NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DATE\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SB2 Students will analyze how biological traits are passed on to successive generations.

1. Distinguish between DNA and RNA
2. Explain the role of DNA in storing and transmitting cellular information.

Put all of these notes into a packet☺ This sheet will go after your notes comparing DNA and RNA.

Use the regular biology book.

1. Copy figure 8.10 on page 239.

Using DNA to make PROTEIN – Step by step

***REPLICATION*** (happens first)

* 1. Replication occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a eukaryotic cell.
  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the enzyme responsible for bonding DNA nucleotide together. Enzymes are biological \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as well as examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Enzymes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the activation energy which allow the reaction to occur \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  3. Summarize the steps of REPLICATION, draw a picture to illustrate what is happening at each step:
     1. First
     2. Second
     3. Third
  4. Complimentary base practice. Complete the complimentary DNA base pairs for the following DNA sequence.
     1. TACGGGCCCATGCCCAATTACCTAG

***TRANSCRIPTION*** (the actual first step of Protein Synthesis)

1. Transcription occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of eukaryotic cells. The process of transcription uses the DNA template to make a strand of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which can leave the nucleus.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the enzyme involved with bonding RNA nucleotides together.
3. Transcription produces three types of RNA. Write the function of each type of RNA.
   1. \_\_\_\_\_\_\_\_\_\_\_\_(mRNA) -
   2. \_\_\_\_\_\_\_\_\_\_\_\_(rRNA) -
   3. \_\_\_\_\_\_\_\_\_\_\_\_(tRNA) -
4. Summarize the steps of TRANSCRIPTION, draw a picture to illustrate what is happening at each step:
   * 1. First
     2. Second
     3. Third
5. Nitrogen base pair rules for transcription

|  |  |
| --- | --- |
| If your DNA nitrogen base is | Then your RNA complimentary nitrogen base will be |
| A |  |
| T |  |
| C |  |
| G |  |

1. Complimentary base practice. Complete the complimentary RNA base pairs for the following DNA sequence.
   * 1. TACGGGCCCATGCCCAATTACCTAG
2. Explain why transcription occurs in the nucleus of eukaryotes.

TRANSLATION – (the second and final step of protein synthesis)

The process of using the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strand as the instructions to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The process of translation occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which is the location of protein synthesis.

Define the following terms:

* mRNA
* ribosome
* rRNA
* codon
  + start codon
  + stop codons
* tRNA
* anitcodon
* amino acid
* polypeptide

Diagrams and Descriptions of Translation

Step 1 –

Step 2 –

Step 3 –

