

## INSPIRE GK12 Lesson Plan



<b>Lesson Title</b>	Smoking
<b>Length of Lesson</b>	1 day (50 minutes)
<b>Created By</b>	Hannah Box
<b>Subject</b>	Life Sciences
<b>Grade Level</b>	7 <sup>th</sup> -8 <sup>th</sup>
<b>State Standards</b>	Eighth Grade: 3c
<b>DOK Level</b>	DOK 1
<b>DOK Application</b>	Recognize, report, tell
<b>National Standards</b>	5-8: F: Science in Personal and Social Perspectives
<b>Graduate Research Element</b>	Rare earth oxides in cigarette ashes act as catalyst in the combustion of sugar. Organometallic chemistry employs the use of catalysts for organic transformations.

### **Student Learning Goal:**

#### State Standards Eighth Grade:

3c. Describe how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions. (DOK 1)

#### National Standards 5-8: F: Science in Personal and Social Perspectives:

The use of tobacco increases the risk of illness. Students should understand the influence of short-term social and psychological factors that lead to tobacco use, and the possible long-term detrimental effects of smoking and chewing tobacco.

Alcohol and other drugs are often abused substances. Such drugs change how the body functions and can lead to addiction.

### **Materials Needed (supplies, hand-outs, resources):**

Pictures of things to show comparisons of smokers to nonsmokers (lungs), sugar cubes, Bunsen burners, ppt, cigarette ashes

### **Lesson Performance Task/Assessment:**

The students will perform a small experiment to demonstrate some of the harmful compounds that make up cigarettes.

### **Lesson Relevance to Performance Task and Students:**



Students will have just learned that many of the chemicals in cigarettes and cigarette smoke can cause harm and eventually death. This experiment will provide a visual demonstration that proves that even the ashes of cigarettes contain dangerous chemicals.

**Anticipatory Set/Capture Interest:**

Show students pictures comparing a smoker's health to that of a nonsmoker.

**Guided Practice:**

The teacher will go through the PowerPoint while the students take note. Make sure that the students participate throughout because they have life experiences to relate to the lesson. The students will then perform an experiment to prove that the teacher is telling the truth about cigarettes containing hazardous compounds.

**Independent Practice:**

Once the PowerPoint is completed, the students will be split into groups of 3-4. They will be given a Bunsen burner, a jar that should not be opened (containing cigarette ashes) and a plate of sugar cubes. The students will first attempt to burn a sugar cube using the flame. This should not happen. The cube should just melt, which is expected. Next, have the students open the jar containing the ashes and explain that's what the contents are. Have the students take a second sugar cube and dip it into the ashes. The cube should have a good coat of ashes on it. Now, instruct the students to try to burn the sugar cube again. This cube should burn and burn quickly. The rare earth oxides in the cigarette ashes act as a catalyst in the combustion of sugar.

**Remediation and/or Enrichment:**

Remediation:

Individual IEP. Use the short lab experiment as a demonstration instead.

Enrichment:

Have students write a letter to a tobacco company explaining the experiment they performed and how it changed their views on those company's advertisements.

**Check(s) for Understanding:**

What is a catalyst?

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Many people use smokeless tobacco. Do you think that it has the same effects on your body as cigarettes or is it less harmful?

Describe how the tobacco companies are misleading in their advertising.

### **Closure:**

Students will see something that cigarettes can do other than produce smoke. They will see that smoking affects more than just the person holding the cigarette.

### **Possible Alternate Subject Integrations:**

Chemistry: Use as an introduction into catalysts

### **Teacher Notes:**

Sugar cubes can be ordered online at Wal-Mart and amazon.