

Secondary Science Scheme of Work Proforma:

Module title / topic ____ BTEC – p4 to p7 (Genetics)_____ **Duration of scheme** ____two weeks__(4lessons)_____

Year Group ____10_____ **Set (if applicable)** ____B1_____

| Title | Learning Objectives | Learning Outcomes | NC ref. | Suggested Activities | Resources | Health & Safety | Links to Other Areas – Numeracy, Literacy, ICT and SMCS | Assessment | H/work |
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| <p>DNA, chromosomes, genes and inherited diseases.</p> | <p>Students will learn...</p> <ul style="list-style-type: none"> - to describe the relationship between chromosomes, DNA and genes. <p>Some students will learn...</p> <ul style="list-style-type: none"> - to describe (using examples) how variation within a species brings about evolutionary change. -to explain how genes can control variation within a species using a simple coded message. | <p>Students will be able...</p> <ul style="list-style-type: none"> -to understand that DNA is all the genetic information inside the human body. -to describe a gene as a section of chromosome containing the DNA code that control one characteristic. -to put hands on building models that describes DNA structure, identifying, genes, chromosomes as well all the process involved in carrying the genetic code by DNA. | <p>BTEC 1st diploma in Applied Science, Biological systems. Genetics (P4 to P7)</p> | <p>Task 1</p> <ul style="list-style-type: none"> - To pass pupils need to make models of DNA highlighting regions representing genes and make models of a pair of chromosomes. Pupils will take pictures of each model and stick into each individual portfolio. - To obtain merits pupils will use the pictures of the models in a flow diagram/chart showing the progression from a cell to a gene and write descriptions'. - To gain distinction pupils will use all the information made on task 1 and produce at home or school a power point making a summary about how genes can be shuffled during sexual reproduction. | <ul style="list-style-type: none"> -Computer -felt tips -digital camera -sugar paper -colour sheets -scissors -glue stick -candies -flip charts | <p>No lab practical activity but pupils will have one or two lessons outside the room (check risk assessment).</p> <p>Lessons totally safe for pupils.</p> | <p>Lesson will cross link with ICT, visual aids, literacy knowledge as well students will develop the ability of putting hands on in practical activities.</p> | <p>1st week will be used to get know pupils main difficulties assessing what they know about the topic as well being aware of some misconceptions.</p> <p>Develop strategies to work with BTEC students increasing the possibility of achieving merits and distinctions'.</p> | <p>No homework for this lesson.</p> |

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| <p>DNA, chromosomes, genes and inherited diseases.</p> | <p>Students will learn...</p> <ul style="list-style-type: none"> - to identify examples of inherited conditions and diseases. <p>Some students will learn...</p> <ul style="list-style-type: none"> - to explain mechanisms by which these conditions and diseases are inherited. -to investigate and describe the effectiveness of gene therapy to prevent inherited conditions and diseases. | <p>Students will be able...</p> <ul style="list-style-type: none"> - to understand that some diseases are inherited by a mechanism called monohybrid inheritance. - to explain and carry on an investigation about the conditions of some inherited diseases like multiple sclerosis, cystic fibrosis etc. | <p>BTEC 1st diploma in Applied Science, Biological systems. Genetics (P6 to P7)</p> | <p>Task 2</p> <ul style="list-style-type: none"> - To pass pupils need to use the internet to find information on two genetic disorders. Students need to choose an example and produce a poem that describes each condition. -To gain merit pupils need to focus on an example of an inherited disease by making a poster presentation explaining the effects in human body. - Distinction will be achieved by pupils that can make an investigation, describing gene therapy to prevent genetic diseases. | <p>Computer Books Video Felt tips A3 sheets Newspaper Glue stick scissors</p> | <p>No lab practical activity but pupils will have one or two lessons outside the room (check risk assessment).</p> <p>Lessons totally safe for pupils.</p> | <p>Lesson will cross link with ICT and literacy knowledge. Pupils will make self assessment to develop critical thinking skills about their own work.</p> | <p>I will assess pupils' tasks and pupils work to improve their portfolio.</p> | <p>Pupils will make a simple research about inherited diseases.</p> |
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