1. **Explain the link between reproduction and heredity.**

KEY

1) Key vocabulary-

Gamete: sex cells. Sperm and egg

 Zygote: name of cell when fertilization happens. Will turn into embryo.

 Clone: identical DNA. From asexual reproduction.

 Allele:Variations of the same gene. Ex) allele for brown hair. Allele for blonde hair.

 Dominant: The allele that will show up in a person. Ex) between brown hair and blonde hair- brown is dominant.

 Recessive: allele that will only show up if 2 recessives are passed on.

 Discrete variation: limited number of options for a gene. Ex) tongue rolling or not.

Continuous variation: unlimited versions of a gene. Ex) height, hair colour.

Stamen: (2 parts): Male parts of a flower. Parts- anther and filament.

Pistil: (3 parts) Female part of flower. Parts: Stigma, style, ovary

Angiosperm: plants that grow fruit around their seeds. Ex) strawberries, apples.

Gymnosperm: means “naked seed”. No fruit around seeds. Ex) pine trees.

2) Things to know:

* Sexual vs asexual reproduction

Sexual- 2 parents.

Pro: more variation.

Con: More energy and time finding mate and developing offspring.

Asexual- 1 parent. Clones. Pro: Less time and energy. Can make LOTS of offspring. Con: No variation- disease could wipe them all out.

* Types of asexual reproduction (4 types)

Budding: grows off of parent

Binary fission: 1 cell splits into 2

Spores: package DNA and send on wind

Cutting: Cut off a piece of plant by the meristem and regrow.

* Sexual reproduction (internal vs external fertilization)

Internal: sperm and egg meet inside body. Protected. Less offspring produced.

External: Sperm/ egg meet outside body. Lots of offspring produced, but many will die from no protection.

* Nature vs nurture

Nature: your DNA

Nurture: How you were raised

* Discrete vs continuous variation of traits. Classify weight, height, tongue rolling, and eye colour as each.

Weight: continuous

Height: continuous

Tongue rolling: discrete

Eye colour: continuous

1. **Describe the role of genetic material and biotechnology.**

Key vocabulary:

Chromosomes: tightly coiled DNA packages (look like butterflies)

 DNA: contains all the codes for everything in your body

 Genes: specific parts of your DNA that code for a certain thing. Ex) gene for hair colour.

 Mitosis: creates somatic cells (body cells). Ends up with 2 cells each with 46 chromosomes.

 Meiosis: Creates gametes (sperm and egg). Ends with 4 cells each with 23 chromosomes.

Things to know:

Mom carries a brown haired allele and a blonde hair allele.

Brown= B (because it’s dominant)

|  |  |  |
| --- | --- | --- |
|  | B | b |
| b | Bb | bb |
| b | Bb | bb |

Blonde = b (recessive)

Dad carries two blonde hair alleles.

Blonde= b

Blonde = b

Give the percentage of children that would have blonde hair. 50%

 2) What are the 4 DNA bases and who pairs up with who?

Adenine – Thymine

Guanine- Cytosine