

<i>Document Overview</i>
This lesson plan focuses on the biology of drugs, risk factors associated with drug abuse, and ends with a project on informed decision making.
<i>Standards</i>
<p><u><i>Minnesota State Academic Science Standards</i></u></p> <ul style="list-style-type: none"> ○ 9.4.4.2.1 Describe how some disease can sometimes be predicted by genetic testing and how this affects parental and community decisions. ○ 9.4.4.2.4 Explain how environmental factors and personal decision, such as water quality, air quality, and smoking affect personal and community health.
<p><u><i>Next Generation Science Standards</i></u></p> <ul style="list-style-type: none"> ○ HS-LS2-8. Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. ○ HS-LS4-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
<p><u><i>Other Standards:</i></u></p> <ul style="list-style-type: none"> ○ ○
<i>Objective</i>
<i>Students will learn how drugs affect them, identify what risk factors they may have, and understand precautions they need to take if they use drugs.</i>
<i>Type of Activity</i>
<i>Web quest and student directed project.</i>
<i>Suggested Duration</i>

<i>2-4 50 minute class periods</i>
<i>Connection to Nobel Speakers</i>
<i>This connects to all of the speakers as it talks about the nature of addiction and how to mitigate or avoid it.</i>
<i>Concepts/Keywords/Appropriate Classes</i>
<i>Decision Making, Addiction, Dopamine, Serotonin, GABA, Glutamate, Stimulants, Depressants.</i>
<i>Description of Activity</i>
<i>Students will learn the science of substance abuse by using the “addiction webquest” from teach genetics. They will then research the question “What must be considered when using drugs?”. They will present their project in any way they choose. Suggestions include but are not limited to a powerpoint, prezzi, or posterboard presentation.</i>
<i>Materials</i>
<i>Access to computers, teach genetics packets, poster boards, colored paper, pencils, glue sticks, superglue, glitter, and fruit punch kool-aid.</i>
<i>Teacher Tips</i>
<i>The web quest is straight forward and students may do some of their work outside of class so if they have internet access. The project is to get students thinking about how to make their own informed choices, in a less authoritarian, fear based approach than has been done in the past.</i>
<i>Activity</i>
<p><i>Students will use the following activity to become familiar with the science of drugs and risk factors for use and abuse.</i></p> <p>http://stem-works.com/external/lesson_plan/116</p> <p>http://teach.genetics.utah.edu/</p> <p><i>When the web quest activity is completed students will research the question: “What must be considered if using drugs?” and create an informed decision based on evidence project. The project will describe the ten most important considerations when using drugs. The project can be a poster,</i></p>

book, Powerpoint, Prezi, brochure or any other medium to convey their research and message. Each idea needs a picture, explanation, and evidence based citation.

Students can use but are not limited to the following resources:

<http://www.drugs.health.gov.au/internet/drugs/publishing.nsf/content/youth4>

<http://drugaware.com.au/Stay-Safe.aspx>

<http://www.drugabuse.gov/publications/preventing-drug-abuse-among-children-adolescents-in-brief/chapter-4-examples-research-based-drug-abuse-prevention-programs>

https://www.youtube.com/watch?v=v_I2-DdWGRo

www.neuralactivity.org

Extension and Follow-up Activity

Students will send their final project to Gustavus to show what they got out of the Nobel Conference topic and how they have been able to incorporate ideas into their own live.

Sources/Bibliography

Teach Genetics Utah, [Drugs.health.gov/au](http://www.drugs.health.gov.au),