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| Science 9 | Unit A |
| Lesson 8: Genetics | 84 mins |

*Intro:*

*Meet the Super Cow*

<https://www.youtube.com/watch?v=Nmkj5gq1cQU>

Reproductive Technology

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| Selective Breeding – Breeding parents with desirable traits and hope the offspring picks up those traits  Genetic Engineering – Changing the genetic material of a cell by direct means.  *EnviroPig*  <https://www.youtube.com/watch?v=mAfCauLF-14>  *Super Mice*  *Transgenic Animals*  [*http://channel.nationalgeographic.com/videos/transgenic-animal-creations/*](http://channel.nationalgeographic.com/videos/transgenic-animal-creations/)  Transgenics: Adding DNA from one animal into another animal  Cloning – Genetic duplicate of an organism made from the cells.  Artificial Insemination – sperm is surgically introduced to the ovaries…  In Vitro Fertilization – Fertilization that happens outside the body and the zygote is introduced back into the organism | Breeding white cats together to hopefully get a white cat (Artificial Selection)  Used in Biotechnology  Human Insulin producing bacteria… or glowing mice |

Practice:

Pg. 71 #1,2,3,5

Patterns of Inheritance

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| **Purebred vs. Hybrid**  Purebred – Organism that only has 1 type of allele for a desirable trait. Usually a physical trait.  Hybrid – Organism that is a mix of 2 types of alleles. Still ‘shows’ the desirable trait.  Dominate Trait  If two different true-breeds have an offspring that only one trait is ‘shown,’ the allele for the ‘shown’ trait is the dominant one.  Recessive Trait  The trait that doesn’t ‘show’ when two true-breeds are mated.  Punnett Squares  A table to organize and observe what possible genetic outcomes can happen when two organisms breed  Incomplete Dominance  When neither allele is dominant, nor recessive, an intermediate trait will occur  Offspring Unlike Either Parent  More than one gene location and more than one allele can cause a trait to show.  Environmental Factors  DNA can be affected by factors in the environment | Also known as a true-breed  Black Cats  White Cats  *DRAW above examples*  White Flower + Red Flower = Pink flower  Eye Colour and Hair Colour in Humans  UV causing mutations, Alcohol with FASD |

Practice: Pg. 54 #2,4,5,6