



Experiments  
with  
**BRAINS!**

This activity consists of three different experiments.

1. Calculate the absolute area of the olfactory bulb (pages 1-2 of the handout)
2. Calculate the relative area of the olfactory bulb (pages 3-4 of the handout)
3. Calculate the relative area of the cerebral cortex (pages 5-6 of the handout)

### Instructions

1. Divide the students into 5-10 groups
2. Give each of the groups the handout for the first experiment and a set of images (2 sets if you are only doing 5 groups)
3. Use the PowerPoint (On the USB drive) to give some background information about brains and set up the experiments
4. The students should calculate the area of the olfactory bulb by counting the squares on the transparent grid. (For more advanced students have them calculate the area in  $\text{cm}^2$ )
5. Students should get the human or the dog having the largest olfactory bulb with the mouse as the smallest.
6. After designing an new and improved experiment, one student from each group should pick up the second handout.
7. Use the PowerPoint to guide students through the second experiment.
8. After completing the second experiment students should compare their results with a neighboring group.

- Send one student in each group to copy down another groups results and bring it back to their group to discuss. Or have a volunteer from each group write their results on the board so everyone can see.
9. Each group has a different set of images so you can compare them. There isn't very much variation between the size of human or mouse olfactory bulbs, but it does vary between different breeds of dogs.
  10. One student from each group should pick up the third page of the handout.
  11. Use the PowerPoint to give additional information about the cerebral cortex and give instructions for the third experiment (a repeat the last experiment but count the area of the cerebral cortex instead).
  12. Have the students compare results as before.



Please return to  
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