

## What's My Hypothesis?

**What's My  
Hypothesis?**

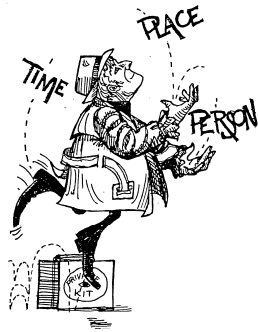
Whistles

Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

In **Investigation 1-3: What's My Hypothesis?** students will learn how person, place, and time clues are used to formulate hypotheses.

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## Review



What is descriptive epidemiology?

What are the three main categories of descriptive epidemiologic clues?

What is a hypothesis?

What is the relationship between descriptive epidemiology and hypotheses?


Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

Ask students the following review questions:

- What is descriptive epidemiology? (It describes how a disease is distributed in a population of people.)
- What are the three main categories of descriptive epidemiologic clues? (Person, place, and time: *who*, *where*, and *when*)
- What is a hypothesis? (An educated guess)
- What is the relationship between descriptive epidemiology and hypotheses? (Descriptive epidemiologic clues provide evidence for formulating hypotheses.)

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Descriptive Epi



PPT Sheet

Who?

Person:

Where?

Place:

When?

Time:

#:

Whistles

Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

Tell the class to think about how a disease would be distributed if a particular exposure caused the disease.

- If it really caused the disease, *who* would be most likely to get the disease?
- If it really caused the disease, *where* would the disease be most likely to occur?
- If it really caused the disease, *when* would the disease be most likely to occur?

Ask students to think about how a disease would be distributed if *whistles* caused it.

While they are thinking, draw a **PPT Sheet** on the board, like the one depicted on this slide.

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**PPT: Person: Who?**

*Whistles*

PPT Sheet

Person:  
Lifeguards, Drum Majors,  
Referees , Coaches, Traffic  
Policemen

Place:

Time:

Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

Ask students:

- If whistles caused a disease, *who* would be most likely to get the disease?

Write their suggestions on the board. Continue asking different students the same question until you have a few suggestions. (Lifeguards, drum majors, referees, coaches, and traffic police officers)

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**PPT: Place: Where?**

PPT Sheet

Person:  
Lifeguards, Drum Majors,  
Referees , Coaches, Traffic  
Policemen

Place:  
Pools, seashore, gymnasiums,  
athletic fields, intersections

Time:

**Whistles**

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Ask students:

- If whistles caused a disease, *where* would the disease be most likely to occur?

Write their suggestions on the board. Continue asking different students the same question until you have a few suggestions. (Pools, beaches, gymnasiums, athletic fields, and intersections)

**Next Slide**

**PPT: Time: When?**

*Whistles*

PPT Sheet

Person:  
Lifeguards, Drum Majors,  
Referees , Coaches, Traffic  
Policemen

Place:  
Pools, seashore, gymnasiums,  
athletic fields, intersections

Time:  
Hot days, schooldays, after  
school, holidays

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Ask students:

- If whistles caused a disease, *when* would the disease be most likely to occur?

Write their suggestions on the board. Continue asking different students the same question until you have a few suggestions. (Hot days, school days, after school, and holidays)

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**Person, Place, and Time**

PPT Sheet

Person:  
Lifeguards, Drum Majors,  
Referees , Coaches, Traffic  
Policemen

Place:  
Pools, seashore, gymnasiums,  
athletic fields, intersections

Time:  
Hot days, schooldays, after  
school, holidays

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Now tell students to imagine someone who does not know that whistles caused this disease and who is looking at the clues and trying to make an educated guess.

They should then think about someone who is reviewing these descriptive epidemiologic clues and attempting to answer the question “What’s my hypothesis?”

This “someone” that students are thinking about is an epidemiologist, or disease detective. One of the epidemiologist’s special skills is to look at descriptive epidemiologic clues and formulate hypotheses or educated guesses that might explain:

- Why some people got sick and others did not.
- Why the sickness occurred in some places and not in others.
- Why the sickness occurred at some times and not at others.

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**PPT Sheet**

Detectives in the Classroom      Name: \_\_\_\_\_  
Investigation 1-3: Epi Log Worksheet – PPT Sheet      Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Person:

Place:

Time:

#

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Give each student a copy of **Investigation 1-3: Epi Log Worksheet—PPT Sheet**.

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**Don't, Don't, Don't**



**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

You are about to give each student a different index card on which is written a hypothesized cause of a disease.


Students should leave the index card face down on their desks and look at it without allowing anyone else to see what is written.

Tell students:

- *Do not show* anyone what is written on your index card.
- *Do not tell* anyone what is written on your index card.
- *Do not ask* others what is written on their index cards.

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**PPT Sheet**



Detectives in the Classroom Name: \_\_\_\_\_

Investigation 1-3: Epi Log Worksheet – PPT Sheet Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Person: \_\_\_\_\_

Place: \_\_\_\_\_

Time: \_\_\_\_\_

#:

Who?

Where?

When?

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Distribute index cards, face down, to all students.

Tell students to make sure they:

1. Write the number that is written on the index card in the box in the lower right-hand corner of their **PPT Sheet**.
2. Do not write the word that is written on the index card on their **PPT Sheet**.
3. Write the following, as they had just done for whistles:
  - *Who* would be most likely to get the disease, in the “Person” section of their **PPT Sheet**.
  - *Where* the disease would be most likely to occur, in the “Place” section.
  - *When* the disease would be most likely to occur, in the “Time” section.

Allow students several minutes to write their clues.

As they are doing so, go around the room and pick up the index cards.

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## Epi Teams



Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

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

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**“Epi Team’s Hypotheses”**

Hypotheses

#	#	#	#	#

**Detectives in the Classroom - Investigation 1-3: What’s My Hypothesis?**

As Epi Teams continue to pass their **PPT Sheets**, draw a chart on the board that is similar to the one on this slide.

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## “Epi Team’s Hypotheses”

Hypotheses

15	#	#	#
Sun tan lotion			
Yelling			
Whistles			
Washing Machines			

PPT Sheet

Person:  
Lifeguards, Drum Majors,  
Referees , Coaches, Traffic  
Policemen

Place:  
Mouth, Pools, seashore,  
gymnasiums, athletic fields,  
intersections

Time:  
Hot days, schooldays, after  
school, holidays

#: 15

Detectives in the Classroom - Investigation 1-3: What’s My Hypothesis?

Label each column with the number in the lower right-hand corner of each of the **PPT Sheets** that are being passed between the Epi Teams.

Ask students:

- Given these clues, what do you think of these hypotheses: sun tan lotion, yelling, whistles, and washing machines?
- Are these good hypotheses?
- What makes a good hypothesis?

Help students uncover that a good hypothesis is one that makes sense in light of *all* the descriptive epidemiologic clues. That is what makes the guess an *educated* guess. (Sun tan lotion, yelling, and whistles are educated guesses. Washing machines is not an educated guess.)

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**“Epi Team’s Hypotheses”**

Hypotheses

#	#	#	#	#


**Detectives in the Classroom - Investigation 1-3: What’s My Hypothesis?**

Have one member of each Epi Team come to the board and, in a cell in the appropriate column, write his or her Epi Team’s hypotheses for each of the **PPT Sheet** descriptions that were passed among the Epi Team.

Put an “X” in the cell of the column with the number of the **PPT Sheet** the Epi Team originally chose to pass. Do not write what was written on the Epi Team’s index card.

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**PPT Sheet**



Detectives in the Classroom      Name: \_\_\_\_\_

Investigation 1-3: Epi Log Worksheet – PPT Sheet      Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Person: \_\_\_\_\_

Place: \_\_\_\_\_

Time: \_\_\_\_\_

#:

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Collect all the **PPT Sheets** they passed to the other Epi Teams.

While focusing students' attention on the appropriate column, read the descriptive epidemiologic clues from a **PPT Sheet** passed among the other Epi Teams.

Ask students:

- Are the hypotheses written in that column educated guesses, that is, ones that make sense in light of all the descriptive epidemiologic clues?
- Do the hypotheses on the board make sense in regard to all the descriptive epidemiologic clues?

Discuss.

Have a student from the Epi Team tell the class what was written on their Epi Team's index card.


Ask students:

- Can your hypotheses be educated guesses if they are not what was written on the card? (Yes, a good hypothesis is one that makes sense in light of *all* the descriptive epidemiologic clues. That is what makes the guess an *educated* guess.)

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**PPT Sheet**



Detectives in the Classroom Name: \_\_\_\_\_

Investigation 1-3: Epi Log Worksheet – PPT Sheet Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Person: \_\_\_\_\_

Place: \_\_\_\_\_

Time: \_\_\_\_\_

#:

**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

Read another descriptive epidemiologic clue from a **PPT Sheet** that was passed among the Epi Teams.

Ask students:

- Are the hypotheses written in that column educated guesses, that is, ones that make sense in light of all the descriptive epidemiologic clues?
- Do the hypotheses on the board make sense in regard to all the descriptive epidemiologic clues?

Discuss.

Have a student from the Epi Team tell the class what was written on their Epi Team's index card.

Ask students:

- Can your hypotheses be educated guesses if they are not what was written on the card? (Yes, a good hypothesis is one that makes sense in light of *all* the descriptive epidemiologic clues. That is what makes the guess an *educated* guess.)

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**Un-Real World**

Whistles

Detectives in the Classroom  
Investigation 1-3: Epi Log Worksheet - PPT Sheet

Person:

Who?


Place:

Where?

Time:

When?

#:




Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

Tell students that in the real world an epidemiologist does not have an index card to look at.

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**Real World**



PPT Sheet


Who?

Person:




Where?

Place:



When?

Time:



**Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?**

What epidemiologists do have is the ability to look at person, place, and time clues and make educated guesses.

Epidemiologists realize that in the real world everyone does not get sick, in every place, at all times. They know that *some* people get sick, in *some* places, *some* of the time. And epidemiologists, disease detectives, know that these descriptive epidemiologic clues can help them formulate hypotheses.

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## What's My Hypothesis?

Investigation  
1-3  
has ended.



Detectives in the Classroom - Investigation 1-3: What's My Hypothesis?

As detectives in training, students are continuing to develop a fundamental epidemiologic skill: the ability to look at how a disease is distributed in a population, in terms of person, place, and time, and make educated guesses.

This concludes **Investigation 1-3: What's My Hypothesis?** and students can now put away their **Epi Logs**.