

MAPPING THE BRAIN

Student Worksheet

Introduction:

In this activity, you will be exploring a 3D map of the brain in a series of cross sections. You can also select different methods of brain recording and mapping in order to see the different structures within the brain.

How to navigate the brain in the online module:

- Select one cross-section of the brain to view using the three buttons at the top (coronal, axial, or sagittal).
 - Coronal cross sections divide the front of the head from the back
 - Sagittal cross sections divide the left side of the head from the right
 - Axial cross sections divide the top of the head from the bottom
- The slider at the bottom allows you to scroll through the brain. Notice the yellow-green line through the head on the left side of your screen moves along with you as you scroll, showing you where you are within the head.
- The menu on the right shows all the different brain regions that you can select.
- The slider at the right changes the color transparency of the selected brain region (amygdala is shown in the example below).



MAPPING THE BRAIN

- Choose an imaging method from the drop down menu in the upper right corner.
 - Note that DTI and Probabilistic methods only show a video of what this type of data is like.
 - Note that fMRI, PET, and MEG all show a pattern of activity in the brain associated with a particular event (described on the left side of the screen).

Choose a brain region to investigate and answer the questions below:

1. What does that brain region do? Was this region of the brain mentioned in Unit 2? Look up more information about this brain region by clicking the “i” button next to the region name in the list and fill out the boxes below.

Brain Region Name	Basic Functions

2. Find where that brain region is located. Is it in a particular lobe of the brain? Is it deep within the brain? Which imaging techniques can you use to see your brain region in the online module?

Brain Region Location	Imaging Techniques

MAPPING THE BRAIN

3. In addition to seeing where your chosen region is within the brain, we can use some brain imaging techniques to see where in the brain is active at a certain time or during a certain event. Look at your region using all of the imaging methods. Is it involved in any of the functions in the list below?

Is this region active during a panic attack?	Which imaging technique was used to show this? (other techniques can be used as well)
Is this region active during a task requiring self-awareness?	Which imaging technique was used to show this? (other techniques can be used as well)
Is this region active when feeling pain in the left hand?	Which imaging technique was used to show this? (other techniques can be used as well)