

GCSE Combined Science: Trilogy

Worksheet: Viral diseases

TIME 30 min	TOTAL 28 marks	CALCULATOR Allowed	DIFFICULTY Easy, Medium
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Topics: Viral diseases

NAME	CLASS	DATE
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- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

HIV is a virus. It initially causes a flu-like illness.

0 1 . 1

Give **two** ways HIV can be spread from one person to another.

[2 marks]

0 1 . 2

Unless it is controlled with drugs, HIV attacks the body’s immune cells.
What is the name of the late stage of HIV infection, when the immune system is so badly damaged that it can no longer deal with other infections?

[1 mark]

0 1 . 3

Name the type of drug used to control HIV.

.....

.....

.....

.....

[1 mark]

0 2

Viruses are much smaller than bacteria. They can only reproduce inside living cells.

0 2 . 1

Which statement about viruses is correct?

Tick (✓) **one** box.

Viruses can be killed by antibiotics.

☐

Viruses can reproduce outside a living cell.

☐

Viruses damage cells by reproducing inside them.

☐

Viruses are a type of bacterium.

☐

[1 mark]

0 2 . 2

Measles is a viral disease.

Give **two** symptoms of measles.

.....

.....

.....

.....

[2 marks]

0 2 . 3

Name the viral disease of plants that causes a 'mosaic' pattern of discolouration on the leaves.

[1 mark]

0 3

Measles is a disease caused by a virus.

0 3 . 1

Give **two** symptoms of measles.

[2 marks]

0 3 . 2

How is the measles virus spread?

Tick (✓) **one** box.

By drinking water containing the virus

☐

By inhaling droplets from coughs and sneezes

☐

By the bite of an infected mosquito

☐

By sexual contact

☐

[1 mark]

0 3 . 3

Most young children in the UK are vaccinated against measles.

Give **one** reason why.

[1 mark]

0 3 . 4

A child with measles was not given antibiotics.
Explain why.

[1 mark]

0 4

HIV is a virus that attacks the body's immune cells.

0 4 . 1

What type of illness does a person usually have soon after being infected with HIV?

[1 mark]

0 4 . 2

Give **two** ways that HIV can be spread from one person to another.

[2 marks]

0 4 . 3

Explain why a person with late-stage HIV infection (AIDS) can die from an infection that would not harm a healthy person.

[3 marks]

0 4 . 4

The spread of HIV within the body can be controlled with antiretroviral drugs. Suggest how antiretroviral drugs can stop a person developing AIDS.

[2 marks]

0 5

Tobacco mosaic virus (TMV) infects many species of plant, including tomato plants.

0 5 . 1

Describe how a grower could recognise a tomato plant infected with TMV.

[1 mark]

0 5 . 2

Explain why tomato plants infected with TMV grow more slowly than healthy plants.

[3 marks]

0 5 . 3

The grower harvested 64.0 kg of tomatoes from 20 healthy plants and 45.6 kg of tomatoes from 20 plants infected with TMV.
Calculate the percentage decrease in the mass of tomatoes caused by TMV.

.....

.....

.....

.....

Percentage decrease = %

[2 marks]

0 5 . 4

Suggest **one** way the grower could reduce the spread of TMV to other plants in the greenhouse.

.....

.....

[1 mark]

END OF QUESTIONS

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

Mark scheme

GCSE Combined Science: Trilogy · Worksheet: Viral diseases · 28 marks

Question 1 (4 marks)

01.1 [2 marks]

- sexual contact / unprotected sex (1)
- exchange of body fluids such as blood, e.g. when drug users share needles (1)
- from a mother to her baby, e.g. during birth or breastfeeding (1)

Any 2 of the points above.

01.2 [1 mark]

Answer: AIDS

- AIDS (1)
-

01.3 [1 mark]

Answer: Antiretroviral drugs

- antiretroviral (drugs) (1)

Notes: Do not accept antibiotics or vaccines.

Question 2 (4 marks)

02.1 [1 mark]

Correct: Viruses damage cells by reproducing inside them.

02.2 [2 marks]

Answer: Fever and a red skin rash.

- fever / high temperature (1)
- a red skin rash (1)
- cough / runny nose / red or sore eyes (1)

Any 2 of the points above.

Notes: The third point is for other correct symptoms of measles; award it only once.

02.3 [1 mark]

Answer: Tobacco mosaic virus (TMV)

- tobacco mosaic virus / TMV (1)
-

Question 3 (5 marks)

03.1 [2 marks]

Answer: Fever and a red skin rash.

- fever / high temperature (1)
- red (skin) rash (1)

Notes: Allow other correct symptoms for either mark, e.g. cough / runny nose / red, sore eyes.

03.2 [1 mark]

Correct: By inhaling droplets from coughs and sneezes

03.3 [1 mark]

Answer: Measles is a serious illness that can be fatal.

- measles is a serious illness / measles can be fatal (if complications arise) (1)

Notes: Allow 'to make them immune to measles' or 'to stop measles spreading'.

03.4 [1 mark]

Answer: Antibiotics do not kill viruses.

- measles is caused by a virus and antibiotics do not kill viruses (1)
-

Question 4 (8 marks)

04.1 [1 mark]

Answer: A flu-like illness.

- a flu-like illness (1)

04.2 [2 marks]

Answer: Sexual contact; sharing needles (exchange of blood).

- sexual contact / unprotected sex (1)
- sharing needles (by drug users) (1)
- (other) exchange of body fluids such as blood (1)

Any 2 of the points above.

Notes: Allow from mother to baby (during pregnancy / birth / breastfeeding) or a transfusion of infected blood for the third marking point. Do not accept kissing / touching / droplets in the air.

04.3 [3 marks]

- HIV attacks / destroys the immune cells / white blood cells (1)
- (so) the immune system is so badly damaged it can no longer deal with other infections (1)
- (so) other pathogens are not destroyed and can reproduce / cause serious illness (1)

Notes: Allow 'fewer antibodies are produced' for the third marking point.

04.4 [2 marks]

- (the drugs) stop / slow down the virus reproducing / reduce the amount of virus (1)
 - (so) fewer immune cells are destroyed / the immune system is not badly damaged (1)
-

Question 5 (7 marks)

05.1 [1 mark]

Answer: A mosaic pattern of discoloured (pale / yellow) patches on the leaves.

- a mosaic pattern of discolouration on the leaves (1)

Notes: Allow 'patchy yellowing of leaves'. Ignore 'spots'.

05.2 [3 marks]

- parts of the leaves are discoloured / lose chlorophyll (1)
 - (so) less light is absorbed / less photosynthesis (1)
 - (so) less glucose is made for respiration / for making new cells, proteins or cellulose (1)
-

05.3 [2 marks]

Answer: 28.75% (allow 28.8% or 29%)

- $(64.0 - 45.6) \div 64.0 \times 100$ (1)
- 28.75 (%) (1)

Notes: An answer of 28.75, 28.8 or 29 scores 2 marks.

05.4 [1 mark]

- remove and destroy infected plants (1)
- disinfect tools after use on infected plants (1)
- wash hands after touching infected plants (1)
- space plants so their leaves do not touch (1)

Any 1 of the points above.
