

2.5 DNA and Proteins

DNA is a major macromolecule (macro = _____) found in living things. Most macromolecules (_____, _____, _____) are made up of many basic building block units.

The basic unit of DNA is called a _____. It contains a _____, a _____, and a _____.
_____ (PO₄) _____ (deoxyribose)
_____ (contains nitrogen)

There are 4 main types of nitrogenous bases in DNA. Their names are _____ (A) _____ (T)
_____ (G) and _____ (C)

Remember that DNA is _____. You may have heard it being compared to a _____.

In order for DNA to replicate, the two strands _____ and each strand makes a copy of the opposite strand.

But how does the DNA know what the other strand looks like?

The answer is because each nitrogenous base has a “pair” or “opposite” base. _____ ALWAYS matches up with

_____ and _____ ALWAYS matches up with _____. (show example)

The reason DNA is considered a “blueprint” is because it has the code to build all of the many _____ that make up living things. But there is a big problem: DNA is

_____ to leave the nucleus and the _____

(protein factories) are located _____ the nucleus (the ones in the nucleolus are still being made and aren’t usually functional, plus the raw materials for proteins are also

_____ the nucleus). The answer to this is to make a

_____ copy of DNA. This copy is called _____.

DNA is “read” by looking at _____ combinations. These

_____ combinations can tell the ribosome to “Start” making the protein, “Stop” making the protein, or to add to the protein by using one of 20 different building blocks of proteins, amino acids

DNA → made of _____

Proteins → made of _____

Note that there are more 3 letter combinations than the 20 amino acids. That means one amino acid can have more than 1 three letter code.

A section of DNA that codes for one protein is called a_____.

A collection of all an organisms _____ (all of it's DNA)
is called a _____.

There is a lot of similarity between organisms. Almost all of
the DNA found in the bacteria E. coli is also found in human
DNA. Humans and chimpanzees share _____ of their DNA
(that _____ makes a big difference!)

But you also know there is a lot of variation, even among
humans. There are frequently more than one version of each
gene within a single species. These different versions of “the
same thing” are called_____. Eye colour is controlled
by several genes and comes in more than 2 varieties while
something like “hitchhiker thumb” is controlled by one gene
and has only two versions.