Medical Science Diploma Course Information

Course Overview

- **Exam Board** – WJEC
- **Usual Age Range** – 16 to 19
- **Qualification** – One Diploma which is equivalent to one A-level studied over the two-year course. Some students studying Medical Science aiming for a career in medicine may study Medical Science as a fourth subject and complete the Certificate equivalent to one AS-level in one year. Please note that students wishing to study medicine at university must study three A-levels in addition to this course.
- **Curriculum Time** – Five 50-minute lessons per week in class plus work in Independent Learning Time
- **Assessment** – this curriculum is assessed via:
    - One 2-hour examination taken at the end of the two-year course
    - One 1-hour-30-minute examination taken at the end of the first-year of the course
    - Three non-examination assessment tasks set by the examination board
    - One externally assessed assignment
- **Grading** – Reformed six-point scale of A*, A, B, C, D, E.
- **Full specification** - https://www.wjec.co.uk/media/kbwp3f2u/level-3-diploma-in-medical-science-specification-2018.pdf

Curriculum Intent

The **intent** of the Medical Science curriculum is to give UTC students an opportunity to develop their understanding of the principles of human physiology and the normal function of the human body as well as how disease occurs but can also be prevented. The intent is to ensure students have useful knowledge, understanding and skills that can be applied to healthcare, medical science and clinical research scenarios in their future career and of particular use to students considering entering a healthcare science career.

The further intent of the Curriculum is to give students useful technical skills related to medical science such as the ability to use physiological measurement equipment, conduct clinical laboratory tests and accurately record and present results.

Students are encouraged to develop their **love of reading** when studying Medical Science. There are many instances whereby students need to read and comprehend scientific texts which they will need to evaluate and draw inferences from.

Students are encouraged to develop their **numeracy** on this course by learning and practising methods of recording and processing data that is included in reports and assignments.

Suggested next step **destinations** after completion include healthcare science apprenticeships or university courses which involve clinical and healthcare science.

Related **careers** include working in biomedical science, life sciences, and physiology.

Remote Learning and Revision

Students can communicate with the teacher via the message function on Teams if absent from school and well enough to do some work.

Students will benefit additional study of using:

- WJEC Digital Resources – https://resources.wjec.co.uk/Pages/ResourceByArgs.aspx?subId=59&lvlId=7
- Seneca – https://senecalearning.com/en-GB/blog/a-level-biology-revision/
- Study Guide https://ncbradford.ac.uk/wp-content/uploads/2019/09/WJEC-Medical-Science-SIL-Y11-12.pdf
- Practice Assessments and papers - https://www.wjec.co.uk/qualifications/medical-science-level-3/#tab_pastpapers
- Knowledge organisers: https://resources.wjec.co.uk/Pages/ResourceSingle.aspx?rIid=4874
- Resources: https://resources.wjec.co.uk/Pages/ResourceByArgs.aspx?subId=59&lvlId=0
- *Note – some of these resources are for A level Biology, but are very useful for preparing for the Medical Science course*

Some other useful websites:

- Useful and informative YouTube videos - https://www.youtube.com/playlist?list=PLkocNW0BSuEEMyVUCyaRPVj_cahCvjxAr
- Concise notes - https://www.savemyexams.co.uk/a-level-biology-cie/revision-notes/

Curriculum Overview

The learning in Medical Science is sequenced as follows.

Note: the full Curriculum Plans are available on request to info@nefuturesutc.co.uk

Revision Resources – Click on the following links for further resources for each unit

Year 12

Autumn term 1

Unit 1: Human health and disease

Topic 1: Biological Principles

1. Chemical elements join together to form compounds
2. Membranes and transport
3. Cell structure and organisation
4. Enzymes and biological reactions
5. Nucleic acids and their functions

Autumn Term 2

Unit 1: Human health and disease

Topic 2: Physiological Systems

1. The kidney
2. The musculoskeletal system
3. The nervous system 1
4. The nervous system 2
5. The digestive system
6. The circulatory system
7. The respiratory system
8. The immune system
9. The integumentary system
10. The lymphatic system

Topic 3: External Factors

1. Lifestyle and body systems
2. Lifestyle and health
3. Pathogens and disease
4. Non-infectious disease

Topic 4: Reporting on human health

1. Analyse data
2. Process data
3. Make evidence-based conclusions
4. Report on human health

Spring term 1

Unit 2: Physiological measurement techniques

Topic 5: Physiological tests

1. Cardiac physiology
2. Respiratory physiology
3. Neurophysiology
4. Audiology and ophthalmic imaging
5. Gastrointestinal physiology
6. Urodynamics and vascular function

Topic 6: Dealing with patients

1. Patient conduct
2. Patient confidentiality

Spring term 2

Unit 2: Physiological measurement techniques

Topic 7: Carrying out physiological measurement

1. Plan to perform physiological measurement tests
2. Use physiological testing equipment
3. Record results from physiological tests

Topic 8: Report on physiological measurement tests

1. Process data from physiological measurement tests
2. Make conclusions from physiological measurement tests
3. Evaluate information from physiological measurement tests
4. Communicate in writing

Summer term 1

Unit 3: Medical Science research methods

Topic 9: Understand research methods

1. Describe variables affecting research
2. Justify research hypotheses
3. Justify sampling methods
4. Explain the selection of research methods
5. Evaluate ethical issues affecting research

Topic 10: Collecting data

1. Plan to collect data
2. Produce data capture documents
3. Obtain data

Summer term 2

Unit 3: Medical Science research methods

Topic 11: Analysing data

1. Explain the significance of data analysis terms
2. Explain the selection of statistical methods

Topic 12: Processing data

1. Analyse data using statistical methods
2. Make conclusions about data
3. Evaluate procedures
4. Use mathematical notation

Topic 13: communicating information

1. Present data visually
2. Communicate the outcomes of research

Year 13

Autumn term 1

Unit 4: Medicines and treatment of disease	Unit 5: Clinical Laboratory techniques
Topic 14: Medicines and treatment of disease 1. Factors affecting prescription of medicines 2. Strategies to improve adherence 3. Administration of medicines	*Topic 18: Understand clinical testing* 1. Biochemical tests 2. Assays 3. Spectrophotometry, Nephelometry, Turbidimetry, Haematology 4. Histopathology 5. Structure and growth of microorganisms 6. Total cell counts and viable cell counts 7. Genetic techniques

Autumn term 2

Unit 4: Medicines and treatment of disease	Unit 5: Clinical Laboratory techniques
Topic 15: 15 Understand how medicines work 1. The molecular basis of action of medicines 2. The effect of medicines on the body 3. The effect of medicine son causative agents of disease 4. The loss of effectiveness of medicines	*Topic 19: Be able to carry out clinical laboratory techniques* 1. Plan clinical laboratory tests 2. Assess biological samples using clinical laboratory tests 3. Record results from clinical lab tests 4.

Spring term 1

Unit 4: Medicines and treatment of disease	Unit 5: Clinical Laboratory techniques
Topic 15: 15 Understand how medicines work 1. The interaction of medicines 2. The distribution of medicines in the body 3. Adverse reactions to medicines 4. The fate of medicines in the body	*Topic 20: Be able to process data from clinical tests* 1. Use graphs to process data 2. Use numerical methods to process data 3. Interpret data from clinical tests 4. Communicate information to an audience

Spring term 2

Unit 4: Medicines and treatment of disease	Unit 6: Synoptic Medical case Study
Topic 16: Understand the principles and treatment of cancer 1. What is cancer? 2. The genetic basis of cancer 3. Treating cancer 4. The impact of new cancer treatments *Topic 17: Be able to provide information about medicines* 1. Communicate information to an audience 2. Justify approaches to communicating information 3. Work as part of a team	*Topic 21: Understand physiological information presented within case studies* 1. Assessment criteria from unit 1 *Topic 22: Understand how physiological measurement techniques can be used to support diagnosis and treatment* 1. Assessment criteria from unit 2 2. Use the knowledge and understanding gained from unit 2 to recommend ways in which physiological measurement techniques can be used in the particular case study situation. *Topic 23: Understand how medical research can help support diagnosis and treatment* 1. Assessment criteria from unit 3 *Topic 24: Understand ways in which medical treatments can be used to treat diseases and disorders* 1. Assessment criteria from unit 4 2. Use the knowledge and understanding gained from unit 4 to recommend ways in which medical treatments, including medicines can be used to treat diseases and disorders. *Topic 25: Understand ways in which clinical measurement techniques can be used to support diagnosis and treatment* 1. Assessment criteria from unit 5