Name: .....

Date: .....

Class: .....

IGCSE BIOLOGY EDEXCEL 9-1

CHAPTER WORKBOOK

CELL DIVISION

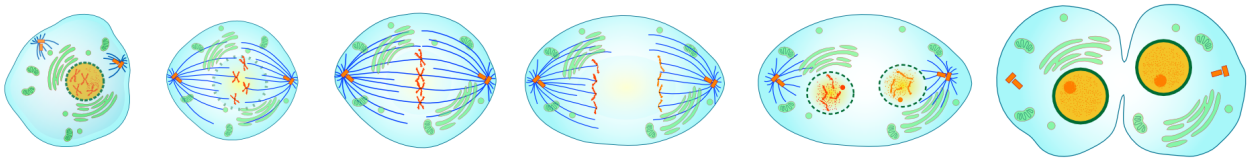

Image: pixabay.com

Mitosis

1. Complete the sentences below.

same	division	two	replicate
daughter cells		seperate	identical

Mitosis is a form of cell ..... that produces .... that are genetically ..... to the parent cell. For every one parent cell, ... new cells are produced. The number of chromosomes in each daughter cell is the ..... as the number in the parent cell. In order for this to happen, the DNA in the parent cell has to ....., giving two copies of each chromosome. These two sets of chromosomes ..... when the cell divides.

2. Outline reasons why mitosis is necessary. Using the headings below to guide your answers.

Growth

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Repair

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Asexual Reproduction

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3. Cloning involves producing new organisms identical to a parent via asexual reproduction. Explain why cloning of plants might be advantageous human.

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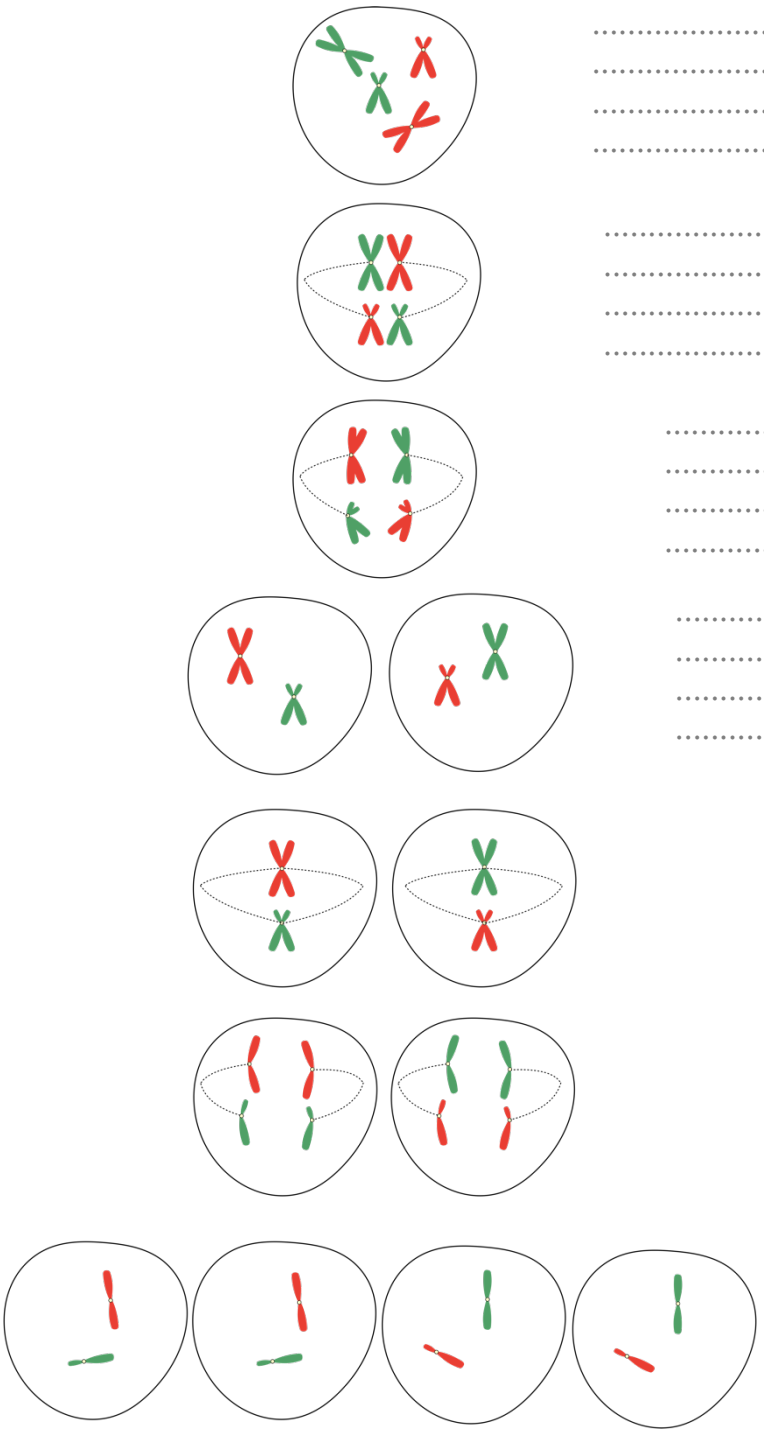
3. In the boxes draw diagrams to show the stages of mitosis and add a description. You should include the nucleus (where necessary), chromosomes and spindle fibres. The cells of the organism in your diagram should have 2 sets of chromosomes (diploid number = 4).

Prophase	…… …… …… …… ……
Metaphase	…… …… …… …… ……
Anaphase	…… …… …… …… ……
Telophase	…… …… …… …… ……

Meiosis

1. The diagram below shows cells during meiosis (the nucleus/nuclear membrane is not shown here for simplicity). This cell has 2 sets of chromosomes (diploid number = 4). Add descriptions to the diagram below to summarize meiosis.



Reproduction and Variation

1. Complete the sentences about meiosis.

Meiosis is a type of cell division that produces ....., such as egg cells and sperm cells. It produces ..... new cells from one single parent. The parent cell is ....., meaning it has two sets of each chromosome, but the four new cells are ....., meaning they only have one set. Each of the new cells are genetically ..... from each other.

2. Explain why sexual reproduction results in variation within the population.

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3. Twins are two people born from the same parent at the same time.
Write a "T" or "F" to show whether the statements below are true or false.

Statement	True or False
Identical twins are known as "monozygotic" twins.	
Identical twins both originate from the fusion of the same egg and sperm cells.	
Identical twins originate from two sperm cells fusing with a single egg cell.	
Identical twins each have identical DNA.	

4. Genetically identical twins may not appear entirely identical. In terms of environmental factors explain why this is the case. Use examples to support your answer.

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