

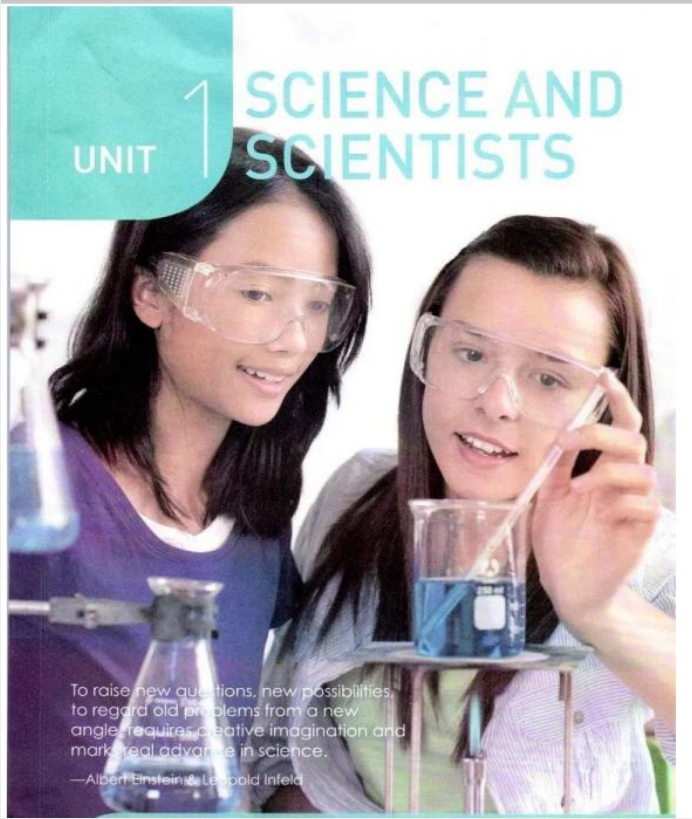
# Unit 1 Science and Scientists

## Lesson 1 Reading and Thinking(1)

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# 1. What can you see in the photo?



Two girls are conducting an experiment in a school science laboratory, probably to test a theory, verify results, collect data, or develop skills needed in scientific research.



## 2. What **qualities** do Einstein and Infeld think a scientist should have?

*To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.*



To solve a scientific problem, one not only requires some degree of technical skill but also needs **the ability to ask questions and to see things in a new way.**

*--Albert Einstein and Leopold Infeld*

Other qualities: **hard-working, patient, passionate, enthusiastic, devoted...**





# Learning Objectives

1. understand the importance of a questioning mind by analyzing John Snow's scientific spirits.
2. understand how John Snow defeated “King Cholera” by finding stages of scientific research.
3. summarize the text after catching details by scanning and skimming and reviewing its main idea.





What do you want to know about this passage from the title?

## JOHN SNOW DEFEATS “KING CHOLERA”

What is cholera ?

Who is John Snow?

How did John Snow defeat “King Cholera”?

...





# What is cholera?

Cholera used to be one of the most feared diseases in the world, until a British doctor, John Snow, showed how it could be overcome. This illness causes severe diarrhoea, dehydration, and even death. In the early 19th century, when an outbreak of cholera hit Europe, millions of people died from the disease. As a young doctor, John Snow became frustrated because no one knew how to prevent or treat cholera. In time, he rose to become a famous doctor, and even attended to Queen Victoria when she gave birth. However, he never lost his desire to destroy cholera once and for all.(Para.1)

➤ What is cholera?

Cholera was one of the most feared diseases in the world.

➤ What harm does cholera do to people?

Cholera causes severe diarrhoea(腹泻), dehydration(脱水) and even death.

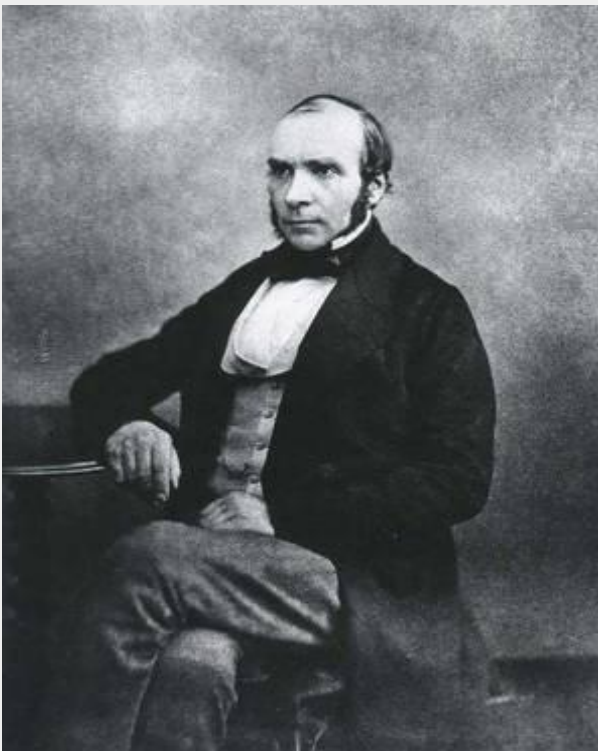
➤ Why is it called “King Cholera”?

Because it was so powerful that it killed millions of people during one outbreak alone and it causes other deadly illnesses.





## Who is John Snow?(Para.1)



A young British doctor who even attended to Queen Victoria when she gave birth.

take care of/look after

He had a desire to destroy cholera once and for all.



# How did John Snow defeat “King Cholera”?

The following are **seven steps of scientific research**.

What order would you like to put them in?(Activity 1 on page 2)

- \_\_\_\_\_ analyze the results
- \_\_\_\_\_ ask a question
- \_\_\_\_\_ draw a conclusion
- \_\_\_\_\_ collect data
- \_\_\_\_\_ find a problem
- \_\_\_\_\_ find supporting evidence
- \_\_\_\_\_ think of a method





## How: Research Steps

In general, doctors in those days had two **contradictory** theories to explain how cholera spread. One theory was that bad air caused the disease. Another was that cholera was caused by an **infection** from germs in food or water. Snow **subscribed** to the second theory. It was correct, but he still needed **proof**. Consequently, when an outbreak of cholera hit London in 1854, Snow began to investigate. He discovered that in two particular streets the cholera outbreak was so severe that more than 500 people died in ten days. He was determined to find out why.(Para.2)

### Step 1

It was believed cholera was caused by \_\_\_\_\_ or germs in \_\_\_\_\_.

## How: Research Steps

In general, doctors in those days had **two contradictory theories** to explain how cholera spread. One theory was that **bad air** caused the disease. Another was that cholera was caused by an **infection from germs in food or water**. Snow **subscribed to** the second theory. It was correct, but he still needed **proof**. Consequently, when an outbreak of cholera hit London in 1854, Snow began to investigate. He discovered that in two particular streets the cholera outbreak was so severe that more than 500 people died in ten days. He was determined to find out why.(Para.2)

Step 1 **find a problem**

Step 2

Snow was determined to find out \_\_\_\_\_.

\_\_\_\_\_.

## How: Research Steps

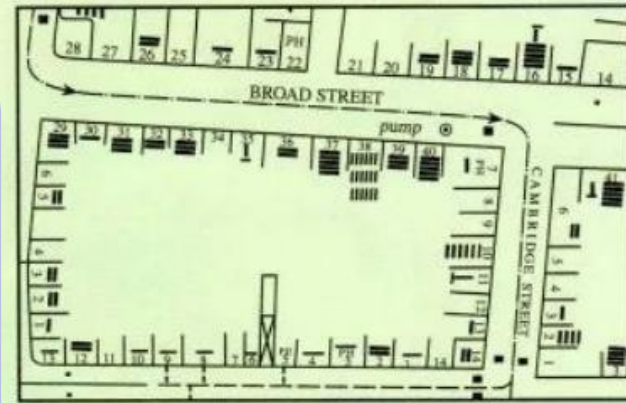
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Step 1 **find a problem**

Step 2 **ask a question**

Snow was determined to find out why the outbreak was so severe in two particular streets.

Step 3 **think of a method**  
Snow marked on a map the  
places where the people who  
died had lived.



Part of Snow's Cholera Map  
Note: —: 1 death PH: public house  
30, 31, ...: numbers of houses

Snow began by marking on a map the exact places where all those who died had lived. There were **multiple** deaths near the water pump in Broad Street (especially house numbers 16, 37, 38, and 40). However, some **households** (such as 20 and 21 Broad Street, and 8 and 9 Cambridge Street) had had no deaths. These people worked in the pub at 7 Cambridge Street. They had been given free beer, and so had not drunk the water from the pump. Snow **suspected** that the water pump was to **blame**. What is more, in another part of London, a woman and her daughter had died of cholera after moving

away from Broad Street. It seemed that the woman liked the water from the pump so much that she had it delivered to her house every day. As a result of this evidence, John Snow was able to announce that the pump water carried cholera germs. Accordingly, he had the **handle** of the pump removed so that it could not be used. Through this **intervention**, the disease was stopped in its tracks. (Para.3)

## Step 4 collect data

The number of deaths in different households was recorded.

➤ What kind of map is it?

It's Snow's cholera map.

➤ What does “—” mean?

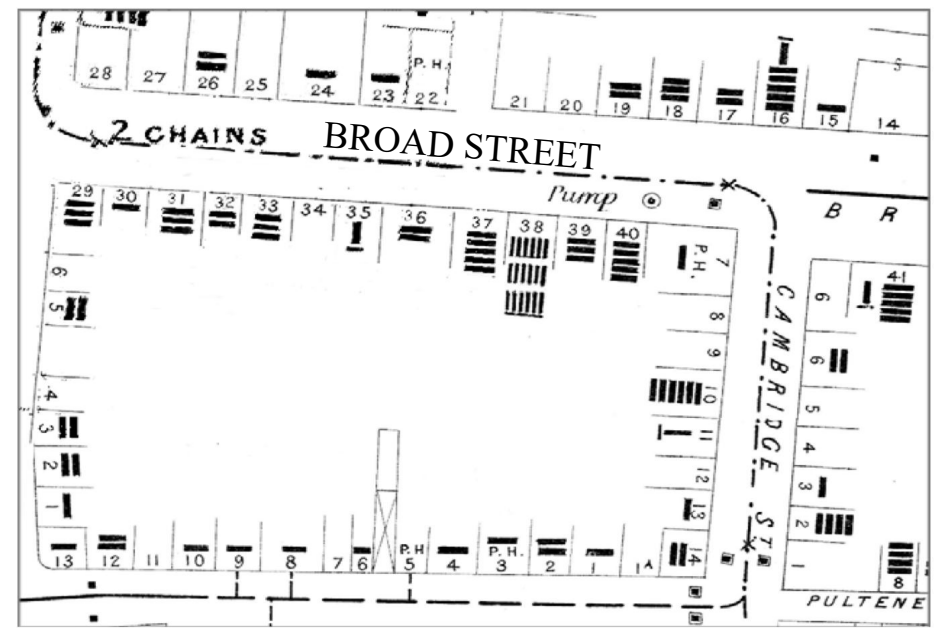
It means one death.

➤ What does “PH” mean?

It means public house, a house such as bar or pub where alcoholic drinks are sold to the public.

➤ What does 30, 31,...refer to?

They refer to numbers of houses.



图片来源于网络

## Step 5 analyze the results

Multiple deaths occurred near the pump in Broad Street, while some people who hadn't drunk the water from the pump, lived.



➤ Which house numbers had more than four deaths in Broad Street?

House number 16, 37, 38 and 40 had more than four deaths in Broad Street.

➤ Which house numbers had no deaths in Broad Street?

House number 14, 20, 21, 25, 27, 28 and 34 had no deaths in Broad Street.

➤ Where is the pump?

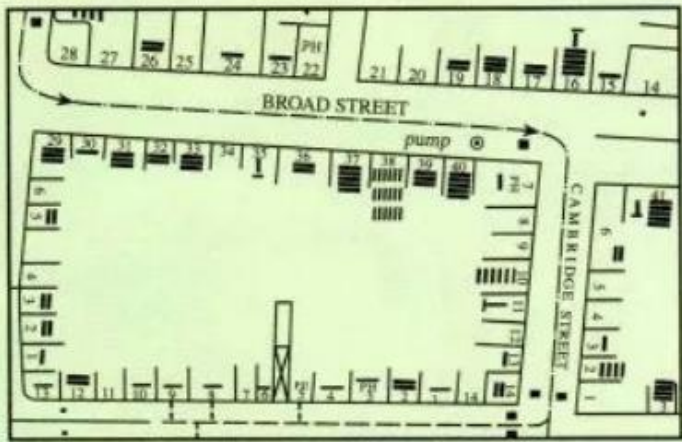
The pump is near house number 40 in Broad Street.



## Step 6 **find supporting evidence**

These people worked in the pub at 7 Cambridge Street. They had been given free beer, and so had not drunk the water from the pump. Snow suspected that the water pump was to blame. What is more, in another part of London, a woman and her daughter had died of cholera after moving away from Broad Street. It seemed that the woman liked the water from the pump so much that she had it delivered to her house every day. As a result of this evidence, John Snow was able to announce that the pump water carried cholera germs. Accordingly, he had the handle of the pump removed so that it could not be used. Through this intervention, the disease was stopped in its tracks.(Para.3)

## Step 7 draw a conclusion



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away from Broad Street. It seemed that the woman liked the water from the pump so much that she had it delivered to her house every day. As a result of this evidence, John Snow was able to announce that the pump water carried cholera germs. Accordingly, he had the **handle** of the pump removed so that it could not be used. Through this **intervention**, the disease was stopped in its tracks. (Para.3)

What is the result of John Snow's research?

The pump water carried cholera germs, the handle of the pump was removed, and the disease was stopped in its tracks.



handle

图片来源于网络



# Check your order (Activity 1 on page 2)

- 5 analyze the results
- 2 ask a question
- 7 draw a conclusion
- 4 collect data
- 1 find a problem
- 6 find supporting evidence
- 3 think of a method



## Challenge your short memory

Read paragraph 2 & 3 again, close your book, and complete the chart below.  
(Activity 3 & 4 on page 3)

**A** It was believed that cholera was caused by bad air or germs in food or water.

**B** Snow marked on a map the places where the people who died had lived.

**C** Many deaths occurred near the water pump in Broad Street.

Some people hadn't drunk the water from the pump, and lived.

A woman and her daughter died in another part of London after drinking water from the pump.

**D** The pump water carried cholera germs.

**E** The handle of the pump was removed.

Match the following headers with the letters(A-E) from the chart below.

1 conclusion **D** 2 evidence **C** 3 process **B** 4 solution **E** 5 theories **A**

**A** It was believed that cholera was caused by bad **air** or germs in **food or water**.

**B** Snow **marked on a map** the places where the people who **died** had lived.

**C** Many deaths occurred near the **water pump** in Broad Street.

Some people **hadn't** drunk the water from the pump, and lived.

A woman and her daughter died in another part of London after **drinking water from the pump**.

**D** The pump water carried **cholera germs**.

**E** The **handle** of the pump was removed.

- What caused the outbreak of cholera in London in 1854?  
**The cholera was caused by the water which came from the River Thames and had been infected by waste.**
- What contributions did John Snow make to science?

The truth was that the water from the Broad Street pump had been infected by waste. Moreover, Snow was later able to show a **link** between other cases of cholera and the different water companies in London. Some companies sold water from the River Thames that was polluted by **raw** waste. The people who drank this water were much more likely to get cholera than those who drank **pure** or boiled water. (Para.4)

① Through Snow's tireless efforts, water companies began to sell clean water, and the threat of cholera around the world saw a **substantial decrease**. However, cholera is still a problem. Each year, millions of people around the world get cholera and many die from it. ② Fortunately, we now know how to prevent cholera, thanks to the work of John Snow. Moreover, in his use of maps and **statistics**, ③ Snow **transformed** the way scientists study diseases. For this reason, ④ Snow is considered the father of modern epidemiology. (Para.5)



# Further thinking

What qualities are crucial in Snow's achievements?

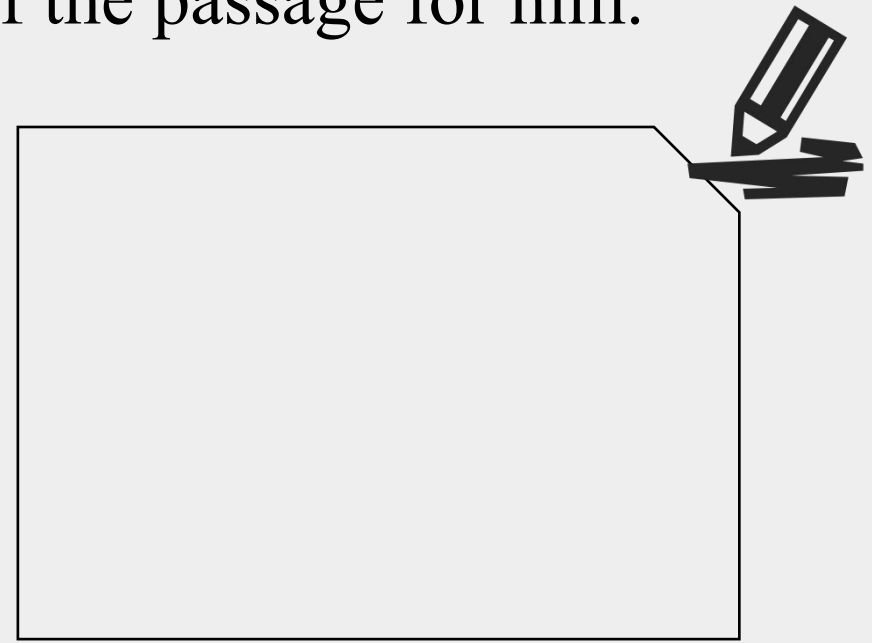


# Homework: summarize

Your friend Jack is interested in *John Snow defeats “King Cholera”*.

**Review** write a summary (about 80 words) of the passage for him.

- What** is cholera ?
- Who** is John Snow?
- How** did John Snow defeat “King Cholera”?
- What contributions** did John Snow make to science?





## One sample

Cholera, causing death and other severe illnesses, used to be one of the most scared diseases in the world, until a young British doctor, never losing his desire to defeat cholera, showed how it could be overcome. At first, it was believed cholera was caused by bad air or germs in food or water. Snow subscribed to the latter. When an outbreak struck London in 1854, Snow determined to find out why the outbreak was so severe in two particular streets. Then Snow marked on a map the places where the people who died had lived. On the map the number of deaths in different households was recorded and multiple deaths occurred near the pump in Broad Street, while people who hadn't drunk the water from the pump, lived. What's more, a woman and her daughter had died of cholera because they had the water delivered to their house after moving away. As a result, it was proved that the pump water carried cholera germs and the handle was removed. Consequently, the truth was that the water which came from the River Thames had been infected by waste. Thanks to Snow's tireless efforts, the threat of cholera dropped substantially, people now know how to protect themselves from getting cholera. Snow changed the way scientists study diseases so he is regarded as the father of modern epidemiology.

Thank you for listening!





# Unit 1 Science and Scientists

## Lesson 1 Reading and Thinking(1)

### 答疑

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# How to write a summary

- Tip 1 Analyze the structure
- Tip 2 Find topic sentences and key phrases
- Tip 3 Replace the words with similar expressions
- Tip 4 Use proper linking words

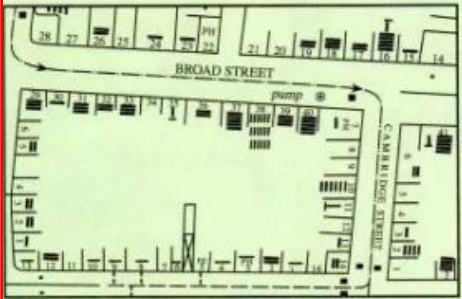


### JOHN SNOW DEFEATS "KING CHOLERA"

Cholera used to be one of the most feared diseases in the world, until a British doctor, John Snow, showed how it could be overcome. This illness causes **severe** diarrhoea, dehydration, and even death. In the early 19th century, when an outbreak of cholera hit Europe, millions of people died from the disease. As a young doctor, John Snow became frustrated because no one knew how to prevent or treat cholera. In time, he rose to become a famous doctor, and even attended to Queen Victoria when she gave birth. However, he never lost his desire to destroy cholera once and for all.



In general, doctors in those days had two **contradictory** theories to explain how cholera spread. One theory was that bad air caused the disease. Another was that cholera was caused by an **infection** from germs in food or water. Snow **subscribed** to the second theory. It was correct, but he still needed **proof**. Consequently, when an outbreak of cholera hit London in 1854, Snow began to investigate. He discovered that in two particular streets the cholera outbreak was so severe that more than 500 people died in ten days. He was determined to find out why.



Part of Snow's Cholera Map  
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Snow began by marking on a map the exact places where all those who died had lived. There were **multiple** deaths near the water pump in Broad Street (especially house numbers 16, 37, 38, and 40). However, some **households** (such as 20 and 21 Broad Street, and 8 and 9 Cambridge Street) had had no deaths. These people worked in the pub at 7 Cambridge Street. They had been given free beer, and so had not drunk the water from the pump. Snow **suspected** that the water pump was to **blame**. What is more, in another part of London, a woman and her daughter had died of cholera after moving

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# Tip 1 Analyze the structure

Please divide the passage into four parts.

Who & What

How to defeat

Truth

The truth was that the water from the Broad Street pump had been infected by waste. Moreover, Snow was later able to show a **link** between other cases of cholera and the different water companies in London. Some companies sold water from the River Thames that was polluted by **raw** waste. The people who drank this water were much more likely to get cholera than those who drank **pure** or boiled water.

Through Snow's tireless efforts, water companies began to sell clean water, and the threat of cholera around the world saw a **substantial decrease**. However, cholera is still a problem. Each year, millions of people around the world get cholera and many die from it. Fortunately, we now know how to prevent cholera, thanks to the work of John Snow. Moreover, in his use of maps and **statistics**, Snow **transformed** the way scientists study diseases. For this reason, Snow is considered the father of modern epidemiology.

## Achievements

### JOHN SNOW DEFEATS "KING CHOLERA"

Cholera used to be one of the most feared diseases in the world, until a British doctor, John Snow, showed how it could be overcome. This illness causes **severe** diarrhoea, dehydration, and even death. In the early 19th century, when an outbreak of cholera hit Europe, millions of people died from the disease. As a young doctor, John Snow became frustrated because no one knew how to prevent or treat cholera. In time, he rose to become a famous doctor, and even attended to Queen Victoria when she gave birth. However, he never lost his desire to destroy cholera once and for all.



## Tip 2 Find topic sentences and key phrases

participial phrases(分词短语)

### Part 1 (Para.1)

Cholera, causing death and other severe illnesses, used to be one of the most feared diseases in the world, until a young British doctor who never lost his desire to destroy cholera showed how it could be overcome.

attributive clause(定语从句)



## Tip 3 Replace the words with similar expressions



## JOHN SNOW DEFEATS “KING CHOLERA”

Cholera used to be one of the most feared diseases in the world, until a British doctor, John Snow, showed how it could be overcome. This illness causes **severe** diarrhoea, dehydration, and even death. In the early 19th century, when an outbreak of cholera hit Europe, millions of people died from the disease. As a young doctor, John Snow became frustrated because no one knew how to prevent or treat cholera. In time, he rose to become a famous doctor, and even attended to Queen Victoria when she gave birth. However, he never lost his desire to destroy cholera once and for all.



## Tip 2 Find topic sentences and key phrases

### Part 1 (Para.1)

Cholera, causing death and other severe illnesses, used to be one of the most **feared** diseases in the world, until a young British doctor **who never lost his desire to destroy** cholera showed how it could be overcome.



## Tip 3 Replace the words with similar expressions

Cholera, causing death and other severe illnesses, used to be one of the most **scared** diseases in the world, until a young British doctor **never losing his desire to defeat** cholera showed how it could be overcome.

## Tip 4 Use proper linking words

First...Second...Third...At last...

At first...Then...What's more...Moreover...As a result...

### Part 2 (Para.2-3)

Order	Steps	Key words or sentences
1	Find a problem	It was believed cholera was caused by bad air or germs in food or water.
2	Ask a question	John Snow was determined to find out why the outbreak was so severe in two particular streets.
3	Think of a method	Snow marked on a map the places where the people who died had lived.
4	Collect data	The number of deaths in different households was recorded.
5	Analyze the results	Multiple deaths occurred near the pump in Broad Street, while some people hadn't drunk the water from the pump, and lived.
6	Find supporting evidence	A woman and her daughter had died of cholera because they had the water delivered to their house after moving away.
7	Draw a conclusion	The pump water carried cholera germs and the handle was removed.

## Part 2 (Para.2-3)

**At first**, It was believed cholera was caused by bad air or germs in food or water. Snow subscribed to the latter. **When** an outbreak hit London in 1854, Snow determined to find out why the outbreak was so severe in two particular streets. **Then** Snow marked on a map the places where the people who died had lived. On the map the number of deaths in different households was recorded and multiple deaths occurred near the pump in Broad Street, while people who hadn't drunk the water from the pump lived. **What's more**, a woman and her daughter had died of cholera because they had the water delivered to their house after moving away. **As a result**, it was proved that the pump water carried cholera germs and the handle was removed.

# Practice

The truth was that the water from the Broad Street pump had been infected by waste. Moreover, Snow was later able to show a **link** between other cases of cholera and the different water companies in London. Some companies sold water from the River Thames that was polluted by raw waste. The people who drank this water were much more likely to get cholera than those who drank **pure** or boiled water. (Para.4)

Through Snow's tireless efforts, water companies began to sell clean water, and the threat of cholera around the world saw a substantial decrease. However, cholera is still a problem. Each year, millions of people around the world get cholera and many die from it. Fortunately, we now know how to prevent cholera, thanks to the work of John Snow. Moreover, in his use of maps and **statistics,** Snow transformed the way scientists study diseases. For this reason, Snow is considered the father of modern epidemiology.

(Para.5)

Part 3 The truth was that the water which came from the River Thames had been infected by waste.

Part 4 **Thanks to** Snow's tireless efforts, the threat of cholera **dropped substantially,** and people now know how to **protect themselves from getting cholera.** Snow **changed** the way scientists study diseases **so he is regarded as** the father of modern epidemiology.

**Tip 2 Find topic sentences and key phrases**

**Tip 4 Use proper linking words**

**Tip 3 Replace the words with similar expressions**





## One sample

Cholera, causing death and other severe illnesses, used to be one of the most scared diseases in the world, until a young British doctor, never losing his desire to defeat cholera, showed how it could be overcome. **//At first**, it was believed cholera was caused by bad air or germs in food or water. Snow subscribed to the latter. **When** an outbreak struck London in 1854, Snow determined to find out why the outbreak was so severe in two particular streets. **Then** Snow marked on a map the places where the people who died had lived. On the map the number of deaths in different households was recorded and multiple deaths occurred near the pump in Broad Street, while people who hadn't drunk the water from the pump lived. **What's more**, a woman and her daughter had died of cholera because they had the water delivered to their house after moving away. **As a result**, it was proved that the pump water carried cholera germs and the handle was removed. **//Consequently**, the truth was that the water which came from the River Thames had been infected by waste. **//Thanks to** Snow's tireless efforts, the threat of cholera dropped substantially, people now know how to protect themselves from getting cholera. Snow changed the way scientists study diseases **so** he is regarded as the father of modern epidemiology.

Thank you for listening!

