Introductory Genomics
Bacterial Genomics - a simple circle?

- **Bacillus thuringiensis**
  - one c/s 5.7 Mb
  - 6 plasmids each >50 kb totaling 1.2 Mb

- **E. coli**
A short history of the HGP

1953 W&C DNA structure
1972 Paul Berg first recombinant molecule
1977 M&G and Sanger DNA sequencing
1985 Kary Mullis PCR
1986 1st public mooting of project, later money
    Leroy Hood & Lloyd Smith automated sequencer
1987 WUMS YACs
    Helen Donis-Keller 1st map
    Du Pont fluorescent dyes
1988 BIG money
    Trials on smaller genomes
Brief description of how genomes are studied
Bacterial cell

Extract DNA

Sonicate

DNA fragments of various sizes

Purify DNA from gel

DNA fragments 1.6-2.0 kb

Prepare a clone library

Sequence ends of inserts

Assemble sequence into contigs

Agarose gel electrophoresis

Figure 6.10 The way in which the shotgun approach was used to obtain the DNA sequence of the Haemophilus influenzae genome.
• Average gene is 3000 bp
• Biggest gene 2.4 million bp
• 2-3% encode genes
• Approx 97% non-coding
• 98% identical to chimp!