

## **Examples of PISA test questions**

PISA contains a mixture of questions, and most students will have to answer some science, reading and mathematics questions. The combination of questions will depend on which test booklet you are randomly assigned – PISA has 13 different test booklets.

Not only are the topics varied, so are the types of questions. Sometimes, you'll be asked to tick a box, or circle one answer from a choice of four, while sometimes you'll be asked to write a short answer. On the next pages are examples of reading, science and mathematics questions (in that order).

[Reading Questions](#)

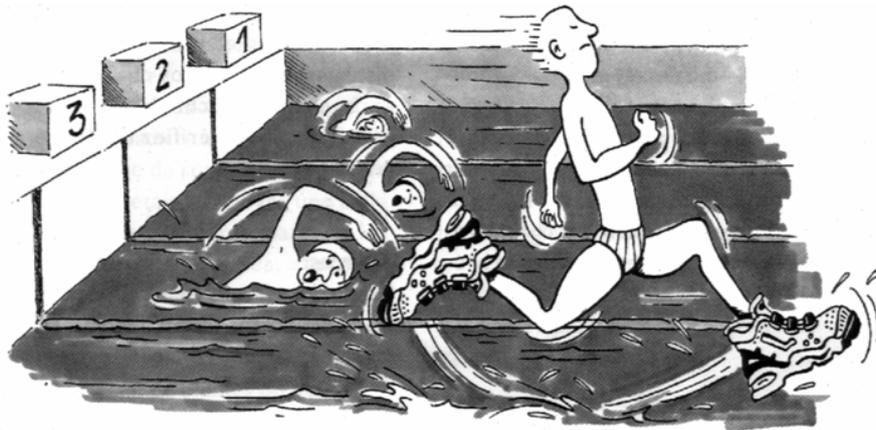
[Science Questions](#)

[Mathematics Questions](#)

# Reading Questions

## FEEL GOOD IN YOUR RUNNERS

For 14 years the Sports Medicine Centre of Lyon (France) has been studying the injuries of young sports players and sports professionals. The study has established that the best course is prevention ... and good shoes.



Knocks, falls, wear and tear...

Eighteen per cent of sports players aged 8 to 12 already have heel injuries. The cartilage of a footballer's ankle does not respond well to shocks, and 25% of professionals have discovered for themselves that it is an especially weak point. The cartilage of the delicate knee joint can also be irreparably damaged and if care is not taken right from childhood (10–12 years of age), this can cause premature osteoarthritis. The hip does not escape damage either and, particularly when tired, players run the risk of fractures as a result of falls or collisions.

According to the study, footballers who have been playing for more than ten years have bony

outgrowths either on the tibia or on the heel. This is what is known as 'footballer's foot', a deformity caused by shoes with soles and ankle parts that are too flexible.

Protect, support, stabilise, absorb

If a shoe is too rigid, it restricts movement. If it is too flexible, it increases the risk of injuries and sprains. A good sports shoe should meet four criteria:

Firstly, it must *provide exterior protection*: resisting knocks from the ball or another player, coping with unevenness in the ground, and keeping the foot warm and dry even when it is freezing cold and raining.

It must *support the foot*, and in particular the ankle joint, to avoid sprains, swelling and

other problems, which may even affect the knee.

It must also provide players with good *stability* so that they do not slip on a wet ground or skid on a surface that is too dry.

Finally, it must *absorb shocks*, especially those suffered by volleyball and basketball players who are constantly jumping.

Dry feet

To avoid minor but painful conditions such as blisters or even splits or athlete's foot (fungal infections), the shoe must allow evaporation of perspiration and must prevent outside dampness from getting in. The ideal material for this is leather, which can be water-proofed to prevent the shoe from getting soaked the first time it rains.

Use the article to answer the questions below.

---

**Question 1: RUNNERS**

R110Q01

What does the author intend to show in this text?

- A That the quality of many sports shoes has greatly improved.
- B That it is best not to play football if you are under 12 years of age.
- C That young people are suffering more and more injuries due to their poor physical condition.
- D That it is very important for young sports players to wear good sports shoes.

---

**Question 2: RUNNERS**

R110Q04- 0 1 9

According to the article, why should sports shoes not be too rigid?

.....

---

**Question 3: RUNNERS**

R110Q05- 0 1 9

One part of the article says, "A good sports shoe should meet four criteria."

What are these criteria?

.....

.....

---

**Question 4: RUNNERS**

R110Q06

Look at this sentence from near the end of the article. It is presented here in two parts:

"To avoid minor but painful conditions such as blisters or even splits or athlete's foot (fungal infections),..." *(first part)*

"...the shoe must allow evaporation of perspiration and must prevent outside dampness from getting in." *(second part)*

What is the relationship between the first and second parts of the sentence?

The second part

- A contradicts the first part.
- B repeats the first part.
- C illustrates the problem described in the first part.
- D gives the solution to the problem described in the first part.

# Science Questions

## CATCHING THE KILLER

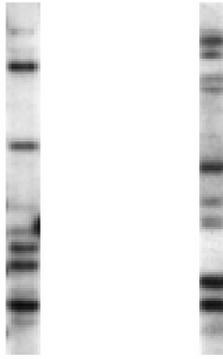
Read the following newspaper article, and answer the questions that follow.

**DNA TO FIND KILLER**

*Smithville, yesterday:* A man died from multiple stab wounds in Smithville yesterday. Police say that there were signs of a struggle and that some of the blood found at the scene of the crime did not match the victim's blood. They suspect that this blood came from the killer.

To help find the killer, police scientists have prepared a DNA profile from the blood sample. When compared to DNA profiles of convicted criminals, kept on a computer database, no match was found.

*Photo of typical DNA profiles from two people. The bars are different fragments of each person's DNA. Each person has a different pattern of bars. Like fingerprints, these patterns can identify a person.*



Person A      Person B

Police are now asking all citizens of Smithville to come forward to have their DNA analysed.

Sergeant Brown of the Smithville police said, "We just need to take a harmless scraping from the inside of the cheek. From this scientists can extract DNA and form a DNA profile like the one pictured."

Except for identical twins, there is only a 1 in 100 million chance that two people will have the same DNA profile.

### Question 1: CATCHING THE KILLER

S402Q01

This newspaper article refers to the substance DNA. What is DNA?

- A A chemical substance in cell membranes that stops the cell contents leaking out.
- B A chemical substance that contains the instructions to build our bodies.
- C A protein found in the blood that helps carry oxygen to all the tissues.
- D A hormone in blood that helps regulate glucose levels in the body cells.

---

**Question 2: CATCHING THE KILLER**

S402Q02

The newspaper article says that, except for identical twins, there is only a 1 in 100 million chance that two people will have the same DNA profile.

Three students each gave an explanation of why there is such a variety of DNA.

**Gina** said that a person's DNA is made up at conception. It is not inherited.

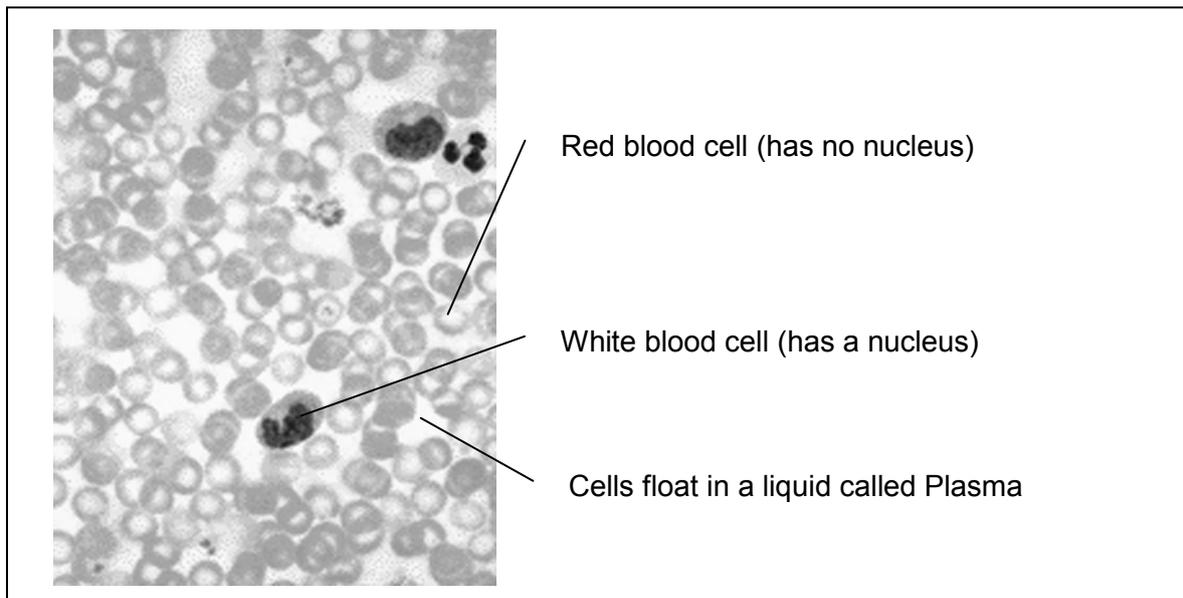
**Anna** said that DNA can be altered by mutations to produce many different forms.

**Tom** said that each person gets a new mix of DNA as half comes from each parent.

Which one or more of the students gave a correct explanation?

- A Gina only.
- B Anna and Tom, but not Gina.
- C Gina and Anna, but not Tom.
- D All three students.

**Photo of a blood sample as viewed through a microscope**



---

**Question 3: CATCHING THE KILLER**

S402Q03

DNA is to be extracted from a blood sample and from cheek scrapings. What is the reason why DNA will be found in both samples?

- A They are the only place where DNA can be found.
- B Both samples contain red blood cells.
- C Both samples contain cells with nuclei.
- D Both samples contain body fluids.

---

**Question 4: CATCHING THE KILLER**

S402Q04

The police are asking all citizens of Smithville to have a cheek scraping taken for DNA analysis. Here is a list of proposed safeguards for the people involved in this procedure.

Circle "Agree" or "Disagree" for each of these safeguards.

<b>Proposed safeguard</b>	<b>Agree or Disagree?</b>
Any citizen with a cold should not give a sample.	Agree / Disagree
A new scraper should be used for each citizen.	Agree / Disagree
The blood pressure of each citizen should be measured.	Agree / Disagree
Nurses taking the samples should wear safety gloves.	Agree / Disagree

---

**Question 5: CATCHING THE KILLER**

S402Q05

Which one of the following questions **cannot** be answered by scientific evidence?

- A What was the medical or physiological cause of the victim's death?
- B Why was the victim stabbed many times?
- C Is taking cheek scrapings a safe way to collect DNA samples?
- D Do all identical twins have exactly the same DNA profile?

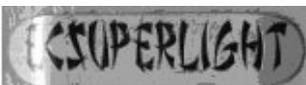
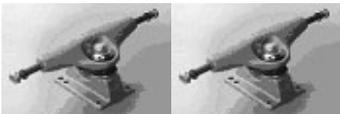
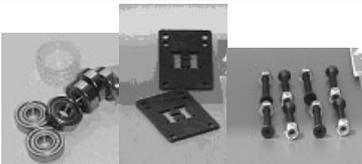
# Mathematics Questions

## SKATEBOARD

Eric is a great skateboard fan. He visits a shop called SKATERS to check some prices.

At this shop you can buy a complete board. Or you can buy a deck, a set of 4 wheels, a set of 2 trucks and a set of hardware, and assemble your own board.

The prices for the shop's products are:

Product	Price in zeds	
Complete skateboard	82 or 84	
Deck	40, 60 or 65	
One set of 4 Wheels	14 or 36	
One set of 2 Trucks	16	
One set of hardware (bearings, rubber pads, bolts and nuts)	10 or 20	

### Question 1: SKATEBOARD

M520Q01a

M520Q01b

Eric wants to assemble his own skateboard. What is the minimum price and the maximum price in this shop for self-assembled skateboards?

(a) Minimum price: ..... zeds.

(b) Maximum price: ..... zeds.

---

**Question 2: SKATEBOARD**

M520Q02

The shop offers three different decks, two different sets of wheels and two different sets of hardware. There is only one choice for a set of trucks.

How many different skateboards can Eric construct?

- A 6
- B 8
- C 10
- D 12

---

**Question 3: SKATEBOARD**

M520Q03

Eric has 120 zeds to spend and wants to buy the most expensive skateboard he can afford.

How much money can Eric afford to spend on each of the 4 parts? Put your answer in the table below.

<b>Part</b>	<b>Amount (zeds)</b>
Deck	
Wheels	
Trucks	
Hardware	