

# **BTEC First Biology**

**Principles of Applied Science**

**Exam Wednesday 4th March**

**This powerpoint is an accompaniment to the BTEC study guide and best used with the book.**

# Unit 1 Exam

Unit 1 is worth 25% of the total marks

Coursework (units 2,3,&4 are worth the other 75%)

## Exam Tips

- (1) Make sure you read all the information given to you in the question
- (2) Look at the number of marks on offer to give you an idea of how much to write
- (3) If you are asked to calculate something make sure you show your working.
- (4) Make sure you understand what the question is asking you to do.

# Types of Exam Question

**Describe** - Write about what something is like.

**Explain** - Say how or why something happens.

**Calculate** - Do some maths. Show your working and give your answer with the right units.

**Name/Give** - Give a one or two word answer, or a short sentence.

**Suggest**- Use what you know to work out the answer.

# Cells, Tissues and Organs

Pages  
4-5

- 1. Draw and label an Animal Cell.**
- 2. Explain the function of the cell membrane and cytoplasm.**
- 3. Compare the function of the nucleus and mitochondria.**
- 4. Draw and label a Plant cell.**
- 5. Explain the function of the vacuole, cell wall and chloroplasts.**
- 6. Describe how an organ system is made.**

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 5.**

**Extension Task 2: Answer the questions on page 6&7.**

# Animal Cells

Pages  
8-9

1. Describe the role of a Neurone.
2. Explain how sensory and motor neurones are different.
3. Compare red and white blood cells.
4. Explain how red blood cells are adapted for their function.
5. Explain what is meant by the term fertilisation.
6. Compare sperm and egg cells.

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 9.**

**Extension Task 2: Answer the questions on page 10&11.**

# Plant Cells & Structures

Pages  
12-13

- 1. Describe the role of a plants roots.**
- 2. Explain (with a diagram ) how root hair cells are adapted to their function.**
- 3. Describe how poem are adapted for the movement of glucose in a plant.**
- 4. Explain how Xylem tubes are adapted for the movement of water in a plant.**
- 5. Suggest how leaves are adapted for photosynthesis.**
- 6. Explain what is meant by the transpiration stream and why it is necessary.**

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 13.**

**Extension Task 2: Answer the questions on page 14&15.**

# Genes, Chromosomes & DNA

Pages  
16-17

- 1. Describe where we find DNA in the body (use a diagram).**
- 2. Give the definition of a double helix.**
- 3. Explain what is special about the bases in DNA.**
- 4. Explain what alleles are and why we have 2 for each gene.**
- 5. Explain how our characteristics are controlled by our genes.**
- 6. Suggest why we can tell someones phenotype but not their genotype.**

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 17.**

**Extension Task 2: Answer the questions on page 18-19.**

# Genetic Diagrams

Pages  
20-21

1. Explain how genetic diagrams show the potential offspring a couple can have.
2. Draw a punnet square for a male Nn and female NN.
3. Suggest why the % of any phenotype are always 0,25, 50, 75 or 100%.
4. Describe what information can be obtained from a family tree diagram.
5. Explain what is meant by the term pedigree analysis.
6. If men are XY and females are XX suggest why half of all children are men and half female.

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 21.**

**Extension Task 2: Answer the questions on page 22-23.**

# Genetic Mutations

Pages  
24-25

1. What is meant by the term mutation.
2. Explain how a gene mutation can occur.
3. Describe why mutations can be useful.
4. Suggest why a mutation that gives a rabbit long legs might be useful.
5. Explain why mutations may be harmful.
6. Suggest why genetic diseases such as Cystic Fibrosis occur without parents having the disease.

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 25.**

**Extension Task 2: Answer the questions on page 26&27.**

# The Nervous System

Pages  
28-29

1. Give the name of four receptors and explain what they do.
2. Draw a simple diagram of the nervous system and label the parts.
3. Explain how the brain responds to a stimulus such as pain.
4. What is a voluntary response?
5. Suggest why some reflexes need to be automatic and not voluntary.
6. Explain what happens at a synapse to pass along a signal (diagram needed).

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 29.**

**Extension Task 2: Answer the questions on page 30-31.**

# Hormones

Pages  
32-33

1. What are hormones?
2. How do hormones work?
3. Compare nerves and hormones.
4. Explain how we control our blood sugar level.
5. What is insulin used for?
6. What is glucagon used for?

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 33.**

**Extension Task 2: Answer the questions on page 34-35.**

# Homeostasis

Pages  
36-37

- 1. Describe what is meant by the term homeostasis.**
- 2. Describe what is meant by body temperature regulation.**
- 3. Explain how our body cools us down when we are too hot.**
- 4. Explain how our body warms us up when we are too cold.**
- 5. Suggest why people turn red when they are too hot.**
- 6. Suggest why animals in the arctic have thicker fur.**

Answer these questions using full sentences in your book.

Each sentence must have a capital letter and a full stop.

Diagrams must be done with a sharp pencil and using a ruler.

**Extension Task 1: Answer the practice questions on page 37.**

**Extension Task 2: Answer the questions on page 38-39.**