

# NEUROSCIENCE RESEARCH WITH DR AMANDA BROWN

## TALKING POINTS

### KNOWLEDGE & COMPREHENSION:

1. What is HIV and how does it adversely affect patients?
2. In what ways can HIV affect the brain?
3. Why are anti-retroviral treatments unable to prevent HIV-associated neurocognitive disorder?

### APPLICATION & ANALYSIS:

4. How might understanding more about osteopontin aid Amanda's research aims?
5. Amanda describes the brain as the next frontier for science. Can you think about some things we know about the brain that we did not know until recently? Perhaps consider recent studies on concussion in physical sports, particularly American football.
6. What questions would you investigate if you were a neuroscience researcher?

### SYNTHESIS:

7. What would happen if we found a way to turn off inflammation in the brain? What would be the benefits, in terms of HIV patients and the related complications? What would be the pitfalls of removing the inflammation mechanism?

### EVALUATION:

8. Amanda talks about the animal studies that she and her team perform, and alludes to the importance of remaining ethical in this endeavour. How would you judge an animal study – or any study – to be ethical or not?

## ACTIVITIES TO DO AT HOME OR IN THE CLASSROOM

- Imagine the year is 2050 and you are a highly experienced neuroscience researcher. What has been learned about the brain in the past three decades? How has that changed the world in which we live? Is there anything we can do now that we could not do in the past? Be as creative as you like – the only limit to this activity is your own imagination!
- Do some research into scientific discovery focusing on the human brain. What have been the major milestones in each of the past five decades? You could:
  - Create a timeline of key events
  - Write a speech celebrating these scientific achievements
  - Write an essay that documents this history and what scientists believe we can expect to learn more about in the future.

## MORE RESOURCES

### BRAIN FACTS

**BrainFacts.org** is a truly brilliant resource for those interested in learning more about the brain. There are lots of articles and activities on neuroscience in society, naming cells and a link through to how the nervous system interacts with other body systems.

### THE NERVOUS SYSTEM

The School Run has a section dedicated to the human brain and nervous system. There are facts, interesting bits of information and a gallery: [www.theschoolrun.com/homework-help/the-human-brain-and-nervous-system](http://www.theschoolrun.com/homework-help/the-human-brain-and-nervous-system)

### AMANDA RECOMMENDS

The John Hopkins Neuroscience Scholars Program:  
[www.JHNSP.org](http://www.JHNSP.org)

The John Hopkins Neurophytes:  
[www.JHNEUROPHYTES.org](http://www.JHNEUROPHYTES.org)

Johns Hopkins Internship in Brain Sciences:  
[www.projectpipelinebaltimore.org](http://www.projectpipelinebaltimore.org)