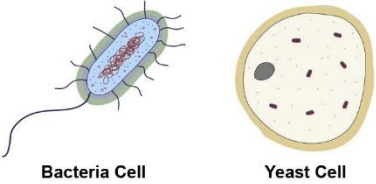


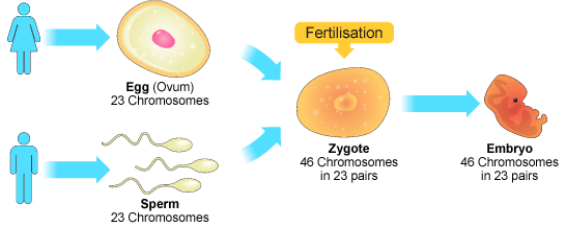
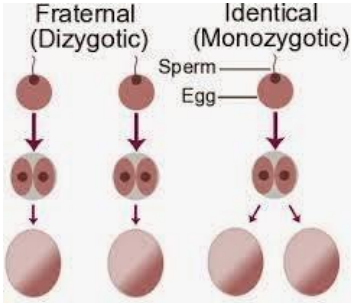
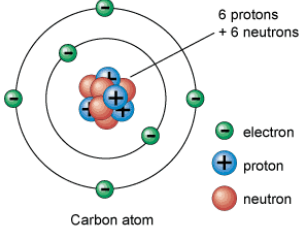


1. Microbes	2. Disease	3. Vaccination
<p>Key ideas</p>  <p>Bacteria are tiny living organisms. They can be bacteria, fungi or viruses. Many microbes are useful, for example bacteria decompose waste and are used in the production of cheese and yeast makes bread rise and produces the alcohol in wine. You even have trillions of bacteria inside your gut, they are important in helping you stay healthy. Bacteria are single celled organisms they are much smaller than animal cells, they reproduce very rapidly and their DNA is not contained in a nucleus. Viruses are even smaller than bacteria, they cannot reproduce on their own but hijack the cells of other organisms in order to reproduce.</p>	<p>Key ideas</p>  <p>Pathogens cause disease by reproducing inside your body, bacteria produce toxins and viruses damage your cells. However if microbes enter the body then your immune system fights the infection, white blood cells engulf and destroy the pathogens and produce antibodies and antitoxins to neutralise the pathogens and the toxins they produce.</p>	<p>Key ideas</p>  <p>Vaccinations protect us from serious infectious diseases. A dead or weakened version of the pathogen is injected and our body produces antibodies to that pathogen. If we are ever exposed to the real live pathogen our white blood cells can respond rapidly and so that we don't get ill.</p>
<p>Aseptic technique when working with microbes uses procedures to prevent cross contamination.</p> <p>Asexual reproduction is a type of reproduction by which offspring arise from a single organism, and inherit the genes of that parent only.</p> <p>Bacteria (singular bacterium) is a type of biological cell. They are the main part of the domain of prokaryotic microorganisms.</p> <p>Binary fission is a kind of asexual reproduction. It is the most common form of reproduction in prokaryotes such as bacteria.</p> <p>Microorganism or microbe, is a microscopic organism, which may exist in its single-celled form or in a colony of cells.</p> <p>Pathogen is a disease causing microbe.</p> <p>Prokaryotic microbes do not have a nucleus.</p>	<p>Antibody, antibodies are produced by white blood cells, they recognize and latch onto antigens on the surface of pathogens.</p> <p>Antigen is a protein usually on the surface of a pathogen that triggers the immune system.</p> <p>Immune system is the organs and processes of the body that provide resistance to infection and toxins.</p> <p>Lymphocyte is the type of white blood cell that produces antibodies.</p> <p>Macrophage is the type of white blood cell that engulfs and destroys pathogens.</p> <p>Non-specific defence mechanisms are the physical barriers that your body has to infection e.g skin, scabs, tears and stomach acid.</p> <p>Phagocytosis is the process by which white blood cells engulf and destroy pathogens.</p>	<p>Immunity is the ability to resist a particular disease especially through preventing development of a pathogenic microorganism.</p> <p>Immunisation is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine.</p> <p>Inoculation is the introduction of a serum, a vaccine, or an antigenic substance into the body of a person or an animal, in order to produce immunity to a specific disease.</p> <p>Vaccine triggers the body to acquire immunity to a pathogen.</p> <p>White blood cell is the type of cell that produces antibodies and antitoxins.</p>

4. Variation	5. Inheritance	6. Atomic structure
<p>Key ideas</p> <p>We inherit genes from each of our parents when the egg is fertilised by the sperm. Our genes together with our environment determine our characteristics. Because we inherit some genes from each of our parents we may have family similar ties in our characteristics.</p> 	<p>Key ideas</p> <p>We inherit a pair of each gene, one version from mum and one from dad. Some genes are dominant and some are recessive.</p>  <p>Non-identical twins are produced when 2 eggs are fertilised at the same time, identical twins are formed when the embryo splits and each part grows into a baby.</p>	<p>Key idea</p> <p>Everything is made up of tiny particles called atoms, when atoms chemically join they form molecules. All atoms are made of subatomic particles.</p> <p>Relative atomic mass number: This states the number of protons and neutrons that make up the nucleus.</p>  <p>Atomic (proton) number: This states the number of protons in the nucleus.</p>
<p>Characteristic is a feature or quality belonging typically to an organism</p> <p>Embryo is an early stage of development of a multicellular organism, in humans it is the period from approximately the second to the eighth week after fertilization</p> <p>Environmental variation are the differences that are caused by factors other than our genes e.g climate, diet & lifestyle.</p> <p>Fertilisation is the fusion of the male and female gametes to create a fertilised egg.</p> <p>Gamete is the name for sex cells, they contain half the genetic information to create a new organism</p> <p>Genetic variation is the differences in genes</p> <p>Inheritance is the process by which genetic information is passed on from parent to child.</p> <p>Variation means the differences between things</p> <p>Zygote is the name for a fertilised egg</p>	<p>Allele alternative forms of a given gene. We inherit two versions of most of our genes one from each of our parents</p> <p>DNA: is a molecule that carries the genetic instructions used in the growth, development, functioning and reproduction of all known living organisms</p> <p>Chromosome: are bundles of tightly coiled DNA located within the cell nucleus.</p> <p>Gene: is a section of DNA that has the genetic code for making a particular protein.</p> <p>Genotype is the inherited combination of genes</p> <p>Homozygous When an individual has two of the same allele</p> <p>Heterozygous When an individual has two different alleles</p> <p>Phenotype is the physical appearance resulting from the inherited information</p> <p>Punnet square is a type of genetic diagram</p>	<p>Atomic model is a way of representing the structure of an atom. The atomic model has changed over time.</p> <p>Electron is a subatomic particle with a negative charge and no mass, these are found in shells or orbitals of the atom</p> <p>Neutron is a subatomic particle with no overall charge and a mass of 1, these are found in the nucleus.</p> <p>Nucleus is found in the centre of the atom, this is made of protons and neutrons</p> <p>Proton is a subatomic particle with a positive charge and a mass of 1, these are found in the nucleus. The number of electrons is the same as the number of protons.</p> <p>Shell or orbital: These are the energy levels that the electrons occupy.</p> <p>Subatomic particles are particles that are smaller than the atom, they make up the atom</p>

