What is the biological function of DNA?
To store genetic information.

What is the biological function of RNA?
To carry and transfer the genetic information in DNA to the ribosomes.

What is the biological function of a ribosome?
To build proteins.

What are ribosomes made from?
Ribosomes are complexes of RNA and proteins.

DNA exists as a double helix structure. How does a molecule of RNA exist?
RNA molecules exist as a short, single strand of polynucleotide. They fold and pair up with themselves, unlike DNA.

Using your knowledge of base pairing, complete the following:

| DNA Strand 1 | A | A | G | T | C | C | C |
| DNA Strand 2 | T | T | C | A | G | G | G |

Now consider that DNA Strand 1 is bound to a strand of RNA. Complete the following:

| DNA Strand 1 | A | A | G | T | C | C | C |
| RNA Strand 1  | U | U | C | A | G | G | G |

In another DNA strand, the percentage of adenine is known to be 17%. Use your knowledge of base pairing to calculate the frequency of each other base:

<table>
<thead>
<tr>
<th>Base</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenine</td>
<td>17%</td>
</tr>
<tr>
<td>Cytosine</td>
<td>33%</td>
</tr>
<tr>
<td>Guanine</td>
<td>33%</td>
</tr>
<tr>
<td>Thymine</td>
<td>17%</td>
</tr>
</tbody>
</table>

DNA and RNA are both types of nucleic acids. They are also known as polynucleotides. Explain why:

DNA and RNA are both made from a monomer subunit called a nucleotide. Polynucleotides are polymer chains of these nucleotide subunits.

DNA exists as a double helix structure. Explain why the two DNA strands involved are said to be complementary:
Because the DNA bases on one strand match up to the DNA bases on another. Adenine will only bond to thymine, and cytosine will only bond to guanine. For a DNA strand to bond to another, the sequence of DNA bases must be exactly complementary.

Which type of bonding joins the two DNA strands together?
Hydrogen bonding between the base pairs on each strand.
Addenine bonds to thymine, and cytosine bonds to guanine.

How does the set of nitrogenous bases differ between DNA and RNA?
DNA uses the four bases: adenine, cytosine, guanine, and thymine.
RNA uses the four bases: adenine, cytosine, guanine, and uracil. Thymine has been replaced by uracil.

When RNA binds to DNA, which base pairs up with uracil?
Adenine