Beckfoot	Subject: Trilogy Science (Biology)	Topic: **Inheritance, Variation & Evolution**	Year Group: 11	enjoy learn succeed

Knowledge: Mitosis Vs Meiosis

	Mitosis (for growth & repair)	Meiosis (makes gametes)
1	Produces two daughter cells	Produces four daughter cells
2	Daughter cells are genetically identical	Daughter cells are not genetically identical
3	The cells divide once	The cells divides twice
4	The chromosome number of the daughter cell is the same as the parent cell. In humans this is 46 chromosomes.	The chromosome number is reduced by half. In humans, this is 23 chromosomes.
5	Used for growth and repair, and asexual reproduction.	Produces gametes for sexual reproduction.

Additional Information:

How to complete a Punnet square
How to determine offspring using a Punnet square
How to work out probability using a Punnet square
Examples and features of inherited diseases

Key Vocabulary

1	Allele	An alternative form of a gene
2	Asexual reproduction	The production of offspring from a single parent by mitosis. Offspring are clones of the parent.
3	Chromosome	Structure that contains the DNA of an organism, found in the nucleus
4	DNA	A polymer that is made up of two strands that form a double helix
5	Dominant	An allele that is always expressed, even if only one copy is present
6	Gene	A small section of DNA that codes for a specific protein
7	Genome	The entire genetic material of an organism

Key Vocabulary

8	Genotype	The combination of Alleles
9	Heterozygous	A genotype that has two different alleles, one dominant one recessive
10	Homozygous	A genotype that has two of the same alleles, either two dominant or two recessive
11	Mutation	A change in DNA
12	Phenotype	The characteristic expressed because of the combination of alleles
13	Recessive	An allele that is only expressed if two copies of it are present
14	Sexual reproduction	The production of offspring by combining genetic information from the gametes of two parents. Leads to variation in offspring

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Knowledge: Fossils

Fossils could be:

1	The actual remains of an organism that has not decayed
2	Mineralised forms of the harder parts of an organism, such as bones
3	Traces of organisms such as footprints or burrows

Many early life forms were soft bodied so have left few traces behind.

Fossils help us understand how much or little organisms have changed as life developed on earth

Knowledge: Classification

1	Linnaeus classified living things into Kingdom, Phylum, Class, Order, Family, Genus and Species
2	Organisms are named by the binomial system of genus and species
3	Due to evidence from chemical analysis, there is now a 'three-domain system' developed by Carl Woese –Bacteria, Archaea, Eukaryota

Knowledge: Evolution

All species of living things have evolved from simple life forms by natural selection

1	If a variant/characteristic is advantageous in an environment, then the individual will be better able to compete
2	This means they are more likely to survive and reproduce
3	The offspring will inherit the advantageous allele

Knowledge: Variation

May be due to differences in:

1	The genes that have been inherited (genetic causes)
2	The conditions in which they have developed (environmental causes)
3	A Combination of genes and the environment

Knowledge: Reducing antibiotic resistance

1	Antibiotics should only be used when really needed and for serious bacterial infections only (not viral)
2	Patients should complete their courses of antibiotics, even if they feel better.
3	The agricultural use of antibiotics should be restricted.

Key Vocabulary

1	Evolution	A change in the inherited characteristics of a population over time through natural selection
2	Extinction	The permanent loss of all members of a species
3	Natural selection	The process by which organisms that are better suited to an environment are more likely to survive and reproduce
4	Speciation	Two species evolve from one organism but can no longer breed to produce fertile offspring

Additional Information: The process of Genetic Engineering, The process of Selective Breeding, The process of Antibiotic resistance