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Give 3 ways white blood cells protect us from pathogens

1. engulf (pathogens)

2. produce antitoxins (to destroy toxins/poisons released from bacteria)

3. produce antibodies

0	1	.	2
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Describe how a person develops a natural immunity to a communicable disease like chicken pox

pathogen invades body and has surface markers/proteins called antigens [1]

'foreign' cell/antigen recognised by immune system/white blood cell [1]

white blood cell makes an antibody [1] that specifically match the antigen [1]

antibodies cause pathogens to clump together [1] so they can easily be engulfed

(by other white blood cells) [1] or they stop pathogen entering cells [1];

antibodies circulate in the body and are made rapidly and instantly on the 2nd

invasion by that pathogen [1]

[6 marks]

0	1	.	3
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To immunise a person against chicken pox a vaccine is needed. Describe how a vaccine can stop a person contracting chicken pox in future.

dead/inactive pathogen injected or given to a patient [1]; white blood cells make antibodies [1] against the antigens (on the dead/inactive microbe) [1] antibodies stay in circulation [1] if live pathogen infects a person, antibodies made quickly and in large numbers [1]

[3 marks]

0	1	.	4
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Suggest the main benefit of vaccinating lots of people against a disease

herd immunity/prevent epidemics or pandemics.

[1 mark]

WARNING : there is always confusion over the terms ANTIGEN, ANTIBODY, ANTITOXIN, ANTIBIOTIC make sure you are fully aware of their different meanings and use the words correctly