

SCIENCE NEWS

THE HUNT FOR A VACCINE



The first volunteers have received a trial vaccine in the USA, as a worldwide effort to find protection against the new coronavirus gets underway.

Scientists at one of the American labs developing a vaccine for the new coronavirus

A vaccine is a substance that helps the body to recognise and kill off viruses or bacteria, keeping us safe from the diseases they cause. They are usually injected and already exist for several diseases, including measles, typhoid and some types of flu. But before a vaccine can be given to members of the public, it must first undergo a long series of trials to make sure it's safe and effective.

As this new coronavirus quickly spreads around the world, scientists in various countries are working to urgently find a vaccine to protect the most vulnerable.

Jennifer Haller, a mum of two, was the first volunteer in America to receive a new vaccine called mRNA-1273. It has been developed by a biotechnology company called Moderna Inc in Massachusetts, USA. Haller said she really wanted to help in the hunt for a vaccine: "This was just something that I could do and that I wanted to do."

As there is such an urgent need to slow the spread of the virus, researchers at Moderna were allowed to skip the usual

rules of performing tests on animals first.

On 16 March, Haller was one of four volunteers to receive the jab. A total of 45 will take part in the trial, and they will be regularly monitored for 14 months, to see if the vaccine works. That means, of course, that even if mRNA-1273 is successful, it can't be rolled out to the general public until some time next year at the earliest.

But several other trials are taking place in the USA and beyond. In the UK, researchers at Oxford University are expected to trial the country's first vaccine next month.

A German biotechnology company called CureVac claims it could have a vaccine ready this autumn. The European Union is so confident in CureVac's work that it has pledged £74 million of support.

Citizen scientists can also have a crack at helping researchers by playing a free online game. *Foldit* poses weekly science challenges that are directly related to vaccine research being done at the University of Washington.

F1 JOINS FIGHT



F1 champion Lewis Hamilton in his Mercedes car earlier this year

Formula 1 teams will produce ventilators to help British hospitals cope with COVID-19.

A group of UK-based F1 teams are working out how they can use their engineering skills to increase production of the life-saving kit.

Some people with COVID-19 (the disease caused by the new coronavirus) find their breathing is badly affected, and ventilators are the devices that doctors use to supply air to them.

The F1 teams, engine manufacturers and technology experts are well-placed to help because they have experience of designing and manufacturing products safely and, most importantly, quickly.

A spokesperson for F1 said: "All the teams have expert design, technology and production capabilities... which is hoped can be applied to the critical needs set out by Government."

The NHS currently has access to 8,175 ventilators. The Government has already asked companies including Airbus, Rolls-Royce, Nissan and JCB to help produce up to 30,000 ventilators in just two weeks.

GLOSSARY

biotechnology – Technology based on biology. The use of living systems and organisms to develop or make products



Questions on – Science News: ‘The hunt for a vaccine’ and ‘F1 joins fight’

Questions on: ‘The hunt for a vaccine’

Part A: Find and explain the facts

- A1. What is a vaccine?
- A2. Where in the world have the first volunteers received a trial vaccine against the new coronavirus?
- A3. Fill the gaps to complete the sentences about the trial.

On March, Haller was one of volunteers to receive the jab. A total of will take part in the trial, and they will be regularly monitored for months, to see if the vaccine works.

Part B: Deduce and infer information

- B1. What is the problem with the mRNA-1273 vaccine, even if it is successful?
- B2. Why has the European Union pledged £74 million of support to CureVac?
- B3. How might a free online game help in the effort to find protection against the new coronavirus?

Part C: Analyse the writing and presentation

Jennifer Haller is directly quoted in this article. What is the effect of this?

Part D: Discussion task

Researchers at Moderna have been allowed to skip the usual rules of performing tests on animals first. Do you agree or disagree with the decision to allow them to do this? Justify your view.

Questions on: ‘F1 joins fight’

Part A: Find and explain the facts

- A1. What are a group of UK-based F1 teams going to produce to help British hospitals cope with COVID-19?
- A2. Answer the following questions:

How many ventilators does the NHS currently have access to?	
How many ventilators does the Government want produced in two weeks?	

Part B: Deduce and infer information

- B1. What makes the F1 teams well-placed to help?
- B2. Why is it significant that the Government has already asked companies including Airbus, Rolls-Royce, Nissan and JCB to help to produce up to 30,000 ventilators in two weeks?

Part C: Analyse the writing and presentation

Comment on the effectiveness of the headline: “F1 joins fight”.

GLOSSARY

biotechnology – Technology based on biology. The use of living systems and organisms to develop or make products



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Questions on: ‘The hunt for a vaccine’

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Teacher Answers

AIM OF THE NEWS COMPREHENSIONS: News reports are unique non-fiction texts. Being real, they naturally engage students, and with the range of topics that are covered, help to develop pupils' knowledge and understanding of the wider world outside the classroom. The reports are ideal for short, focused comprehension or discussion activities. Along with the opportunity to find fascinating facts and appreciate the opinions of those involved, there is plenty to be inferred and deduced to understand in more depth what is being reported. Like authors, journalists play with language, so news 'stories' are rich nuggets of text to investigate and provide the opportunity for literacy programmes.

TEACHER ANSWER GUIDE: The teacher answers are intended to provide a guide to the reading skill each question is practising. Suggestions are given for a starting point for responses that students would be expected to give at the start of KS3. Further suggestions then give fuller, more developed responses that students will work towards by the end of KS3, in preparation for the non-fiction elements of GCSE English language.

Questions on: 'The hunt for a vaccine'

PART A

A1. What is a vaccine?

READING SKILL — Find and explain information

Possible answer

Starting point

- A vaccine is a substance that helps the body to recognise and kill off viruses or bacteria, keeping the body safe from the diseases they cause.

Development

- They are usually injected and already exist for several diseases, including measles, typhoid and some types of flu.

A2. Where in the world have the first volunteers received a trial vaccine against the new coronavirus?

READING SKILL — Find and explain information

Possible answer

Starting point

- The first volunteers have received a trial vaccine in the USA.

Development

- Jennifer Haller, a mum of two, was the first volunteer in America to receive a new vaccine called mRNA-1273. It has been developed by a biotechnology company called Moderna Inc in Massachusetts, USA.

A3. Fill the gaps to complete the sentences about the trial.

READING SKILL — Find and explain information

Possible answer

Starting point

On **16** March, Haller was one of **four** volunteers to receive the jab. A total of **45** will take part in the trial, and they will be regularly monitored for **14** months, to see if the vaccine works.

PART B

B1. What is the problem with the mRNA-1273 vaccine, even if it is successful?

READING SKILL — Infer information and justify with evidence from the text

Possible answer

Starting point

- The problem with the mRNA-1273 vaccine is that even if it is successful, it will not be available to the general public until some time next year at the earliest.

Development

- This is because all vaccines have to undergo a long series of trials to make sure they are safe and effective. The researchers behind the mRNA-1273 vaccine have been allowed to skip the usual rules of performing tests on animals first. However, the human trial will still have to run for 14 months. Then, even if the vaccine is successful, there is still the job of having to mass-produce it.

B2. Why has the European Union pledged £74 million of support to CureVac?

READING SKILL — Infer information and justify with evidence from the text

Possible answer

Starting point

- The European Union has pledged £74 million of support to CureVac, because the German biotechnology company claims it could have a vaccine ready this autumn.

Development

- Therefore, the European Union has pledged funds to help ensure the success of the research. However, £74 million is a lot of money, so the fact that the European Union is prepared to pledge so much shows that it must really believe in the ability of the company to produce an effective vaccine in a short time frame.

B3. How might a free online game help in the effort to find protection against the new coronavirus?

READING SKILL — Infer information and justify with evidence from the text

Possible answer

Starting point

- A free online game might help in the effort to find protection against the new coronavirus because it enables citizen scientists to help researchers.

Development

- The game is called Foldit and it poses weekly science challenges that are directly related to vaccine research being done at the University of Washington. By having people play competitively and collaboratively, the game takes advantage of humans’ puzzle-solving skills and has the potential to save researchers’ time.

PART C

Jennifer Haller is directly quoted in this article. What is the effect of this?

READING SKILL — Explain methods used by the writer with appropriate use of terminology

Possible answer

Starting point

- Jennifer Haller is directly quoted to give her point of view. It creates interest because it is likely that readers will be wondering why a mother of two children would agree to test a vaccine that hasn’t been tested on animals.

Development

- The use of the direct quotation gives readers access to Haller’s own words and adds another dimension to an article that is otherwise very scientific and factual. It adds a human interest element.

PART D – Discussion task

Researchers at Moderna have been allowed to skip the usual rules of performing tests on animals first. Do you agree or disagree with the decision to allow them to do this? Justify your view.

AGREE	DISAGREE
<ul style="list-style-type: none"> • This is an emergency situation, and if vaccines are not advanced quickly enough then we won’t have anything available for the next winter season. Then we risk an even higher death toll. • Some groups argue that testing on animals is not reliable anyway. Sometimes, drugs shown to be safe and effective in animals do not work the same way in humans. Consequently, the first human trials will always carry risks. 	<ul style="list-style-type: none"> • It is likely that this decision was rushed into because of pressure to develop a vaccine quickly. Some experts are warning that we may regret such haste in retrospect. • Potential vaccines should be tested on animals first to rule out disease enhancement (when vaccinated people who do get infected develop a more severe form of the disease than people who have never been vaccinated).

Questions on: 'F1 joins fight'

PART A

A1. What are a group of UK-based F1 teams going to produce to help British hospitals cope with COVID-19?

READING SKILL — Find and explain information

Possible answer**Starting point**

- A group of UK-based F1 teams are going to produce ventilators to help British hospitals cope with COVID-19.

Development

- Ventilators are the devices that doctors use to supply air to those whose breathing is badly affected by COVID-19.

A2. Answer the following questions:

READING SKILL — Find and explain information

Possible answer**Expected response**

How many ventilators does the NHS currently have access to?	8,175
How many ventilators does the Government want produced in two weeks?	30,000

PART B

B1. What makes the F1 teams well-placed to help?

READING SKILL — Infer information and justify with evidence from the text

Possible answer**Starting point**

- F1 teams are well-placed to help because they have experience of designing and manufacturing products safely and quickly.

Development

- As a spokesperson for F1 said: "All the teams have expert design, technology and production capabilities... which is hoped can be applied to the critical needs set out by the Government." Many F1 races have been cancelled due to the coronavirus pandemic, so it makes sense for F1 teams to be deployed to produce ventilators instead of car parts.

B2. Why is it significant that the Government has already asked companies including Airbus, Rolls-Royce, Nissan and JCB to help to produce up to 30,000 ventilators in two weeks?

READING SKILL — Infer information and justify with evidence from the text

Possible answer**Starting point**

- It is significant that the Government has already asked companies including Airbus, Rolls-Royce, Nissan and JCB to help to produce up to 30,000 ventilators in two weeks because it shows how desperately they are required.

Development

- 30,000 is a very large number. At the moment the Government only has 8,175 ventilators, so there is a huge shortfall. The fact that the Government has now appealed to F1 teams as well as companies including Airbus, Rolls-Royce, Nissan and JCB shows that there is a massive drive to ensure that this vital piece of equipment is available to fight COVID-19.

PART C

Comment on the effectiveness of the headline: "F1 joins fight".

READING SKILL — Explain methods used by the writer with appropriate use of terminology

Possible answer**Starting point**

- This is an effective headline because it is concise and memorable.

Development

- The use of the verb "fight" has connotations of war and is appropriate because the world is certainly battling against the virus at the moment. However, it is also a positive headline because the alliteration sounds aggressive, which highlights the determination to overcome the new coronavirus.