A Mysterious Ailment

Detectives in the Classroom - Investigation 1-5: A Mysterious Ailment

In **Investigation 1-5: A Mysterious Ailment**, students will delineate the early descriptive epidemiology of an actual disease* in terms of person, place, and time (PPT); identify early disease-causing hypotheses; and use the descriptive epidemiologic evidence to support or refute these early hypotheses.

* Do not tell students that the disease is acquired immunodeficiency syndrome (AIDS). In 1981, when the article they read for this investigation was written, the disease was not referred to as AIDS. Let them realize this as the investigation progresses. The original article was titled “Mysterious Ailment Plagues Drug Users, Homosexual Males.”

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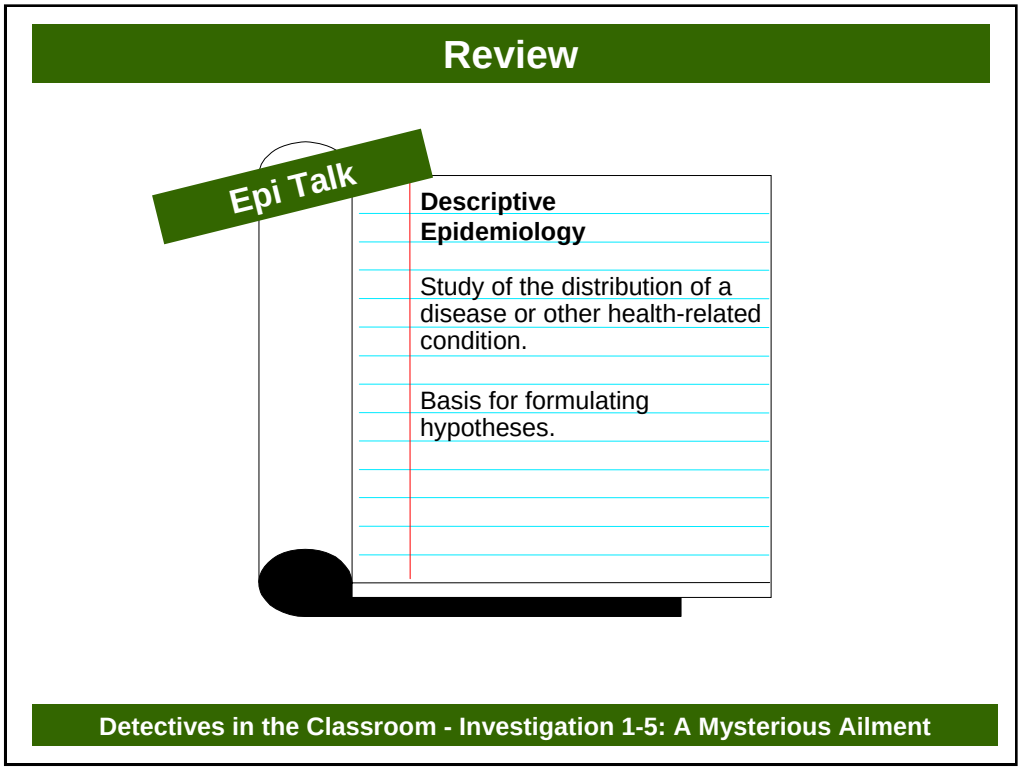

Ask students:

- What is descriptive epidemiology? (Study of the distribution of a disease or other health-related condition; basis for formulating hypotheses.)

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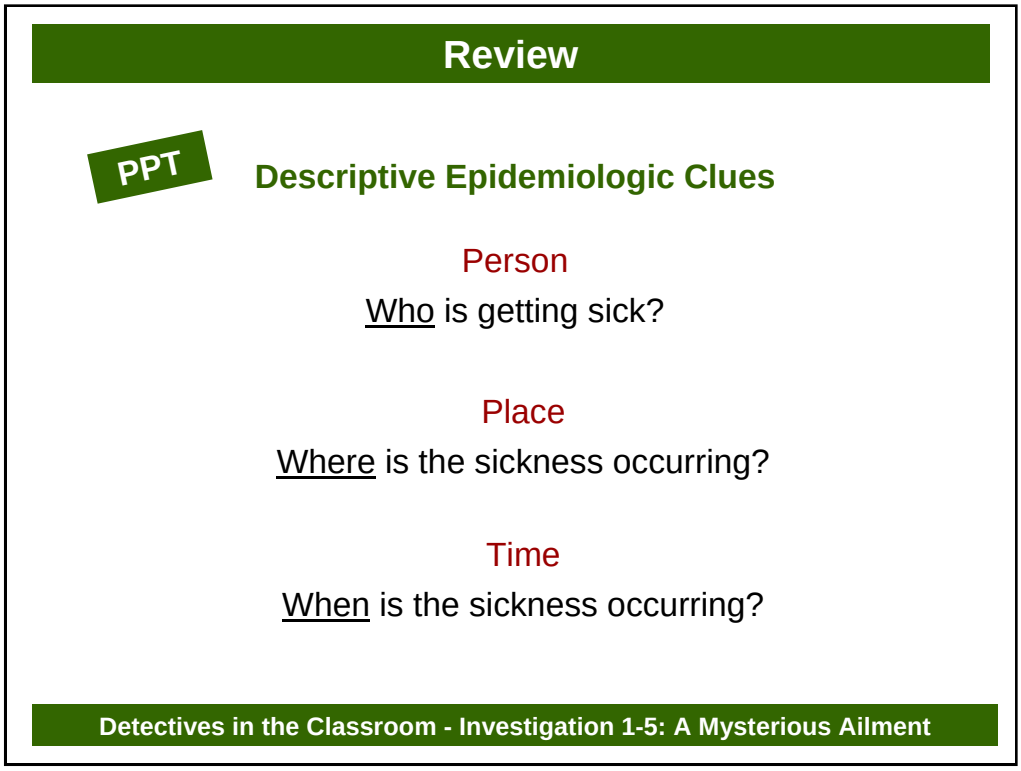

Ask students:

- What are the three categories of descriptive epidemiologic clues?
  - Person: *Who* is getting sick?
  - Place: *Where* is the sickness occurring?
  - Time: *When* is the sickness occurring?

PPT = person, place, time.

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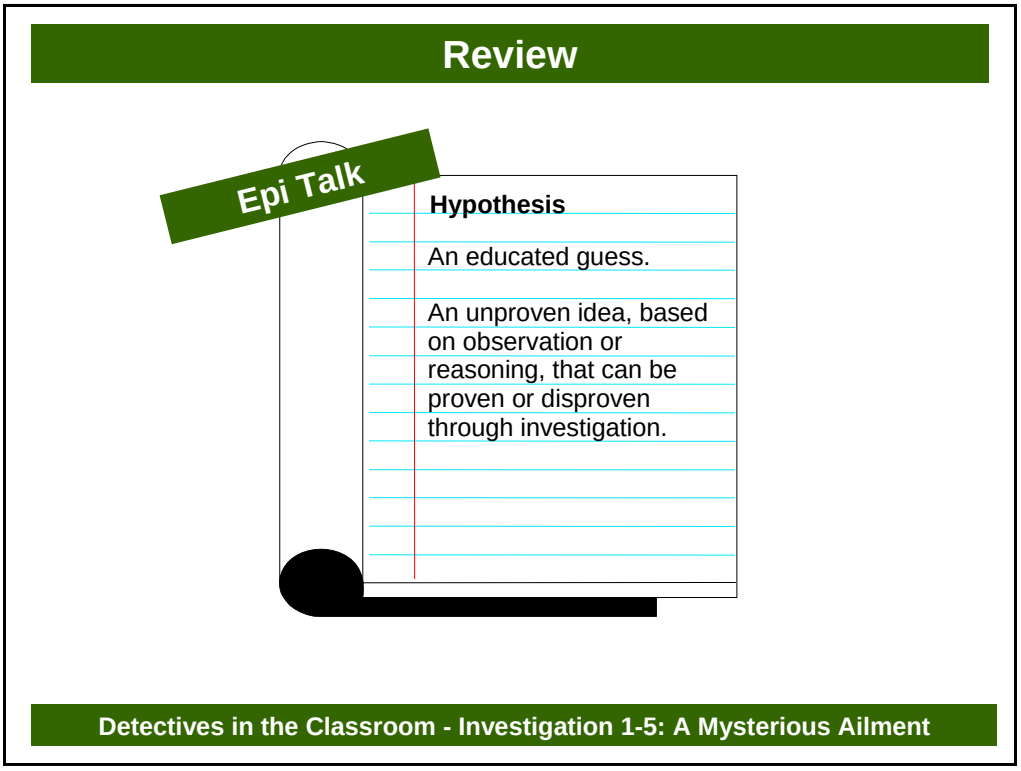

Ask students:

- What is a hypothesis? (An educated guess; an unproven idea, based on observation or reasoning, that can be proven or disproven through investigation.)

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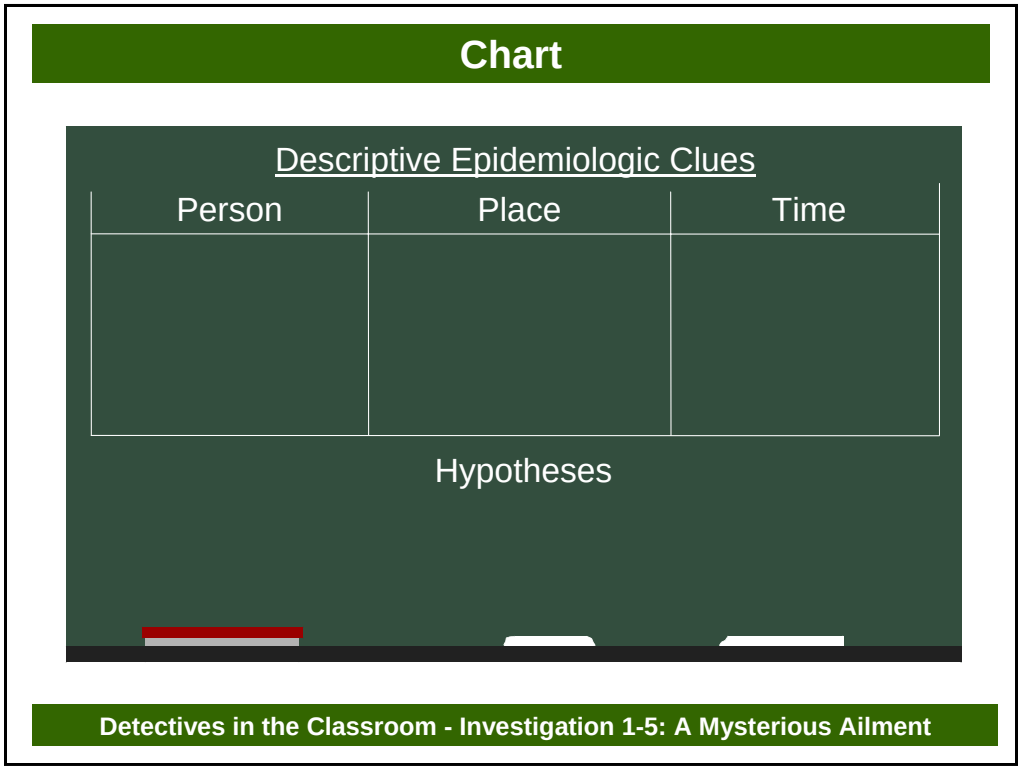

On the board, draw the “Descriptive Epidemiologic Clues” chart depicted on the slide.

Next Slide

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Distribute a copy of the article “A Mysterious Ailment.”

Ask one student to read the first paragraph of the article aloud.

Students should then identify any descriptive epidemiologic clues in the first paragraph. (“A mysterious, often fatal illness is breaking out in epidemic proportions among *young homosexual men* and *drug users*.”)

Ask students:

- Do these clues describe who is getting sick, where the sickness is occurring, or when the sickness is occurring? (*Who* is getting sick.)

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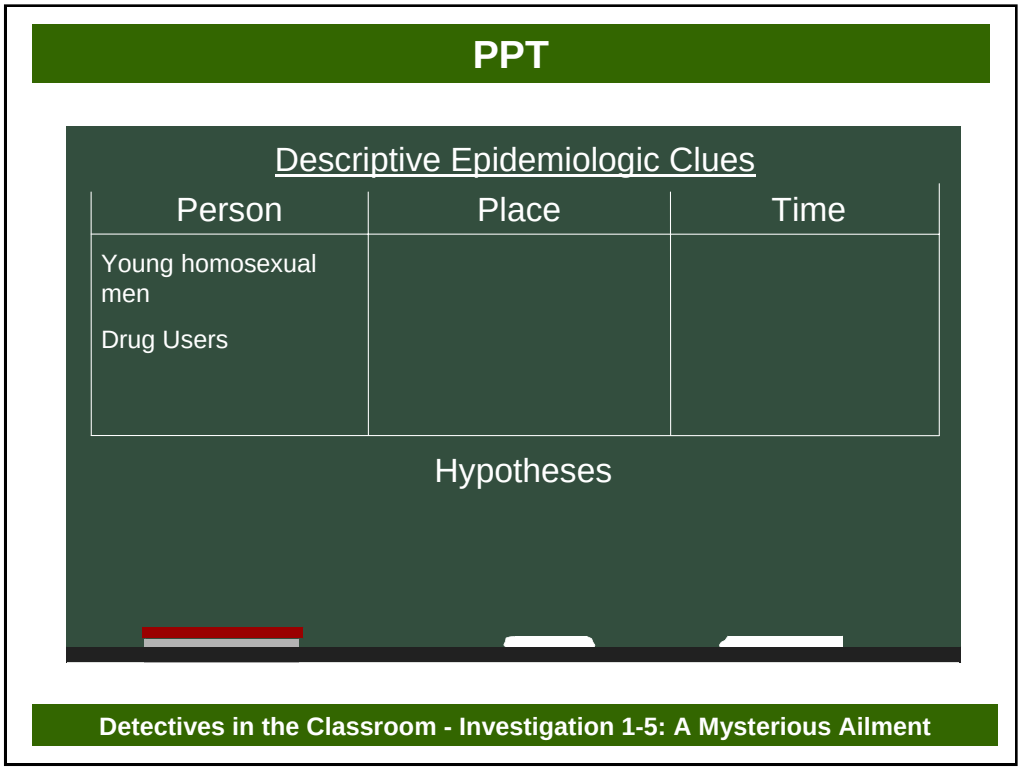

Write these clues on the board in the “Person” column.

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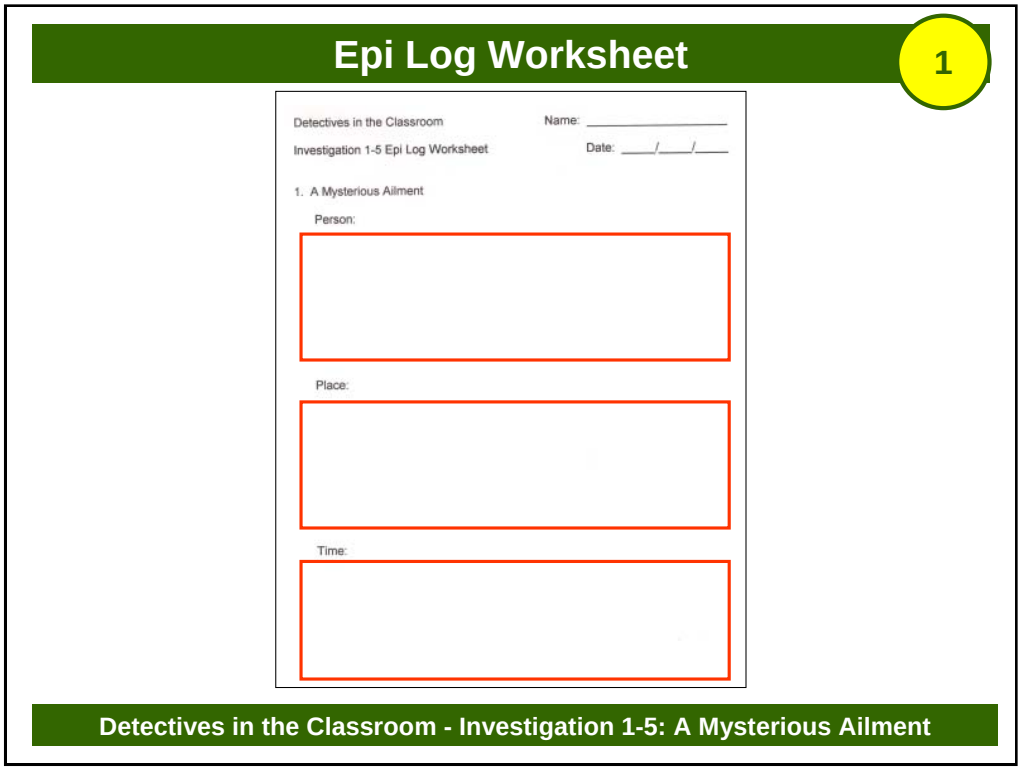

Give each student an **Investigation 1-5: Epi Log Worksheet**.

Students should write the clues that are on the board in the “Person” section of their **Investigation 1-5: Epi Log Worksheet**.

They should continue to complete part 1 of the worksheet by writing the descriptive epidemiologic clues for the mysterious ailment in the appropriate places as they read the article aloud.

Keep writing the clues on the board in the appropriate column.

When students are finished, their answers should look similar to the next slide.

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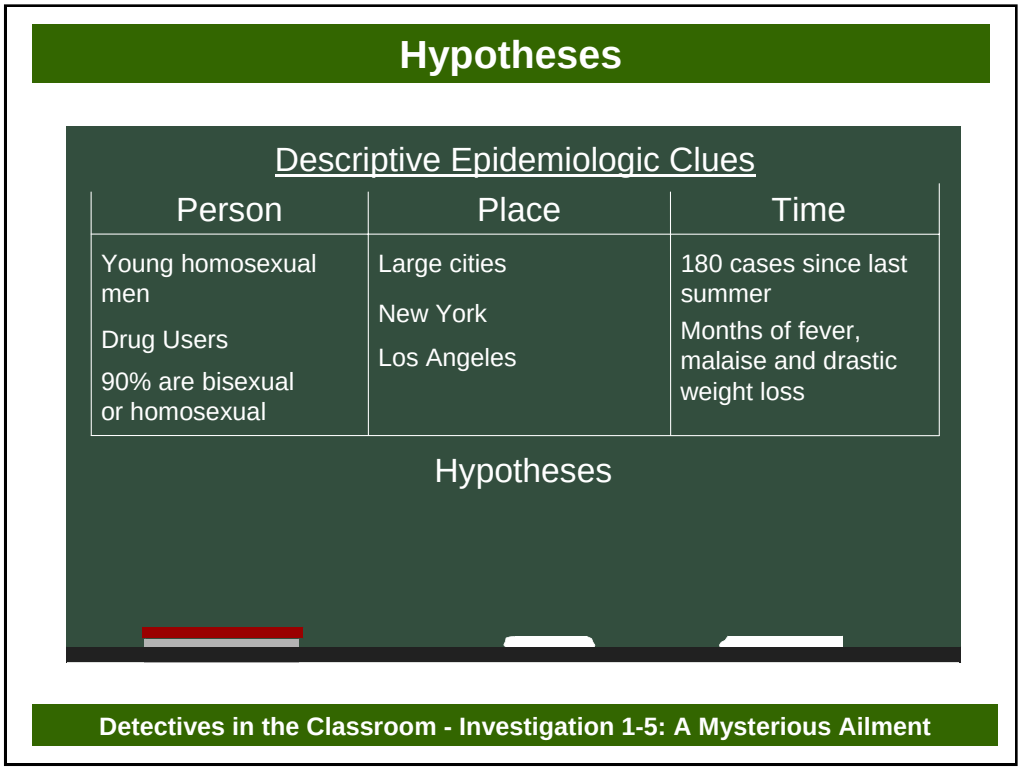

Discuss the identification and sorting of the descriptive epidemiologic clues, as needed.

Ask students:

- What hypotheses are supported by the descriptive epidemiology?

Write these hypotheses on the board. Continue until the board looks similar to the next slide.

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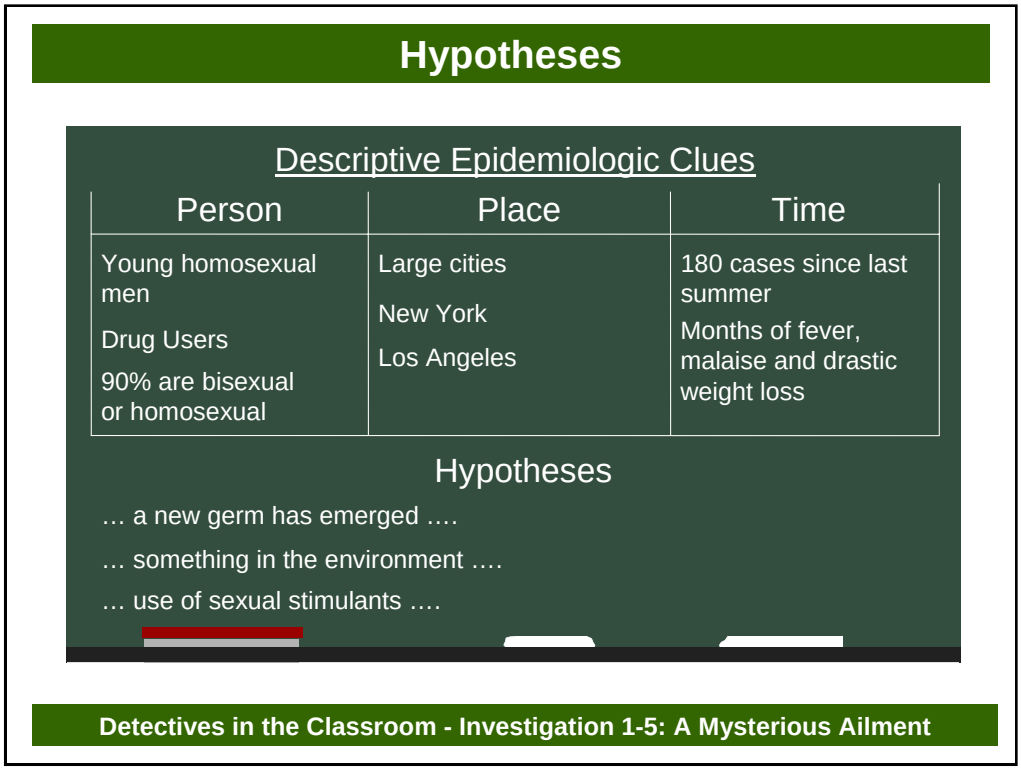

Discuss the hypotheses that were suggested in the article as needed.

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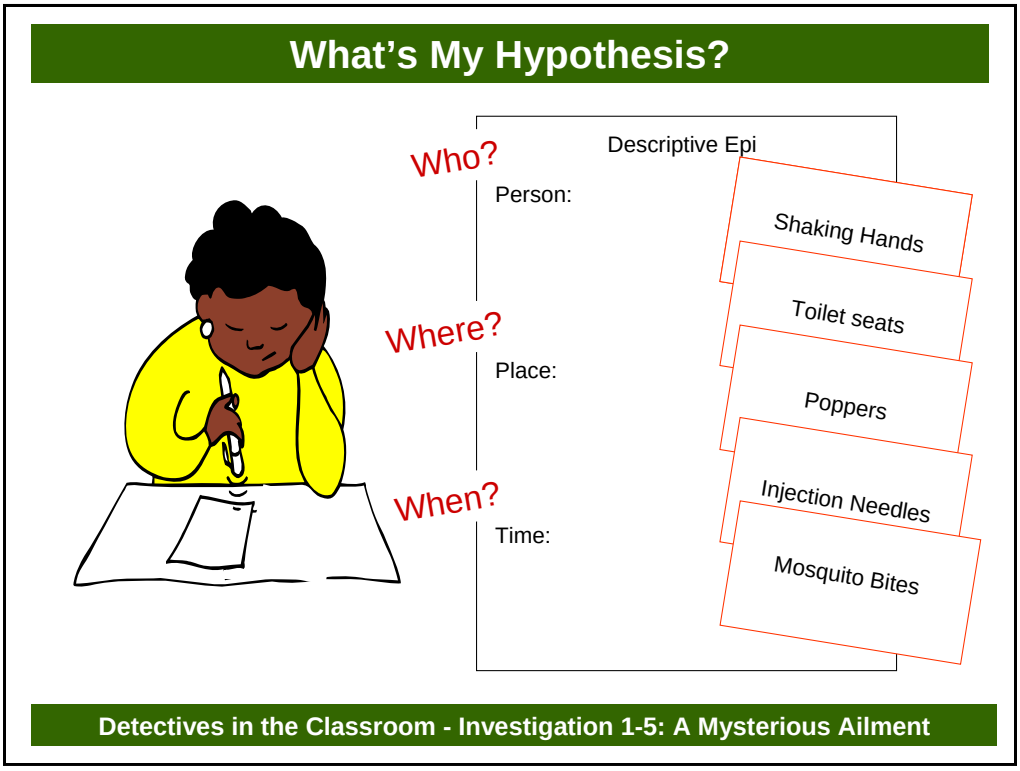

Remind students of **Investigation 1-3: What's My Hypothesis?** when they considered the descriptive epidemiologic clues that would have been produced if whistles caused a disease.

- *Who* would be most likely to get the disease?
- *Where* would the disease be most likely to occur?
- *When* would the disease be most likely to occur?

Students should also think about **Investigation 1-4: The Case of Amy,** when they examined the descriptive epidemiologic clues that would have been produced if Amy's sickness had been caused by new computers, computer packaging, dust, or cafeteria food.

Tell the class that when this disease was first identified, some exposures hypothesized to cause it included shaking hands, toilet seats, a sexual stimulant called "poppers," injection needles, and mosquito bites.

If any of these five hypotheses was correct, it would create a unique set of descriptive epidemiologic clues. If true, each of these five hypotheses would result in different people getting sick, in different places, at different times.

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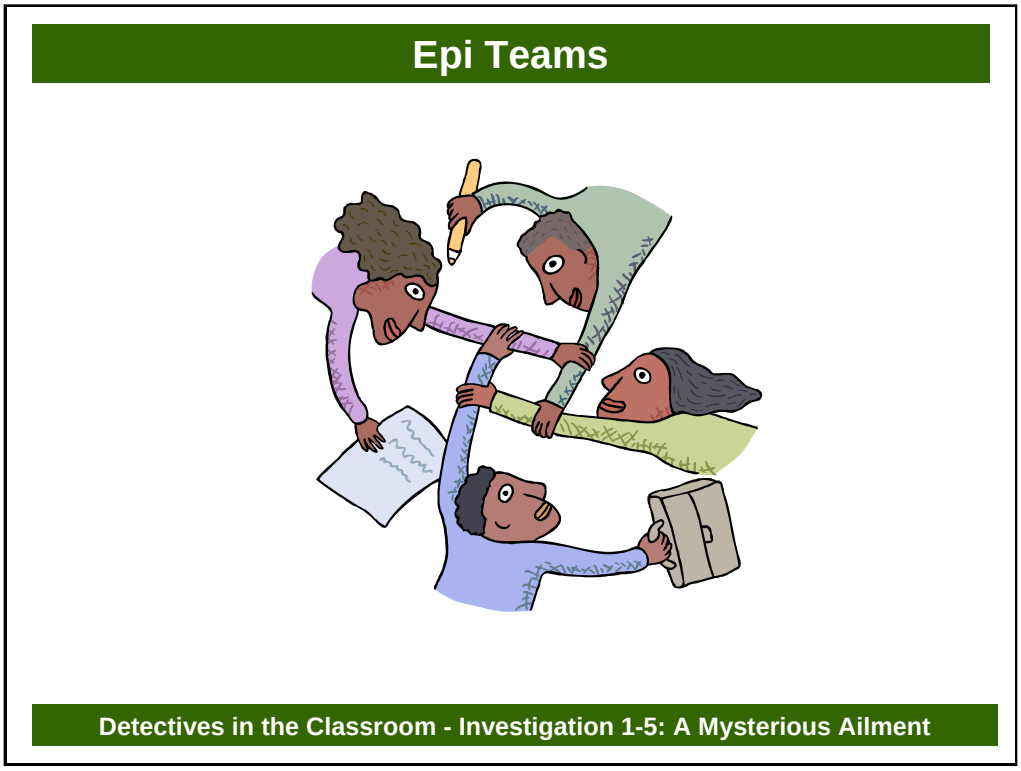

Divide the class into Epi Teams of four or five students per team.

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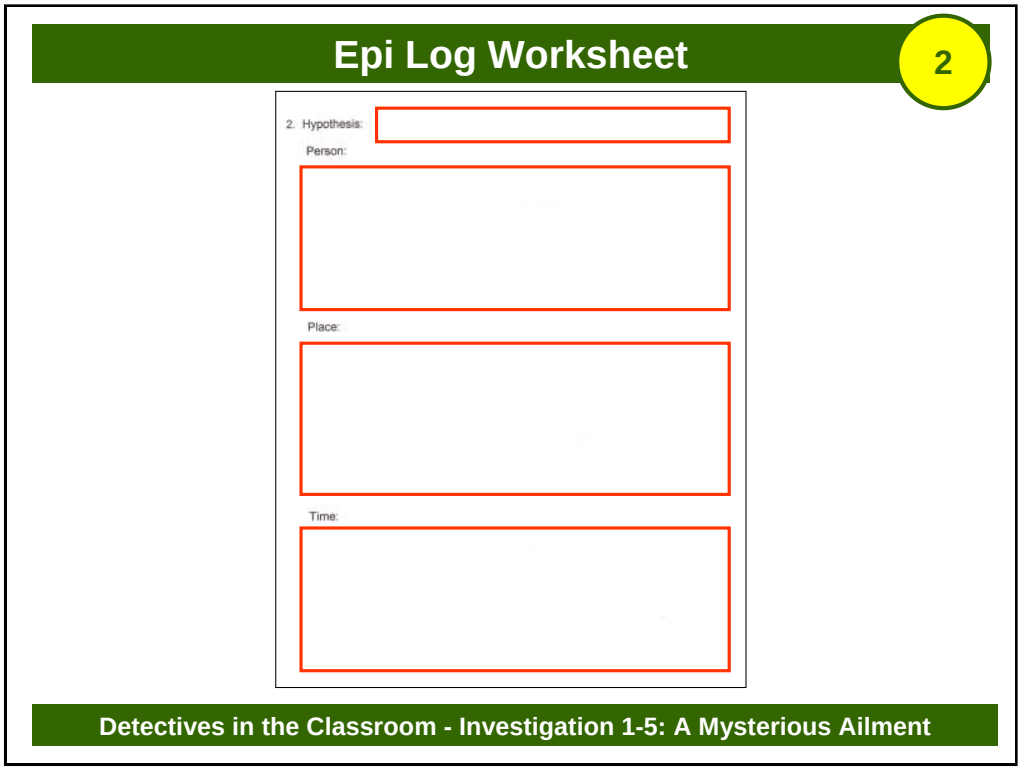

Assign each Epi Team a different hypothesis.

Each students should now complete part 2 of the worksheet by writing the assigned hypothesis at the top of the page and adding descriptive epidemiologic clues that would support that hypothesis.

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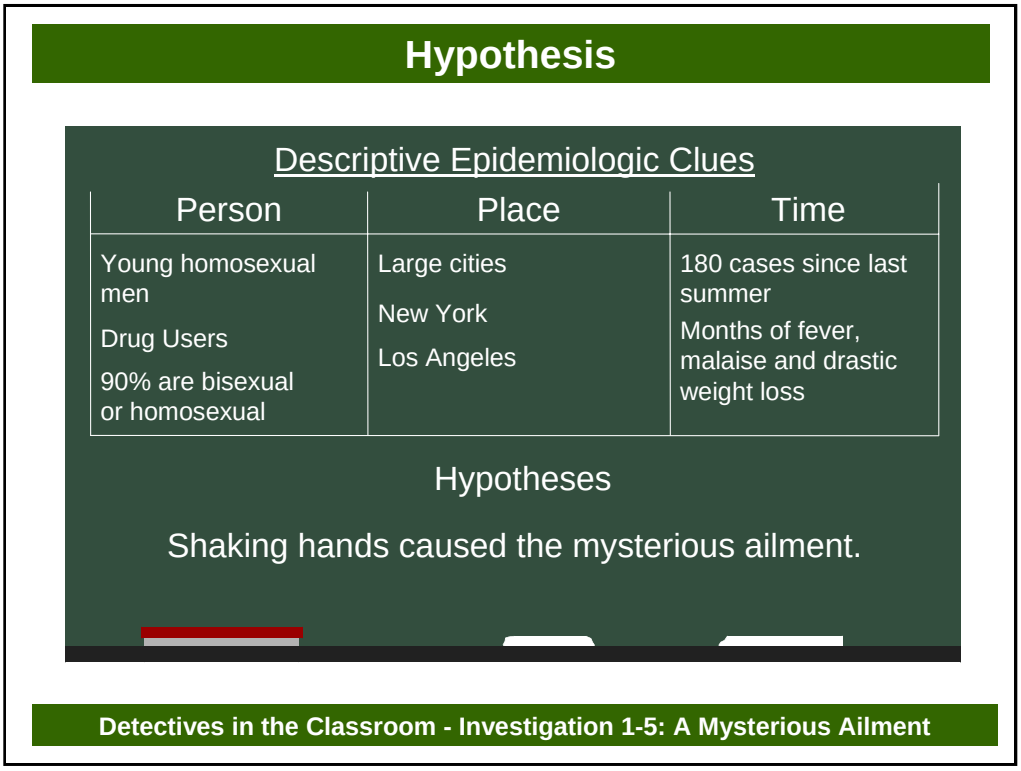

Ask an Epi Team:

- Is the hypothesis "Shaking hands caused the mysterious ailment" supported by the descriptive epidemiologic clues mentioned in the article?

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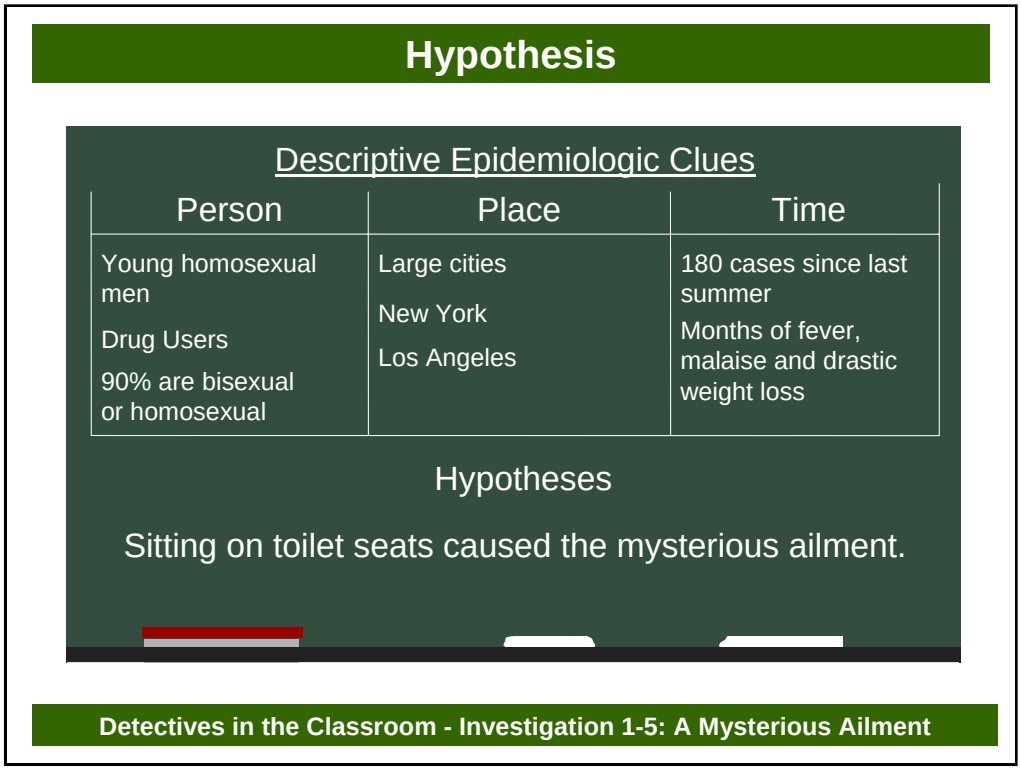

Ask an Epi Team:

- Is the hypothesis “Sitting on toilet seats caused the mysterious ailment” supported by the descriptive epidemiologic clues mentioned in the article?

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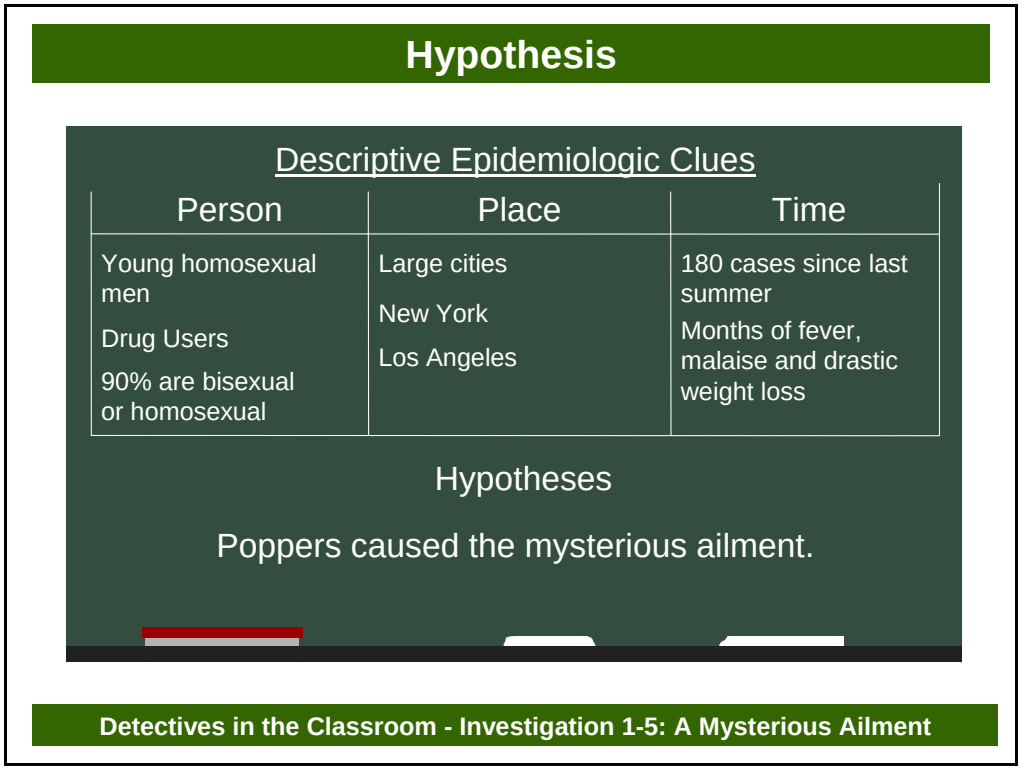

Ask an Epi Team:

- Is the hypothesis “Poppers caused the mysterious ailment” supported by the descriptive epidemiologic clues mentioned in the article?

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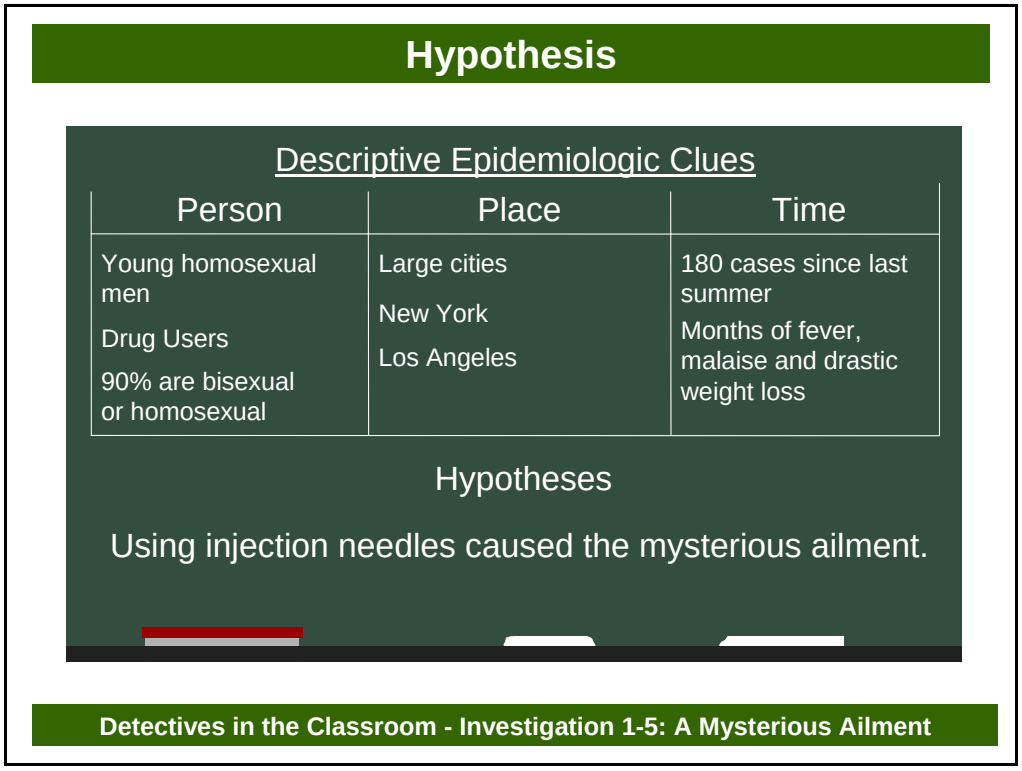

Ask an Epi Team:

- Is the hypothesis “Using injection needles caused the mysterious ailment” supported by the descriptive epidemiologic clues mentioned in the article?

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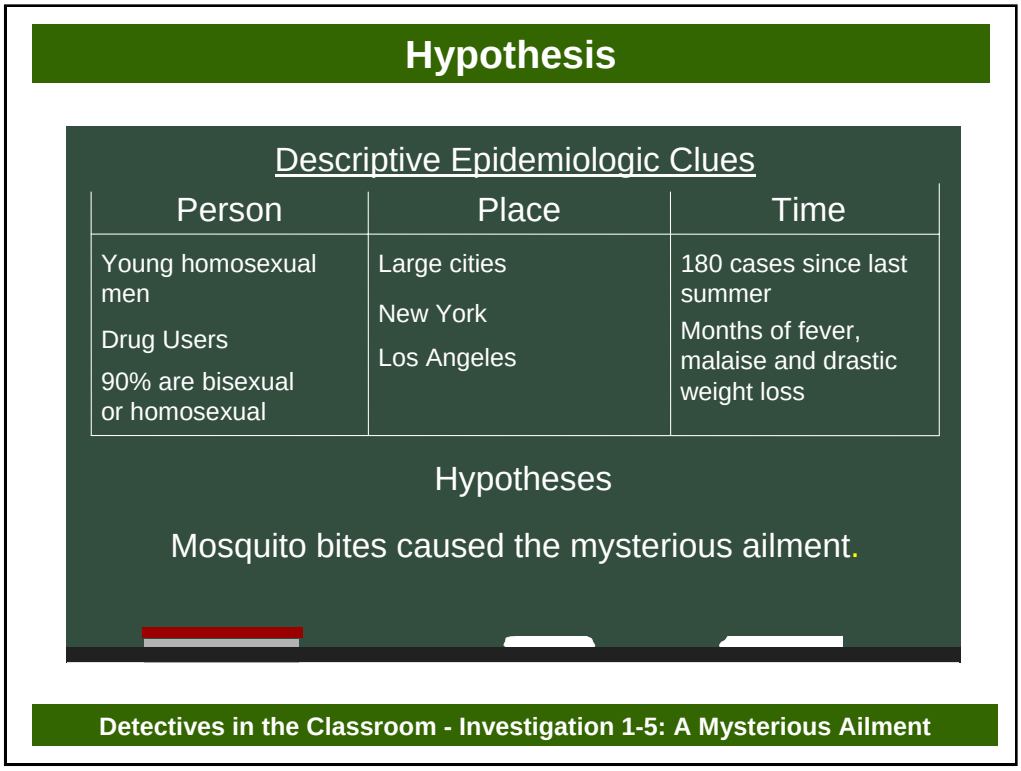


Ask an Epi Team:

- Is the hypothesis “Mosquito bites caused the mysterious ailment” supported by the descriptive epidemiologic clues mentioned in the article?

If students have not identified the mysterious ailment as AIDS, tell them that the article was written in 1981 and ask them what they think the ailment was. After discussion, reveal that the disease was what today we call AIDS.

Ask students:

- What causes AIDS? (A virus)

In 1981 we did not know that.

Next Slide

Hypothesis

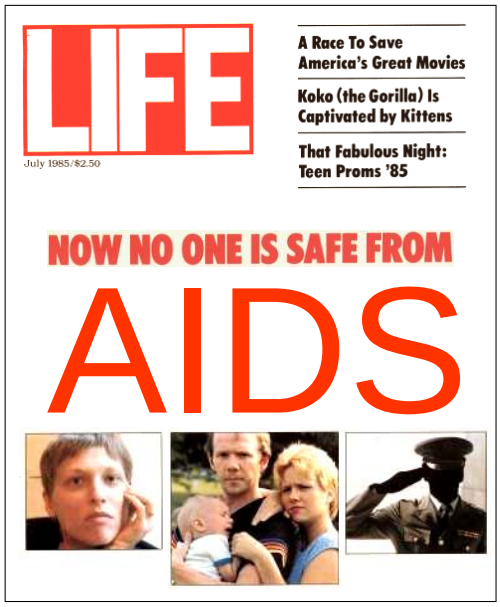
Led by Dr. Caroline MacLeod of the Institute of Tropical Medicine, the researchers collect mosquito larvae on the theory that the insects may be involved in AIDS transmission.

Detectives in the Classroom - Investigation 1-5: A Mysterious Ailment

Point out that the possibility that mosquitoes "… may be involved in AIDS transmission" was once explored.

Next Slide

Hypothesis



Detectives in the Classroom - Investigation 1-5: A Mysterious Ailment

If mosquitoes had been "… involved in AIDS transmission," then the title of this July 1985 *Life* magazine cover story might have been true. However, today, in part due to the contributions of the science of epidemiology, we know that someone can eliminate the risk of human immunodeficiency virus (HIV) infection by not engaging in sexual intercourse or, if they are sexually active, by remaining in a relationship with only one partner who is not infected, and by not using injection drugs.

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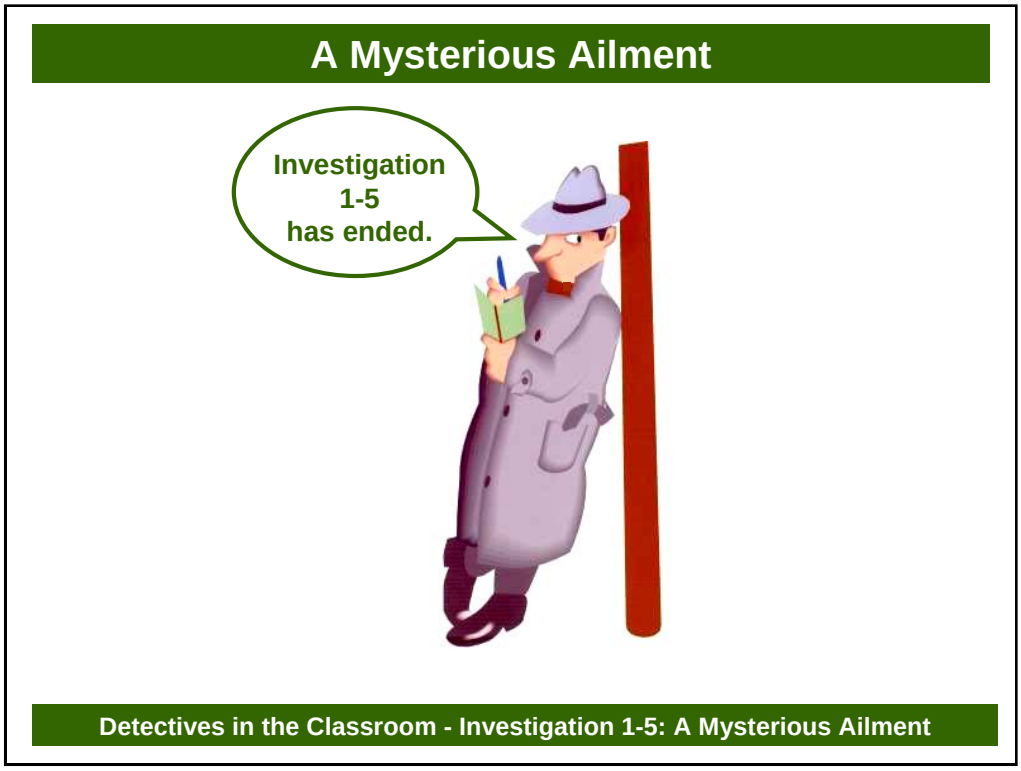

Again ask students:

- What causes AIDS? (A virus)

Reiterate that in 1981 we did not know that.

This concludes **Investigation 1-5: A Mysterious Ailment** and students can now put away their **Epi Logs.**