

# SOLVE THE OUTBREAK

## Common Core Aligned Lesson Plan Middle School Level

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### Lesson Element:

The activities included in this lesson plan can be done within two 45 minute or one 90 minute class period.

#### 1. Common Core Learning Standards addressed:

The activities included in this lesson plan address the following Common Core Learning Standards

- Planning and Carrying Out Investigations.
- Asking Questions and Defining Problems.
- Cause and Effect.

#### 2. Learning Targets:

After completing this lesson plan, students should be able to

- Understand how outbreak investigations are carried out.
- Know how to work through an outbreak investigation to solve a problem.
- Recognize and define a problem to investigate.
- List the steps used to answer science-based questions.

#### 3. Resources/Materials:

- CDC's Excite website: <http://www.cdc.gov/EXCITE/>
- Solve the Outbreak on -
  - Android tablets - <https://play.google.com/store/apps/details?id=gov.cdc.sto&hl=en>
  - Apple iPad - <https://itunes.apple.com/us/app/solve-the-outbreak/id592485067?mt=8>
  - CDC website - <http://www.cdc.gov/mobile/applications/sto/web-app.html>
- Steps in an outbreak investigation <http://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson6/section2.html>.
- Rent or Purchase the movie Contagion.
- Rent or Purchase the movie Outbreak.

#### 4. Activities/Tasks:

- Complete the Solve the Outbreak scenarios - Birthday Gone Bad, Up Sick Creek, and/or Midterm Revenge scenario(s).
- Watch the What is Epidemiology video: <http://www.cdc.gov/EXCITE/epidemiology.html>.
- Discuss what happened in the scenario(s) with the classroom linking activities in the app with the steps in an outbreak investigation <http://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson6/section2.html>.

Note: The suggested scenarios included in this lesson plan were selected based on their level of relevance to the selected Common Core Learning Standards listed in section 1. Each of the scenarios are listed as Level 3 within the matrix, meaning they provide direct application of the concepts highlighted by the common core learning standards.

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## 5. Access for All:

- If students do not have a device compatible with the app, borrow one from the media center.
- Have students group together with individuals who have the necessary technology.
- Teacher can use projector technology to present the scenario to the entire class.
- Students can access the [Solve the Outbreak app on the CDC website](http://www.cdc.gov/mobile/applications/sto/web-app.html) in a computer lab setting.  
<<http://www.cdc.gov/mobile/applications/sto/web-app.html>>

## 6. Modifications/Accommodations:

- Read the Solve the Outbreak scenario to the student aloud.
- The app has been developed to work with all the accessibility features on Apple and Android mobile tablets (Android tablets 7 inches and above).
- There is also an accessible version on the CDC website <http://www.cdc.gov/mobile/applications/sto/508STO.html>.

## Lesson:

### 1. Explain what epidemiology is then play the “What is Epidemiology” video:

<http://www.cdc.gov/EXCITE/epidemiology.html>.

- Verbally assess student’s understanding of the video by asking probing questions regarding what defines the field of epidemiology.

### 2. Explain the purpose of Disease Detectives in the Epidemic Intelligence Service and how these scientists use problem-solving skills to prevent the spread of disease.

### 3. Invite an epidemiologist from the local health department or an infection control practitioner from a local hospital to explain the importance of Disease Detectives and the importance of conducting an investigation to determine the cause of an outbreak.

### 4. Introduce the Solve the Outbreak app to students and explain the importance of identifying a problem, and establishing a plan (that may need to be modified) in order to determine the cause of an outbreak. Review the Steps to Solving an Outbreak, explain that these are often done simultaneously, need not be in the order listed, that a single activity can address more than one step and that a single step may involve multiple activities.

### 5. Have students work in groups of 2 or 3 to go through a scenario and answer the questions within the app.

### 6. Provide an overview of the scenario and work through the scenario as a class, asking students to identify what the problem is in the scenario, how the Disease Detective formulated questions to discover the cause of the outbreak, the types of tests or tools

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used in a scenario to help solve the outbreak, the importance of establishing a plan to quickly solve the outbreak and which of the steps to solving an outbreak are addressed by each of the activities in the scenario.

7. Discuss the meaning and importance of cause and effect in regards to the Disease Detective's decision-making skills, as well as the cause and effect relationships involved in spreading the disease.

## Homework Options:

1. Have students complete one of these 3 scenarios - Birthday Gone Bad, Up Sick Creek, and/or Midterm Revenge as homework and provide a summary for the class of the outbreak, what they felt the Disease Detective did well or what they found interesting or unexpected in the scenario.
2. Have students write a summary of the different positions or jobs working in public health.