

Unit 9 – Cell Division

B2.1C

Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.

B2.1d Describe how, through cell division, cells can become specialized for specific function.

B3.5d

Describe different reproductive strategies employed by various organisms and explain their advantages and disadvantages.

B4.2A

Show that when mutations occur in sex cells, they can be passed on to offspring (inherited mutations), but if they occur in other cells, they can be passed on to descendant cells only (non-inherited mutations).

B4.3A

Compare and contrast the processes of cell division (mitosis and meiosis), particularly as those processes relate to production of new cells and to passing on genetic information between generations.

B4.3A.a I can use diagrams to explain how the process of mitosis produces body cells.

B4.3A.b I can use diagrams to explain how the process of meiosis produces sex cells.

B4.3A.c I can use pictures and diagrams to differentiate between the processes of mitosis and meiosis.

B4.3B

Explain why only mutations occurring in gametes (sex cells) can be passed on to offspring.

B4.3C

Explain how it might be possible to identify genetic defects from just a karyotype of a few cells.

B4.3d

Explain that the sorting and recombination of genes in sexual reproduction result in a great variety of possible gene combinations from the offspring of two parents.

B4.3e

Recognize that genetic variation can occur from such processes as crossing over, jumping genes, and deletion and duplication of genes.

B4.3f

Predict how mutations may be transferred to progeny.

B4.4b

Explain that gene mutation in a cell can result in uncontrolled cell division called cancer. Also know that exposure of cells to certain chemicals and radiation increases mutations and thus increases the chance of cancer.

B4.3g

Explain that cellular differentiation results from gene expression and/or environmental influence (e.g., metamorphosis, nutrition).