

A-Level Biology

Name: _____ Score: _____

1. Why must gametes be haploid?
 - ☐ so the chromosome number does not double at every generation
 - ☐ so they can move faster
 - ☐ so they have more chromosomes
 - ☐ so they can photosynthesise
2. An allele is:
 - ☐ one version of a gene
 - ☐ the position of a gene on a chromosome
 - ☐ a whole chromosome
 - ☐ a type of protein
3. A Punnett square is used to predict the offspring genotypes and ratios of a genetic cross.
 - ☐ True ☐ False
4. How does a faulty allele change the phenotype?
 - ☐ it makes a faulty protein, which changes the feature the protein controls
 - ☐ it adds a new chromosome
 - ☐ it has no effect on the protein
 - ☐ it changes the number of genes
5. A regulatory gene:
 - ☐ controls whether other genes are switched on
 - ☐ always codes for an enzyme
 - ☐ is never expressed
 - ☐ makes the cell wall
6. Meiosis halves the chromosome number, producing _____ gametes (one set of chromosomes each).

7. A recessive allele:
 - ☐ only shows its effect when two copies are present
 - ☐ shows its effect with just one copy

☐ always masks the dominant allele

☐ is never inherited

8. A faulty allele changes the phenotype because it codes for a faulty protein.

☐ True ☐ False

9. An enzyme that is made only when it is needed (like the lac enzymes) is described as _____.

10. The observable features of an organism (what you can actually see) are its _____.

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1. so the chromosome number does not double at every generation

If gametes were diploid, fertilisation would double the chromosome number each generation; meiosis halves it.

2. one version of a gene

An allele is a version of a gene; its position on the chromosome is the locus.

3. True

It combines every possible pairing of the parents' gametes.

4. it makes a faulty protein, which changes the feature the protein controls

A gene codes for a protein; a faulty allele makes a faulty protein, altering the phenotype.

5. controls whether other genes are switched on

Structural genes code for proteins like enzymes; regulatory genes control whether other genes are switched on.

6. haploid

Two haploid gametes fuse at fertilisation to restore the diploid number.

7. only shows its effect when two copies are present

A recessive allele is only expressed when homozygous; a dominant allele shows with a single copy.

8. True

The DNA sequence sets the protein's shape; change the sequence and you change (or break) the protein.

9. inducible

Inducible enzymes are produced only when required, which avoids wasting resources.

10. phenotype

Phenotype = what shows; genotype = the alleles present (which, with the environment, decide the phenotype).