NHSG Key Stage 3 Unit Overview for Y8 Biology: Disease and Inheritance

Scheme of Learning	Disease and Inheritance Y8 Science
Learning Outcomes	1. State and give examples of the three types of pathogens. 2. Describe the symptoms and transmission method of a range of diseases. 3. Explain how disease can be spread. 4. Outline the natural defences the body as against entry of pathogens. 5. Describe how white blood cells destroy pathogens. 6. Explain how vaccinations can be used to give people immunity. 7. Name a range of illegal drugs. 8. Describe the impact these drugs have on the body. 9. Suggest the social impact of drug taking. 10. Recall the role of gametes in passing on genetic information. 11. Define chromosomes and genes. 12. Describe how species may vary from each other as well as different species. 13. Explain how a species can change their characteristics over time. 14. Explain how natural selection occurs. 15. Suggest why some species may become extinct. 16. Describe how genetic diseases are inherited in humans. 17. Use genetic crosses to explain the probabilities of inheriting certain conditions. 18.
Key Question	What are the different types of diseases and how does our body fight disease?
Knowledge	Types of diseases, natural and artificial defences against disease. Drugs and how their impact on the body. The role of gametes in passing on genetic information, including genetic diseases. Natural selection and evolution. Use genetic cross diagrams to explain the probabilities of inheriting certain conditions Gametes, chromosomes, genes, genetics, species, inheritance, natural selection, extinction
Ongoing Assessment	Retrieval questions at the start of every lesson Worksheets for all major concepts to be used for self and peer assessment, videos Every lesson there will be a range of worksheets and questioning of topics

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	Misconceptions – genetic difference between identical and non-identical twins and conception pf twins, clarity of communicable (tuberculosis, measles, malaria) and non-communicable diseases (cancer, heart disease, diabetes) diabetes not always genetic can be lifestyle. Assessment of genetic drawings for inherited diseases, Handout packs including learning checklist provided for every student. Online textbook providing further application, challenge and quizzes.
Key Assessment	End of topic test, 30 marks in 35 minutes. Including a mixture of MCQ, short answer and long answer questions. With mark schemes moderated by the team, with notes on standardised language.
Clear sequencing of content	This is the third Biology topic in Y 8 and builds on the concepts taught in the Biological Reactions and Body Systems topics. The concepts of components in the blood – role of white blood cells and reproduction will be built upon. These key concepts are also revisited in GCSE and therefore learning the concepts now gives them prior exposure to aid the transition to KS4.
Careers	Wide variety of application in the biological sciences.
Diversity and Inclusion	Examples of genetic diseases from different cultural groups e.g. sickle cell anaemia and thalassemia common in African Americans and Hispanics but can be found in other ethnic groups, Haemochromatosis common in Northern European countries. **Dame Elizabeth Anionwu – 1947 – Present.** Began working for the NHS at 16. Helped set up the first nurse-led sickle cell and thalassaemia screening and counselling centre. This led to the nationwide screening of babies. Discussion of the benefits of a mixed-race population - mixing up the gene pool in relation to genetic diseases. Could also link this to natural selection and the evolution of man.
Additional Support	Learning checklist and key terminology are highlighted throughout. Online textbook via Kerboodle includes working scientifically, glossary and literacy support. Adaptive teaching in the classroom supports all learners.

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Challenge	Stretch challenge question on end of topic test. Stretch and challenge question sheet.