

## Transcription Worksheet

### The central dogma of molecular biology states:

1. DNA replicates. \_\_\_\_\_
2. DNA codes for the production of mRNA. \_\_\_\_\_
3. mRNA migrates from the nucleus to the cytoplasm.
4. MRNA carries coded information to the ribosomes. Ribosomes create proteins. \_\_\_\_\_

DNA codes for proteins.

### DNA vs. RNA (Compare and contrast DNA and RNA):

#### Translation

Objective:

The three essential stages are;

- 1.
- 2.
- 3.

#### Stage 1: Initiation

1. \_\_\_\_\_ binds to the \_\_\_\_\_ or the \_\_\_\_\_ and opens up the double helix.
2. \_\_\_\_\_ binds to the \_\_\_\_\_ as it contains many \_\_\_\_\_ and \_\_\_\_\_ bases. They only have two \_\_\_\_\_ which makes it easier to break the double helix.

#### Stage 2: Elongation

1. On the \_\_\_\_\_ of DNA, RNA polymerase builds mRNA in the \_\_\_\_\_ direction. The \_\_\_\_\_ is not transcribed.
2. The \_\_\_\_\_ is the unused strand of DNA.
3. No RNA primers are required to start the process unlike DNA replication.

#### Stage 3: Termination

1. A \_\_\_\_\_ is encountered and recognized by the RNA polymerase at the end of the gene.
2. The \_\_\_\_\_ of mRNA is removed from the \_\_\_\_\_.
3. The process is repeated when \_\_\_\_\_ binds to another \_\_\_\_\_ and begins \_\_\_\_\_ another gene.

Before leaving the nucleus, some modifications are made to protect the mRNA in the cytoplasm.

A \_\_\_\_\_ is added to protect it from \_\_\_\_\_ and to tell ribosomes to initiate \_\_\_\_\_.

The \_\_\_\_\_ is added to protect the mRNA from \_\_\_\_\_. It is a tail of \_\_\_\_\_ nucleotides. It is added by \_\_\_\_\_.

Genes are made out of two components; \_\_\_\_\_ and \_\_\_\_\_.

\_\_\_\_\_ are the coding regions, the part that is going to be translated into a protein.

\_\_\_\_\_ are the non coding regions.

\_\_\_\_\_ removes the \_\_\_\_\_ from the mRNA.

After all of this you are left with a \_\_\_\_\_.