

2.4 CHANGES TO A CELL'S DNA

The genetic code is recorded in _____ in a long series of nitrogenous bases (_____)

We also know that a certain section of DNA that codes for one _____ is called a _____.

Recall that the DNA is translated into _____ so the message can leave the _____ and reach the _____. Then the _____ is "read" 3 letters at a time. Different 3 letter combinations code for different_____.

But what if there is a mistake when DNA is being replicated in late interphase?

A change in the DNA of a cell is called a _____.

_____ can have 3 possible outcomes: _____, _____, or _____.

Remember, even a one letter difference can have a massive effect. (examples)

A substance that causes mutations in DNA is called a _____. If the mutation causes cancer, then the substance is called a _____.

But what is cancer? It is a rapid and uncontrollable replication

of cells. These cancer cells are _____ and tend to be rather _____.

How does this happen?

Remember the cell cycle (of course!)? As a cell progresses through the cell cycle, there are _____ that “check it out” to make sure the cell is healthy. This way your body can _____ or _____ any cells that aren’t made correctly. These checkpoint proteins usually kick in between _____ and _____, mitosis and cytokinesis, and _____ and _____.

The instructions for the checkpoint proteins are coded in DNA. If there is a mutation in the part of your DNA that codes for the checkpoint proteins, then any mistake in your new cells will go unregulated. The “broken” cells will pass on the mistake to the daughter cells and pretty soon you have a whole lot of damaged cells. These are _____ cells.

Pretty soon you have a large mass of unexpected cells. These large masses are called _____. There are two main types of _____:

_____ : a mass of cells that grows but usually stays in one place (example: _____). These are NOT cancerous and usually don’t cause any problems.

_____ : a mass of cells that grows and invades surrounding tissue, interfering with normal tissue function. These ARE cancer cells.

Cancer cells begin by staying in one place in your body. However, sometimes these cells _____ the tumour and get into the bloodstream. From there they can be

transported to almost anywhere in your body and start a new tumour. When cancer cells spread in this way we call it

_____.

Discovering and treating cancer before the cells

_____ is key in surviving cancer.

We are still learning how to treat cancer. Two common methods are _____ treatment (where we blast the

cancerous cells with _____, destroying them) and

_____ (where we use _____ to kill the cancerous cells). The problem is these treatments also kill normal healthy cells and can be very destructive to the patient.

The good news is that B.C. is on the cutting edge of cancer research.