or fight mode. In some **VERY** rare cases involving Tibetan monks, high Gamma is associated with transcendental meditation & can mirror Theta, yet we don't scientifically know how this occurs.

At bottom right - The **Attention and Meditation Meters** are the results of algorithms that average the left 4 bars (meditation) and the right 4 bars (attention). The algorithms are available by becoming a 'developer' with Neurosky which is terrific for students wanting experience in coding. Many students become developers and get their headset to do things other than just depict brainwaves on a screen eg: driving a prosthetic arm, turning on 'Brain Wear' (see document 4).

Bottom left: The Music Player that links in with an iTunes library. As iTunes is seldom still used, we don't use this part of the program.

Move the cursor to the left of the Attention Meter to see – **Chart, Dynamic or Games'**. Here you can choose **Chart mode** (with the bar graph), **Dynamic** (which is just a full-screen version of the artistic pattern), or **Games** (which contains an attention and a meditation game. **We've found these two extremely useful in a teaching situation. (see document 4).**

Next ... Document 3: Using the graph and meters