Cell cycle:

- Divided into two phases:
  - **Interphase**:
  - **Mitotic phases**:
    - **Karyokinesis**:
      - 4 Phases involved: 1) 2) 3) 4)
    - **Cytokinesis**:

What do the initials DNA stand for?

Chromatin:

Chromosomes:

**Brief review of DNA & RNA structure:**
DNA is a polymer of?

**Components of a nucleotide:**

a) 

b) 

c)  

**Base pairing of nitrogenous bases (Chargaff’s Rule):**

<table>
<thead>
<tr>
<th>Purines</th>
<th>Pyrimidines</th>
<th>Base pairs</th>
<th># of H-bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenine (A)</td>
<td>Thymine (T)</td>
<td>A = T</td>
<td></td>
</tr>
<tr>
<td>Guanine (G)</td>
<td>Cytosine (C)</td>
<td>G = C</td>
<td></td>
</tr>
</tbody>
</table>

Adenine comprises 20% of the nitrogenous bases in the DNA of a particular organism. What percentage does cytosine comprise?
RNA is a polymer of?

Components of a nucleotide:
a) 

b) 

c) 

Which nitrogenous base is only found in RNA?

Which nitrogenous base is only found in DNA?

Which nitrogenous bases are found in both DNA and RNA?

DNA structure:
Double helix - shaped like a ladder

a) Backbone (legs) of the ladder composed of:

b) Rungs of the ladder composed of:

Double helix: 2 nm, suggested 2 strands

Why would a cell undergo DNA replication?

What phase of the cell cycle does DNA replication take place?

DNA Replication (synthesis):
Overview:
**Origins of replication:**

Eukaryotes: thousands of replication bubbles

Why?

**Enzymes involved in DNA replication:**

- helicase, single strand binding protein, primase:

- DNA polymerase:
  a)
  b)
  c)
  d)

- DNA ligase:

**Semi-conservative model for DNA Replication:**
Watson & Crick suggested & Messelson & Stahl confirmed:

 ![Diagram of DNA replication](image)

**Proofreading:**

**DNA Repair:**
Damage to DNA through:

Excision repair: