

Title: Cocaine In The Brain

Date: Week 2, Tuesday

Of Students: ~30

Class: Biology

OBJECTIVE:

- Students understand how cocaine and heroin make you feel.
- Students understand how cocaine and heroin users feel when they stop using.
- Students explore prior knowledge about cocaine and heroin's action.
- Cocaine's action is illustrated via a hands-on activity (Cocaine In The Brian)

MATERIALS:

- 6 sheets presentation paper
- 2 liters water
- 10 beakers (1 per group)
- 10 two-neck reaction flasks (1 per group, borrow from chemistry lab)
- 10 corks (1 per group)
- 30 Copies of the lab procedures handout

NOTES:

- 10 lab stations must be set up prior to class (~ 25 minutes prep time)
- Students will be working with valuable glassware. Diligent supervision is necessary to prevent damage to any school equipment

STEPS:

ANITICIPATORY SET: Students are split in to groups of three. Students work in these groups to generate lists of feelings associated with a cocaine or heroin "high" and "withdrawal". These feelings should come from lyrics from the three songs the students obtained for the Hip Hop Circuit website for homework and from prior knowledge. **(10 Minutes)**

- 1) Write "Why do cocaine and heroin make people feel the ways that they do? Why do people feel opposite ways when they stop using?" on the board **(1 minute, done while students are completing group work)**
- 2) Teacher Brings class back for large group **Know-Want to know-Learned** discussion **(3 minutes)**
- 3) Teacher explains the K-W-L activity **(3 minutes)**
- 4) Teacher asks students to tell the class what they know about the above question. He writes answers on a piece of presentation paper labeled "What We Know" **(5 minutes)**
- 5) Teacher asks students to tell the class what other information we might need to fully answer the above questions. He writes answers on a piece of presentation paper labeled "What We Want To Know" **(5 minutes)**
- 6) Teacher introduces "Cocaine In The Brain" lab. **(12 minutes)**
 - Tell students that this lab will simulate the way nerves in the brain called neurons act with and without cocaine present.

- Teacher also informs class that we will be filling in the actual terminology for each of the parts of the lab later. Right now, students should focus and take notes on the physical changes that happen during the lab.
 - Teacher explains to students that they will be using glassware in this lab and should be careful not to break any of it.
 - Teacher hands out lab sheet with the actual procedures for the lab and reviews it with the class
- 7) Students perform lab (**15 minutes**)
 - 8) Students clean up (**3 minutes**)

FOLLOW-UP ACTIVITY:

- During the next class meeting (Week 2, Wednesday) students will review text and 3D animations of how cocaine interacts with the brain's neurons on PBS.org's website. After doing this they will be asked to draw parallels between the "Cocaine In The Brain" lab and what they learned from the website.
- During the class meeting on Week 2, Friday the class will complete the "learned" portion of the K-W-L activity

ASSESSMENT:

- Student groups will be monitored during the list making portion of the class to note patterns of participation and to assure completion of the homework assignment
- Lab groups will be monitored to note participation by all group members

LITERACY ASPECT:

- K-W-L activity prepares students for what they will read and learn in class in the coming days.