

## BrainU 303 Content

### The Sense of Self as a part of Consciousness

Objective: To introduce the complexity of consciousness from a neuroscience perspective

Method: Discussion of scientific papers on the concept of the sense of self

Lesson plan/activity: None

### Invertebrate model of alcohol effects on the nervous system

Objective: To examine the behavioral effects of alcohol

Method: An investigation of *C. elegans*' response to alcohol exposure

Lesson plan/activity:

*C. elegans + Alcohol Teacher, Student Guides*

### Disease treatment effects on cognition

Objective: To highlight cognitive changes due to cancer treatment

Method: Lecture on how disease treatments can affect cognition

Lesson plan/activity: None

### Endogenous cannabinoids

Objective: To discuss how humans are affected by drugs

Method: Lecture on cannabinoids, their receptors in humans, what they do and why

Lesson plan/activity: None

### Autism

Objective: To introduce some of the clinical markers/treatment options for Autism

Method: Clinical lecture on potential biological mechanisms involved in ASD

Lesson plan/activity: None

### Adolescence and drug sensitivity

Objective: To discuss adolescence and its relationship to street drug sensitivity

Method: Lecture

Lesson plan/activity: None

## BrainU 303 Pedagogy/Science Processes-

### Concept mapping

Objective: A review of content knowledge and on graphic representations of knowledge

Method: Hands-on activity making concept maps of neuroscience content knowledge

Lesson plan/activity: Concept Map task card

### Science notebooks: use and assessment options

Objective: To explore ways science notebooks can be used and graded in classrooms

Methods: Analysis/discussion of science notebooks examples from classrooms and laboratories and quick grading options

Lesson plan/activity: None

### Question development-designing testable questions that students are interested in

Objective: To practice a strategy to develop testable and interesting questions for experiments

Methods: Discussion and lab experiments  
Lesson plan/activity:  
Developing Testable Questions Lab

#### Identifying and narrowing variables

Objective: To practice identifying and choosing variables to test  
Methods: Discussion and lab experiments  
Lesson plan/activity:  
*C. elegans + Alcohol Teacher, Student Guides*

#### National science standards alignment with neuroscience concepts

Objective: To practice using the Atlas to identify critical concepts within neuroscience topic area  
Method: Discussion, small group work  
Lesson plan/activity: None

#### Graphing data

Objective: To practice different ways of presenting data  
Methods: Lecture, practice on different ways to graph data  
Lesson plan/activity:  
*C. elegans + Alcohol Teacher, Student Guides*

#### Linking scientific content to classroom practice

Objective: To link neuroscience content talks with classroom practice  
Methods: Informal and formal discussions using prompts such as, "How would you apply this neuroscience information into your classroom?"  
Lesson plans/activities: None

#### Networking/sharing ideas with colleagues

Objective: To provide opportunities to process and share information  
Methods: Informal and formal conversations  
Lesson plans/activities: None

#### Modeling scientific poster talks

Objective: To model a scientific poster presentation  
Methods: Discussion, prep time, culminating presentations on sustainability plans  
Lesson plan/activity: None

#### Sustainability Plan

Objective: to develop a sustainability plan to implement neuroscience activities after U of MN grant ends  
Methods: informal and formal discussions, planning time, final draft due 2 weeks after workshop completion  
Lesson plans/activities: Sustainability plan write-up listed below

# **Brain U 303 Sustainability Plan**

Continuing Neuroscience Topics in Your Classroom

**Teacher Information: (Name, School, School Address, school phone, e-mail)**

**Class and Grade Level:**

**Current Neuroscience "Curriculum":**

Present a detailed, sequential list of neuroscience concepts you teach, the support activities/investigations students do, and time allotment for each.

**Standards:**

What MN/national science standards are supported by this curriculum?

**Sequence Rationale:**

Justify the learning sequence presented above. Why does this sequence work well for you, your students, your school?

**Benefit Statement:**

Why is your neuroscience curriculum valuable for students?

**Goals Statement:**

What goals do you have for the future of your neuroscience curriculum?

**Success Story:**

Pick what you feel is the single most important component/lesson from your neuroscience curriculum. Why is it your favorite? What do you do, and what do your students do, that makes this one "learning event" so successful?

**Sustainability Issues:**

Now that the grant is ending, what specific issues will challenge the continued implementation of your neuroscience curriculum? Look at each component listed above in "Curriculum" and cite possible hurdles to overcome in the future.

**Possible Solutions:**

Address each issue above with a few possible solutions to each problem.

**Action Steps:**

What specific actions will you take, or what adjustments will you make, in order to incorporate the solutions above? Why did you select these solutions?