RNA Worksheet

Objectives: • Learn transcription and translation

Structure of RNA
1. The sugar in a nucleotide of RNA is ___________________.
2. The pyrimidine bases are ________________ and ________________.
3. The purine bases are __________________ and _________________.
4. In complimentary base pairing, _____ bonds with _____ and _____ bonds with _____.
5. RNA is a ____________-stranded polymer.
6. There are __________ types of RNA each with its only function.

Comparison of Nucleic Acids
7. The five-carbon sugar in RNA is ___________________ whereas in DNA it is _________________.
8. In RNA the base __________________ is substituted for ___________________.
9. DNA molecules are double stranded and RNA molecules are ________________ stranded.
10. In terms of length, DNA molecules are much _______________ than RNA molecules.
11. DNA is only found in the ________________ of a cell.

Transcription
12. Making a messenger RNA using DNA as a template is called _________________.
13. In the cytoplasm, mRNA delivers the code to the _________________.
14. To the right, construct a messenger RNA molecule from a DNA strand. Use the correct complimentary base pairing. Use colored pencils to show the DNA and mRNA strands.
   - Only one side of the DNA molecule is copied during transcription
   - Remember that there is no thymine in RNA. You must substitute uracil.

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<tr>
<th>DNA Strand</th>
<th>DNA</th>
<th>mRNA</th>
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<tbody>
<tr>
<td>Strand 1</td>
<td>A – T</td>
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<tr>
<td>Strand 2</td>
<td>C – G</td>
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<tr>
<td>Strand 1</td>
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</tbody>
</table>
Messenger RNA

15. mRNA stands for ________________________________.

16. mRNA has the code for making ____________________

17. mRNA is produced in the _________________________

18. Draw a labeled diagram of an mRNA strand

Transfer RNA

19. tRNA stands for ________________________________.

20. tRNA carry __________________________ from the cytoplasm to the ribosomes.

21. One end of the tRNA is specific for a single type of _________________________________

22. The other end of the tRNA contains three unpaired bases called an ______________

23. Draw a labeled diagram of the “cloverleaf” shape of a tRNA

Ribosomal RNA

24. rRNA stands for ________________________________.

25. rRNA forms ____________________ which are the sites of protein synthesis.

26. rRNA is produced in the ________________ of the cell.

27. Draw a labeled diagram of a ribosome