

LESSON TITLE:

The Case of the Evil Tower of Tar

LESSON DESCRIPTION:

In this animated activity, students will observe the accumulation of tar in the lungs from smoking after only one year in Cig Shady Chef's laboratory. Alistair Sleuth will guide the students in this "drag" and "drop" activity. A healthy set of lungs will be polluted with 12 bundles of cigarettes, containing 900 cigarettes. This is an average of a month's smoking about 1 ½ packs of cigarettes per day. It will be shocking to see the amount of tar that builds up in the lungs after only one year of smoking.



GRADE LEVEL:

4-6

INSTRUCTION PHASE:

Application

DURATION:

30 minutes

DELIVERY METHOD:

Educator-led
Individual

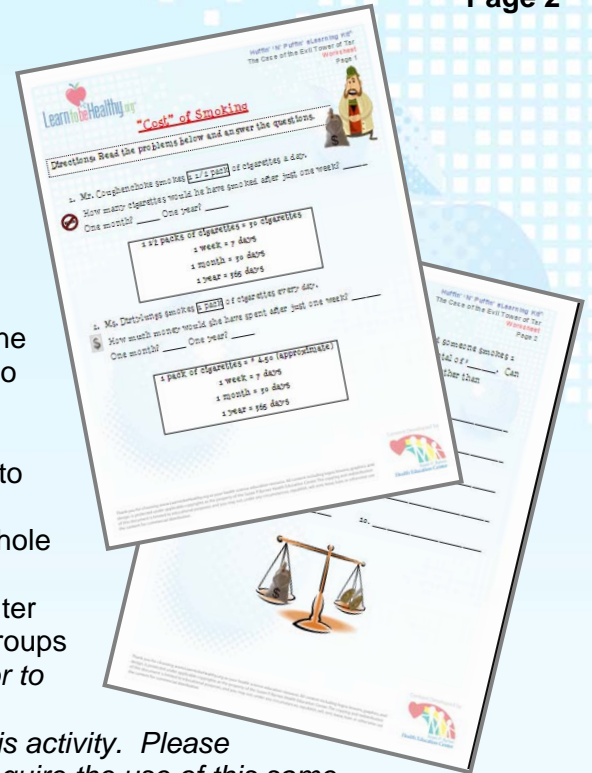
Content Developed by

MATERIALS:

1. Computer with Internet access or Kit on CD
2. Projector
3. **Cost of Smoking** Worksheet (one for each student)

MANAGEMENT:

- For this educator-led activity, students will be working in one large group or in two to three smaller groups to watch video segments on the projection screen in the front of the classroom.
- The educator may ask for a student volunteer (s) to come to the front of the class and “click” and “drag” the bundles of cigarettes over to the smoking machine on behalf of the whole student group as a variation.
- As a variation, this lesson may be completed in the computer lab/back of classroom computers as individuals or small groups *if smoking and its harmful effects have been reviewed prior to this activity.*
- *The educator will need to reserve computer lab time for this activity. Please be aware that the lesson activity after this one may also require the use of this same equipment. If needed, please adjust equipment reservation time accordingly.*



LESSON OBJECTIVES & STANDARDS:

The students will be able to:

1. Explain how tobacco use affects the respiratory system.

National Standards

Health: 1, 2, 6

PA State Standards

Health, Safety and Physical Education: 10.1.6 E; 2.2.5 A

ANTICIPATORY SET:

Begin by relating student experiences to the objectives of the lesson by asking the following:

- *What chemical is used to pave roads?*
- *Did you know that tar is used in cigarettes?*
- *Does tar belong inside your bodies?*
- *They add tar to cigarettes to give them taste/flavor, how can tar hurt your lungs?*
- *Did you know that there are over 4,000 chemicals in tobacco/cigarettes?*
- *How many of you know someone who smokes? Do you think it would be easy for that person to quit smoking? Why?*
- *Did you know that nicotine in tobacco is what causes addiction?*

TEACHING – Input:

Lesson Terms

1. **Addiction** is a physical and/or mental need for a drug.
2. **Alveoli** are tiny air sacs on the tips of the smallest branches of the lungs.
3. A **carcinogen** is a substance that can cause cancer.
4. **Nicotine** is a drug found in tobacco and cigarettes that speeds up the work of the body.
5. The **respiratory system** is the system that brings oxygen into the body and removes carbon dioxide out of the body.
6. **Secondhand smoke** is the smoke you breathe in from another person's cigarette.
7. **Tobacco** is the material that is in cigarettes, cigars, and chewing tobacco.



TEACHING – Modeling:

- Students will gather as one large group to watch the activity as it is projected onto the large screen in the classroom. Once the activity is launched, Alistair Sleuth appears on the screen and introduces the students to *The Case of the Evil Tower of Tar* Activity.
- Alistair Sleuth is in the lab of his enemy Cig Shady Chef and he explains that the tar caused by smoking builds up in the lungs over time.
- A healthy set of lungs appear along with 12 bundles of cigarettes. Alistair Sleuth explains to the students that each bundle contains 900 cigarettes, a month's worth, if you smoked a pack and a half a day.
- The students are then directed by Alistair Sleuth to “drag” and “drop” the bundles into Cig Shady Chef's smoking machine (need to start with January and go in order).
- After each bundle, the “fresh, pink” lungs begin to get darker with tar. The students will get to see how much tar builds up in the lungs after just one year.
- Educator should print out the **Cost of Smoking** Worksheet for each student. The students can work independently or as a large group to complete the worksheet.
- Once the students have completed the worksheet, discuss the answers as class.

TEACHING – Check for Understanding:

1. There are over 4,000 chemicals in tobacco/cigarettes. One of the chemicals is tar. Over time, tar accumulates on the lungs which makes breathing more difficult.
 - What is tar usually used for?
 - Why do they add tar to cigarettes?
 - How does the tar from cigarettes affect your ability to breathe?
 - Do you know any other chemicals that are in tobacco/cigarettes?

2. Smoking affects not only your body but also your wallet. Smoking is an expensive habit.
- How much does a pack of cigarettes cost?
 - A pack a day habit over one year is well over \$1,000; can you name some things you could buy with \$1,000?
 - How much would it cost you to smoke per week, month, or year?

CLOSURE:

Review key points of the lesson to help students form a coherent understanding of the lesson objectives. Ask students to tell or show you what they have learned, using questions similar to those found in **Check for Understanding**.

