

## Dopamine and Addiction: Using Science to Break the Cycle

### Student Activity Sheet

You have learned how individuals can be conditioned to respond to stimuli when there is a reward involved. You have also learned about different ways to explain the role of dopamine in the brain during behaviors such as taking drugs. In this activity, you and your classmates will work together to explain how a person's brain might be reacting to the habit of smoking cigarettes. You will also use your knowledge to come up with a way for this person to quit smoking. Read the following scenario, and then answer the questions that follow. You will be asked to share your answers with the rest of the class, so make sure you consider them carefully and use evidence to back up your claims.

#### Here's the scene :

Every day after school, Mindy walks home with her friends. They always have a good time talking about their day, complaining about their homework, and planning what they are going to do on the weekend. They also like to have an after school smoke. Mindy started smoking because her friends were doing it and she thought it would make her look cool and mature. Now, she is realizing that she is smoking more and more and wants to quit.

#### Make an explanation and find a solution:

Using experimental evidence from at least two of the experiments in the dopamine article, answer the following questions:

- a. At what point in Mindy's smoking behavior is dopamine affecting her brain?
- b. What is the dopamine doing? Explain how it is affecting her behavior.
- c. Based on your explanation for the role of dopamine, what changes in Mindy's environment and/or brain chemistry would you suggest in an effort to help her quit smoking?

Each person should write down the answers to the questions and be prepared to turn them in at the end of class. Choose one person to present your answers to the class.