SUBJECT: Science YEAR: 9 MTP TITLE: Inheritance HALF TERM: 3 NO. OF LESSONS (approx): 10

Deliberate and specific retrieval of expected prior knowledge (be specific)

Retrieval should occur regularly throughout the learning journey:

KS2

the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, Labradors are crossed with poodles

appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox

Academic transformation (be specific)

Your core curriculum must do all of the following:

- Hierarchy of DNA > Gene > Chromosome > Nucleus (conversion of units)
- DNA Extraction practical
- Causes of variation – environmental & genetic
- Variation within a species being continuous or categoric
- Measurements of variation practical height and foot size
- Selective breeding – dogs, Belgian blue
- Extinction & endangered species
- Natural selection – how changes in the environment can leave some species less well adapted to compete successfully & reproduce
- Importance of maintain biodiversity and the use of gene banks to preserve hereditary material
- the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model

Scientific skills

Graphs, variables, data collection and analysis, conversion of units

Personal transformation (2 or 3)

Ambitious vocabulary and high-quality texts

Factor affecting farmland bird populations
Cheetah case study drawing together natural selection, mutation and the need for biodiversity and conservation.
Antibiotic resistance in bacteria and the importance of finish a course of antibiotics/antibiotic resistance in hospitals
How islands create new species
Science news explores – fingerprints inherited etc
SNexplores.org
Selective breeding – in plants eg carrots

Can I Learning Questions

Can I describe how characteristics are passed between generations
Can I define what a species is
Can I describe the process of natural selection
Can I describe the process of selective breeding?

Literacy

Vocabulary

Tier 2 continuous and categoric, selection
Tier 3 Genes, chromosomes, biodiversity, gamete, ovum, fertilisation, variation, Genotype, phenotype, n, Darwinism

Disciplinary reading

Charles Darwin's origin of species by Anna Brett – an age appropriate reexplaining
Phil Gatres Evolve or Die – Horrible science series
Adam Rutherford - What are you really from?

Class room talk - *On whiteboards*

Have humans stop involving? Does technology stop evolution or is it part of it?
Is knowing all about the human genome a good or a bad thing?
What would you selectively breed and why?

Misconceptions (5 or 6 examples)

Natural selection does not lead to new species or evolution. Species do not become better adapted – there is variation in the original population. Choice or randomness are not involved and should be avoided. Mutations are more often good or neutral, rarely bad
Evolution only animals- all organisms
Confusing selective breeding and natural selection