

An Interview with Nixie Labs



Question Book:

Year 6, pages 2-3

Author / Source:

<http://antenna.sciencemuseum.org.uk>

Genre:

Non-fiction — interview

Cross-curricular links:

- History (famous inventors)
- Science (technological innovation)
- D&T (testing prototypes)

Introduction

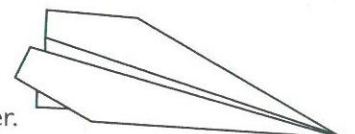
In this interview, computer scientist Floris Ernst describes his work on Nixie, the world's first simple, wearable drone. The interview provides pupils with a first-hand insight into the design and development process behind this cutting-edge technology. Ensure pupils are aware that, in this context, a drone is a small, unmanned aircraft. As they read, pupils should consider what the interview tells them about the process by which scientists and engineers develop new technologies.

Answers

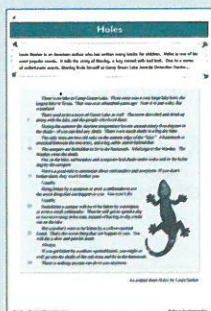
1. E.g. To automatically take photographs of its owner.
2. E.g. Because it is difficult for them to use a camera while they are climbing, so Nixie will allow them to take photos of themselves safely while climbing.
3. E.g. Because they could be used to spy on people and take photos or videos of places that are supposed to be private, for example by flying over people's gardens or looking through windows.
4. E.g. To get a better view of dangerous situations, and to help locate people who need to be rescued.
5. Any appropriate answer. E.g. He is very positive about Nixie, and it seems like he is very passionate about the project — the use of exclamation marks shows this enthusiasm.
6. Any appropriate answer. E.g. Yes, because it would be fun to have a flying camera that could take photos from any angle, especially one like Nixie that would be light and easy to use. OR E.g. No, because it might be used to spy on people. Also, it could be dangerous because it might hurt someone if it crashed.

Extra Activities

- Get pupils to use the information in the interview to design a poster persuading people to buy Nixie. Encourage them to think about how they can use language to make their poster as persuasive as possible.
- Ask pupils to research other inventors and their inventions, such as James Dyson, Trevor Baylis, Mary Anderson, John Logie Baird and Stephanie Kwolek. Pupils should present their findings in the form of an imagined interview with the inventor, using similar questions to those asked in the Nixie interview.
- Using the interview as a starting point, explore the process of technological innovation. Key points to cover include the value of teamwork in developing new technologies; the importance of experimentation in the development process; and the use of prototypes to test and improve design features.
- Working in small groups, challenge pupils to design an aeroplane, made only from A4 sheets of paper, that will fly as far as possible. Once they have designed and built their first prototype, they should test it and use the outcome of the tests to build an improved version of their design. Get pupils to draw a diagram of their final design, annotating the features they added to make it fly further.



Holes



Question Book:

Year 6, pages 4-5

Author / Source:

Louis Sachar

Genre:

Fiction — novel extract

Cross-curricular links:

- Drama (role-play)
- PSHE (juvenile prison)
- Geography (deserts)

Introduction

Louis Sachar's *Holes* tells the unfortunate tale of Stanley Yelnats and his time at Camp Green Lake, a juvenile correctional facility in Texas. Before reading the extract, ask pupils about the novel's title. What might the novel be about? What do they think will happen? As pupils read the text, encourage them to pay special attention to the deliberate use of short sentences, and the impact this has on the reader.

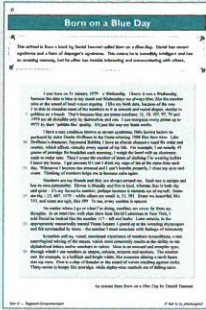
Answers

1. E.g. The lake has dried up, the town has disappeared, and the people who lived in the town have gone.
2. E.g. The narrator is very negative about it. He describes the location as a "wasteland" and makes it sound like an uncomfortable place by emphasising the high temperatures and lack of shade.
3. E.g. A selfish person because she has the only hammock on the site, which is shaded by the only trees, and she won't let the campers use it. She also seems cruel because she makes the campers dig holes all day.
4. E.g. No, because the hot conditions they work in are unbearable, and many are even prepared to risk being bitten by a scorpion or a rattlesnake in order to get a break from digging holes on the lake.
5. Any appropriate answer. E.g. He doesn't really explain why the campers are at Camp Green Lake, so the reader wants to read more to find out how they ended up there.
6. Any appropriate answer. E.g. No, because the conditions the boys have to work in are dangerous and unfair, even if they have done something wrong. OR E.g. Yes, because it might make them change their behaviour in the future so that they wouldn't have to receive the same punishment again.

Extra Activities

- Question 5 asks pupils to consider the techniques Sachar uses to make the reader keep reading. As a class, discuss pupils' answers to this question and explore in more detail the way Sachar engages the reader.
- Ask pupils to write a postcard home as if they were Stanley, writing from Camp Green Lake.
- Divide pupils into pairs and ask them to imagine the first meeting between Stanley and the Warden. They should write a short role-play, which they can then perform for the class.
- The children in *Holes* have been sent away to a correctional facility, or a juvenile prison. With the whole class, discuss various opinions about sending children to prison. How old should a child be before he or she is considered old enough to go to prison? Where should they go if they don't go to prison?
- Camp Green Lake is set in desert-like conditions. Get pupils to look up the word 'desert' in a dictionary, and then assign groups different deserts to investigate (e.g. Antarctica, the Gobi Desert, the Sahara Desert and the Kalahari Desert). Ask pupils to present their findings to the class so that everyone can see the diversity between the different types of desert.

Born on a Blue Day



Question Book:

Year 6, pages 6-7

Author / Source:

Daniel Tammet

Genre:

Non-fiction — memoir

Cross-curricular links:

- PSHE (autism spectrum)
- Art (numerical representation)
- Maths (prime numbers)

Introduction

As well as suffering from Asperger's syndrome, Daniel Tammet has savant syndrome, a rare condition in which individuals with serious mental disorders show remarkable abilities in a specific field, often either art, music, calendar calculation, mathematics or spatial skills. Like Daniel, around fifty per cent of people with savant syndrome suffer from an autism spectrum disorder, although savant syndrome also occurs in individuals with other developmental or neurological disorders. Before you start reading the extract with the class, use the introduction in the Question Book to ensure that pupils have a basic understanding of the nature of Daniel's condition.

Answers

1. E.g. A number that's only divisible by itself and one. Daniel recognises them by their "pebble-like" quality.
2. E.g. He eats exactly 45 grams of porridge for breakfast each morning, weighing the bowl with an electronic scale. Then he counts the number of items of clothing he's wearing before leaving the house. He gets anxious if he can't follow his normal routine.
3. E.g. "Eleven is friendly" and "five is loud".
4. E.g. Because "Times" and "Square" are both words that you might use in maths.
5. E.g. He means that he felt surrounded by enormous things. He links the number nine to "feelings of immensity", so the huge buildings in Times Square made him feel like there were nines all around him.
6. Any appropriate answer. E.g. I think that it would be difficult if you needed to follow the same routine every day, because sometimes things might get in the way of your routine, and that would be very stressful.

Extra Activities

- *Born on a Blue Day* is a memoir. Memoirs follow similar conventions to autobiographies. With the whole class, discuss the conventions of autobiographical writing. Ask pupils to write a short autobiographical passage, or a memoir, describing how they celebrated their most recent birthday.
- With the whole class, look at the way Daniel describes the different numbers mentioned in the extract. Ask pupils to suggest how Daniel might see other numbers, and to explain their answers. You could then ask pupils to draw or paint a picture showing the way that Daniel sees some of the numbers he describes in the extract.
- Ask pupils to write a poem describing how Daniel views his world.
- With the whole class, discuss the challenges that people living with savant syndrome and other autism spectrum disorders face on a daily basis.
- Challenge pupils to find all the prime numbers under 100.

2, 3, 5, 7, 11, 13,
17, 19, 23, 29, 31,
37, 41, 43, 47, 53,
59, 61, 67, 71, 73,
79, 83, 89, 97