

EduCortex Activity

EduCortex is a web-based tool that allows you to view, manipulate, and explore 3D brain visualizations. In this activity, you will use EduCortex to explore brain anatomy and function. You are welcome to work on this activity with your classmate(s).

Part 1: Exploration

1. Open [EduCortex](#). Close the “Welcome to EduCortex” text box.
2. You should see a colorful 3D picture of the human brain. Notice the word cloud at the bottom right of the screen. The colors of the words match the colors on the brain. For example, “pain” is in purple on the word cloud, and regions of the brain that are activated when experiencing pain are colored purple. The words that are in the word cloud are the terms that best explain brain activity in each region after compiling data from thousands of brain imaging studies. Notice that most terms map onto a lot of different parts of the brain.
3. Try rotating the brain by clicking and dragging on it. You can also make the brain smaller or larger by scrolling with your mouse or trackpad.
4. Click somewhere on the brain that is colored pink/red. The coordinates that appear in the upper-left hand corner are the MNI coordinates for that location in the brain. The list of “Associated Terms” that appear below the coordinates are the terms that are most associated with the part of the brain that you clicked on (again, based on a database of thousands of studies). Write down the coordinates and the associated terms for the region you selected.
5. Now click on one of the associated terms from the list. You should see the brain change color. The darker red parts of the brain are the regions that are most strongly associated with the term that you clicked on.
6. Click on “Toggle brain labels” at the top center of the screen. What anatomical region(s) of the brain seem to be in the darkest red for the associated term that you selected? Click on “Brain label legend” to translate the brain labels into the names of brain regions. What are some of the brain regions that appear in dark red?
7. Play around with the “Flatten” and “Inflate” options (also in the top center of the screen). Why might someone choose to view brain activations on a flattened or inflated brain?

Part 2: Searching by functional term

1. Open [EduCortex](#). Close the “Welcome to EduCortex” text box.
2. Type the functional term “memory” in the “Search term” box on the left-hand side of the screen and then click on “Go.” What do you observe?
3. Click on several different dark red areas. These are the regions that are most strongly associated with the functional term “memory” based on the database of neuroimaging studies. What are some of the associated terms that you see?

4. As you click around on red regions, pull up the list of associated studies that is located on the bottom left of the screen. Does it seem like a lot of these activations are coming from the same set of studies or from different studies?

Part 3: Searching by anatomical term

1. Open [EduCortex](#). Close the “Welcome to EduCortex” text box.
2. Type the anatomical term “occipital” in the “Search term” box on the left-hand side of the screen and then click on “Go.” Brain regions that are associated with the search term will appear in red. What do you observe?
3. Click on some of the dark red areas. You may want to rotate the brain so that you are looking at the ventral surface (underneath) or the posterior (back) part of the brain. What are some of the associated terms? Do any of them surprise you?
4. As you click around on red regions, pull up the list of associated studies that is located on the bottom left of the screen. Does it seem like a lot of these activations are coming from the same set of studies or from different studies?

Part 4: Choose your own term

1. Open [EduCortex](#). Close the “Welcome to EduCortex” text box.
2. Choose your own term to look up in the “Search term” box, either functional or anatomical. What term did you choose, and what did you observe?
3. Take pictures of the brain image that you see after conducting your search by using the camera function. Go to “Open Controls” in the upper right-hand corner. Click on “camera.” Then click on “Save image” and “Save.”
4. Find some of the associated terms and associated studies for the term that you searched. Describe what you observed.