Biology Essay : How bacteria can affect the lives of humans and other organisms

Bacteria are a form of microorganisms and these can have huge impacts on the lives of humans and other organisms. Firstly bacteria are a form of pathogens, pathogens are microorganisms that cause disease. Bacteria specifically can cause damage to organisms as they can produce toxins which can cause damage and lead to the destruction of cells.
However bacteria can enter the body by 2 ways: through the gas exchange system and within the digestive system. Firstly with the gaseous exchange system some examples of bacteria are tuberculosis and bronchitis. Bronchitis is caused by the bacteria Mycoplasma pneumoniae and bronchitis affects the gaseous exchange system as it can lead to the airways becoming inflamed.
Tuberculosis is a lung disease and is caused by mycobacterium tuberculosis and this is spread through the air via liquid droplets by coughing and sneezing and this is a form of resistant bacteria that can survive for several weeks even after it's dried out. This can affect the lives of humans as it can lead to symptoms such as persistent coughs, tiredness and loss of appetite which can lead to weight loss.

Bacteria can also cause damage through the digestive system for example cholera via the mouth. Cholera is a disease which is caused by the 'vibrio cholerae' bacteria and this is spread via drinking unpurified water and contaminated foods and this causes disease as it can cause diarrhoea and affects the small intestines which can lead to significant water loss and cause dehydration.
Another way in which tuberculosis and cholera can impact the lives of people is that it is hard to control the diseases e.g with vaccinations.
It's difficult to use vaccines for cholera because it's an intestinal disease so it isn't easily reached by the immune system so it isn't effective also the antigens of the cholera pathogen rapidly changes its tertiary structure so it's difficult to produce a long lasting, effective vaccine.
With Tuberculosis it's difficult to control with vaccines because the increase in HIV makes them more likely to contract TB also the less effective immune systems of elderly people will mean its less effective to stimulate the immune response.
Another issue to treating disease such as TB is antibiotic resistance and this is where the bacteria has adapted and changed its tertiary structure so its no longer impacted the antibiotics so it can't as a treatment anymore.

However one treatment against the damage caused by bacteria is via bacteriophages. Bacteriophages are viruses that infect bacteria. Like other types of viruses, bacteriophages vary a lot in their shape and undergo 2 processes : The lytic cycle: The phage infects a bacterium, hijacks the bacterium to make lots of phages, and then kills the cell by making it explode (lyse).
The lysogenic cycle: The phage infects a bacterium and inserts its DNA into the bacterial chromosome, allowing the phage DNA (now called a prophage) to be