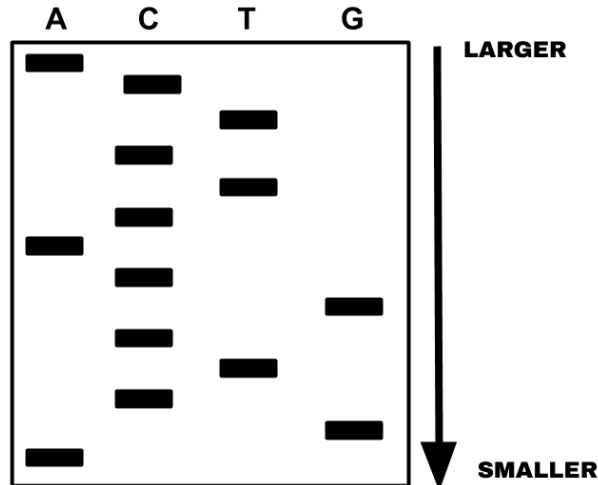


Molecular Genetics Review

DNA can be digested using restriction enzymes that 'cut' a DNA strand after specific nucleotide. These small DNA fragments are then loaded onto an agar gel and an electric current is passed through the gel. Since DNA Fragments have charged ends, the fragments pass from one side of the gel to another, and are sorted by size.

DNA fingerprints are created this way, that can be used to identify specific species (barcoding), crime suspects, missing persons, etc.

1. What are the functional groups that would be found at the ends of these DNA fragments?



2. DNA gels are read by reading the largest segments first. What would the DNA sequence be for the gel shown above?
3. Assuming that this segment is the CODING strand of DNA, what would the TEMPLATE strand be for this segment?
4. Take this gene segment through transcription and write out the sequence that would result.
5. If this gene segment were in a eukaryotic cell, what would occur to the mRNA after transcription?
6. Take the gene segment through translation.
7. Show the effects of a POINT MUTATION on the original DNA Sequence if the 6th nucleotide was changed to ADENINE.