

# The Critical Thinking about Health Test

## Instructions

*Before you start, please note that some words in this questionnaire may not be familiar to you. Please read through the following explanations:*

A **TREATMENT** is anything done to care for yourself, so you stay well or, if you are sick or injured, so you get better and not worse. For example, skin cream.

A **TREATMENT CLAIM** is something someone says about whether a treatment causes something to happen or to change. A claim can be true or can be false. For example, if a friend says “Using skin cream will help your skin rash”.

A **RESEARCH STUDY** is a way to answer a question by carefully collecting information. For example, a study might be done to answer the question: Does skin cream help people with skin rash?

**RESULTS of a study** are what the study found. For example, whether people who use skin cream had less skin rash.

When something happens by **CHANCE**, it is not possible to tell in advance what will happen. For example, if you flip a coin, you cannot tell in advance if

First, read the text above the questions and then answer each question on the **SCORE sheet**, using one of the provided answers.

For each question, choose what you think is the best answer and **fill in the circle** for that answer in the score sheet, like this.



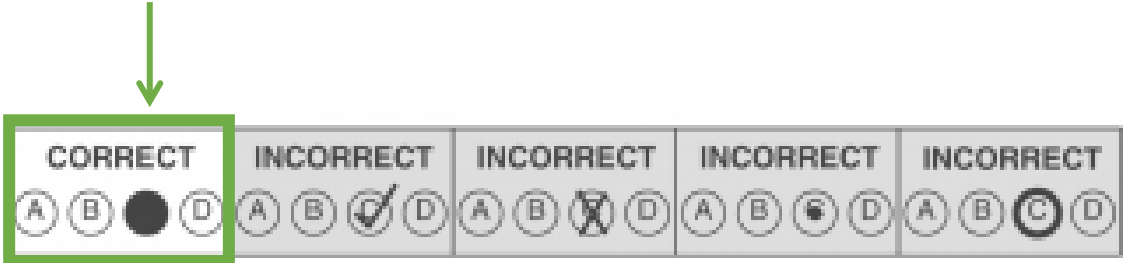
**If you want to change your answer**, carefully erase the first circle that you filled in.

Do not fill in more than one circle for each question.



The examples below show you the one correct way and some wrong ways to mark your answers.

**Be sure to fill in the circles the correct way.**



**Part 1.**  
**Questions about you**

**1.1 Your school code**

**1.2 Your teacher code**

**1.3 Your gender**

Female

Male

**1.4 Your age**

## Part 2. Reading ability questions

A doctor did a research study to find out if drinking tea keeps people from getting sick. He flipped a coin to decide who should get the tea and who should not. People who got tea went to the doctor's office every day to drink their tea. At the end of the study, people who got the tea were less likely to be sick than those who got no tea.

*Based on the text above, please answer the following questions:*

### **2.1 Who went to the doctor's office every day?**

*Options:*

- A) People who did not get tea
- B) People who got tea
- C) Everyone
- D) People who got sick

### **2.2 How did the doctor decide who should get tea?**

*Options:*

- A) By flipping a coin
- B) By asking people if they would like tea
- C) The doctor gave tea to those who were more likely to be sick
- D) The doctor asked people who came to his office

A doctor did a research study to find out if drinking tea keeps people from getting sick. He flipped a coin to decide who should get the tea and who should not. People who got tea went to the doctor's office every day to drink their tea. At the end of the study, people who got the tea were less likely to be sick than those who got no tea.

*Based on the text above, please answer the following questions:*

### **2.3 What was the treatment?**

*Options:*

- A)** Tea
- B)** Sleep
- C)** The study
- D)** The doctor

### **2.4 What was the result of the study?**

*Options:*

- A)** Drinking tea can help people from getting sick
- B)** Doctors should toss coins when doing studies
- C)** People should go to the doctor if they are sick
- D)** Not drinking tea can help people from getting sick

## Part 3.

### Questions about claims

#### 3.1

Anne has pain in her ear, and she asks her brother, Hassan, what to do about it. He says that once, when he had a pain like that, he cleaned his ear with hot water. The next day, his ear pain was gone. Based on his experience, he says rinsing with hot water is helpful for ear pain.

*Question:* **Do you agree with Hassan?**

*Options:*

- A)** Yes. Because this is Hassan's experience, it is likely to be true
- B)** No, Hassan's experience is not enough to be sure
- C)** Yes, Hassan rinsed his ear with hot water and the next day his ear pain was gone

## 3.2

Sarah says that medicines from well-known companies, costing more money, are not necessarily the best. Medicines from less known companies, costing less money, may be just as good or even better.

*Question:* **Is Sarah right?**

*Options:*

- A)** No, medicines costing less money are more likely to be harmful than expensive medicines
- B)** Yes, just because the medicine is expensive does not mean that it will work better than other medicines
- C)** No, expensive medicines made by well-known companies are better than less expensive medicines made by lesser-known companies

### 3.3

Edith has stomach pain. Edith's mother says that fruit juice is a good treatment for stomach pain. She learnt about this treatment from Edith's grandmother. Over many years, other families she knows have also used fruit juice to treat stomach pain.

**Question: Based on this, how sure can we be that fruit juice is a good treatment for stomach pain?**

*Options:*

- A)** Not very sure. Even though people have used fruit juice over many years, that does not mean that it helps stomach pain
- B)** Very sure. If it has worked for Edith's mother and other people who have tried it, it will probably work for her too
- C)** Not very sure. Edith should ask more families if they use fruit juice to treat stomach pain



### 3.4

John has a skin rash on his leg. A shop sells several skin creams to treat skin rashes. John chooses a skin cream from a well-known company, even though it is more expensive than the other creams. John thinks this skin cream is more likely to heal his rash than the other skin creams because it is more expensive.

*Question:* **Is John right?**

*Options:*

- A)** No, just because the skin cream is expensive does not mean that it will work better than other creams
- B)** It is not possible to say. However, expensive skin creams are likely to be better because the companies spend more time making them
- C)** No, the skin cream is probably not as good as the other skin creams. People just like well-known companies more

### 3.5

Sarah has a sickness. There is a medicine for it, but she is not sure if she should try it. A research study comparing the medicine with no medicine found that the medicine was helpful but also that it could be harmful. Three of Sarah's friends are telling her what to do.

**Question: Which of the following things said by her friends is more correct?**

*Options:*

- A)** She should only take the medicine if many people have tried the medicine before
- B)** She should only take the medicine if she thinks it will help her more than it will harm her
- C)** If Sarah has enough money to buy the medicine, it could not hurt to try it

### 3.6

Imagine you and your friends have formed a team to take part in a local running competition. People on the other teams all had bananas for breakfast. You and your friends did not have bananas for breakfast and lost the race. Some people say that this was because your team had bread for breakfast and that made them run slower.

**Question: If you did a research study comparing people who eat bananas for breakfast with people who don't eat bananas for breakfast, how would you decide who should have bananas for breakfast?**

*Options:*

- A)** By chance (like flipping a coin) to make sure the two groups are as similar as possible
- B)** By having the teams decide, to make it as fair as possible
- C)** By having the teachers decide, because they know who would benefit best from eating bananas

### 3.7

Regina has a sickness that makes it difficult for her to breathe. She hears on the radio about a medicine that has helped many people with breathing problems.

**Question:** How sure can Regina be that the medicine does not have any harms?

*Options:*

- A) It is not possible to say, it depends on how much hope Regina has in the medicine
- B) Very sure, since the medicine has helped many people, it is unlikely that it also harms people
- C) Not very sure, because all medicines may harm people as well as help them

### 3.8

Outside the city where Paul lives there are many farms. The farmers often get coughs. For many years, the farmers have used strong tea to treat their coughs. They say that the tea is good for them and that it protects them from becoming more sick.

Paul says that the farmers may not be right, and that the strong tea may not help coughs.

*Question:* **Do you agree with Paul?**

*Options:*

- A)** Yes, Paul should try drinking strong tea himself to know for sure. The strong tea may work differently on him
- B)** Yes, we can only know for sure if the strong tea works if it has been compared with other treatments in studies
- C)** No, the farmers would not have used strong tea for all those years if it did not work

### 3.9

Jane often has headaches. Her doctor tells her that there is a medicine that may help her, but it may harm her. The medicine is also very expensive.

**Question: What does Jane need to think about before using the medicine?**

*Options:*

- A)** If the medicine will help her more than it will hurt her, and if she thinks it is worth paying so much money for it
- B)** If anybody she knows has tried the medicine so that she can ask them what they thought about it
- C)** If she should ask another doctor, since the doctor must be wrong. A medicine which is helpful cannot be harmful

### 3.10

Mercy wanted to know if eating bananas makes you run faster. To find out, she invited her six best friends to take part in a research study. Three friends each got bananas, and three friends did not get bananas. At the end of the study, the friends who did not get bananas ran a lot faster.

*Question:* **How sure can Mercy be about her study's results?**

*Options:*

- A)** More sure, because Mercy found a difference between the groups in how fast they ran. This means that the study included enough people.
- B)** Less sure, because the difference between the two groups could have occurred by chance
- C)** More sure, if she repeats the study with six more friends

### 3.11

Doctors studied people with stomach pain before and after they took a new medicine. After taking the new medicine, many people felt less pain.

**Question: Can we be sure that the new medicine is good for treating stomach pain?**

*Options:*

- A)** No, taking the new medicine should have been compared either with not taking the medicine, or with taking an older medicine
- B)** Yes, people were asked how much pain they felt before and after they took the new medicine
- C)** Yes, the study was done by doctors



### 3.12

A new and an old mosquito spray (insecticide) were compared in a research study. In the study, two houses were sprayed with the new spray, and two houses were sprayed with the old spray. Based on this study, the new spray was better for protecting against mosquito bites than the old spray. Neither of the sprays was found to be harmful to people.

*Question:* **How sure can you be about what the study found?**

*Options:*

- A)** Less sure, because only four houses were studied and the differences between sprays may have happened by chance
- B)** More sure, because the new spray was better for protecting against mosquito bites and it was not harmful
- C)** More sure, because the new spray was found to be better, and the differences between sprays is unlikely to have happened by chance

### 3.13

On the radio, there is someone selling a treatment - a new juice. The seller says that if you drink one glass of it every day, you will not get sick.

**Question: How sure can you be that the new juice will keep you from getting sick?**

*Options:*

- A)** It is not possible to say. I would have to try the new juice myself to be sure
- B)** Very sure, otherwise this news would not be on the radio
- C)** Not very sure. Very few treatments work so well

### 3.14

Dr. Javier has done a research study giving a new medicine to people who were vomiting. Some of the people stopped vomiting after they got the new medicine. Dr. Javier says that this means that the medicine works.

*Question:* **Is Dr. Javier right?**

*Options:*

- A)** No. The people who used the medicine were not compared with similar people who did not use the medicine
- B)** Yes, some of the people stopped vomiting
- C)** No, since not all the people stopped vomiting

### 3.15

George has stomach pain. The last time George had a stomach pain was two months ago. That time, he drank some hot milk and after an hour, his stomach pain was gone. Therefore, George says hot milk cures stomach pain.

*Question: Is George right?*

*Options:*

- A)** It is not possible to say. His stomach pain might have gone away without the hot milk
- B)** It is not possible to say, but it is likely to be true based on the fact that George had this experience
- C)** Yes, George's experience is enough to show that hot milk makes stomach pain go away

### 3.16

Esther recommends a new treatment – a medicine - for pain. She says that everyone who has tried it felt better.

**Question: How sure can you be that what Esther says about the new medicine is true?**

*Options:*

- A)** Not very sure. Very large benefits, where everyone or nearly everyone gets better because of a treatment are rare
- B)** It is not possible to say. To be sure I would have to try the medicine for myself
- C)** Very sure. The medicine must be very good since everyone who has tried it got better

### 3.17

A doctor wanted to know which of two treatments was best for headaches. In a study to find out, he asked people to choose which treatment they would like to get. He compared the people who took each of the two treatments.

**Question:** How sure can we be about the results of this comparison of the two treatments?

*Options:*

- A)** More sure, because the doctor asked people to choose which treatment they wanted
- B)** Less sure, because the doctor should have decided who got which treatment
- C)** Less sure, because the doctor should have given people one of the two treatments by chance (like flipping a coin)

### 3.18

Mary wanted to find out which plants were best for treating people with headaches, so she did a research study to compare green plants with yellow plants. The people who used the green plants had fewer headaches compared to the people who used the yellow plants.

**Question:** How sure can we be that green plants are better than yellow plants?

*Options:*

- A)** It is not possible to say. Mary did not study possible harms of the plants
- B)** Very sure, since people who used the green plants had fewer headaches
- C)** Not very sure, it depends on how much people believe the green plants will work

## Part 4. Questions about your views

Below are some questions about what you think. **There are not right or wrong answers to these questions.**

Below are some actions. Please read each one carefully and give the answer that comes closest to how difficult or easy you find each of the actions to be. There are not right or wrong answers to these questions.

**4.1 Question: How difficult or easy do you find knowing if a claim about a treatment is based on a research study comparing treatments?**

*Options:*

- A)** Very difficult
- B)** Difficult
- C)** Easy
- D)** Very easy
- E)** I don't know

**4.2 Question: How difficult or easy do you think it is to find information about treatments that is based on research studies comparing treatments?**

*Options:*

- A)** Very difficult
- B)** Difficult
- C)** Easy
- D)** Very easy
- E)** I don't know



Below are some actions. Please read each one carefully and give the answer that comes closest to how difficult or easy you find each of the actions to be. There are not right or wrong answers to these questions.

**4.3 Question: How difficult or easy do you find judging the trustworthiness of the results of a research study comparing treatments?**

*Options:*

- A) Very difficult
- B) Difficult
- C) Easy
- D) Very easy
- E) I don't know

**4.4 Question: How difficult or easy do you find knowing if the results of a research study comparing treatments are relevant to you?**

*Options:*

- A) Very difficult
- B) Difficult
- C) Easy
- D) Very easy
- E) I don't know

Think about a sickness that you might get. Imagine someone claiming (saying) that a treatment might help you get better.

**4.5 Question: How likely are you to find out what the claim was based on (for example by asking the person making the claim)?**

*Options:*

- A) Very unlikely
- B) Unlikely
- C) Likely
- D) Very likely
- E) I don't know

**4.6 Question: How likely are you to find out if the claim was based on a research study comparing the treatment to no treatment?**

*Options:*

- A) Very unlikely
- B) Unlikely
- C) Likely
- D) Very likely
- E) I don't know

**4.7. Question: How likely are you to say "yes" if you are asked to participate in a research study comparing two treatments for your sickness?**

*Options:*

- A) Very unlikely
- B) Unlikely
- C) Likely
- D) Very likely
- E) I don't know

## Part 5.

### Questions about your experience with the Be Smart about Your Health lessons

Below are some questions about what you think. **There are not right or wrong answers to these questions.**

**5.1. Question: How much did you like or dislike the lessons?**

*Options:*

- A) I liked the lessons very much
- B) I liked the lessons a little
- C) I disliked the lessons a little
- D) I disliked the lessons very much

**5.2. Question: How easy or difficult were these lessons to understand?**

*Options:*

- A) Very difficult to understand
- B) Difficult to understand
- C) Easy to understand
- D) Very easy to understand

**5.3. Question: How helpful or unhelpful has what you have learned been to you?**

*Options:*

- A) Very helpful to me
- B) Helpful to me
- C) Unhelpful to me
- D) Very unhelpful to me

