

## Answers for support worksheet – Chapter 10

1

(5 – 1 mark for each correct row)

Process	Mitosis	Meiosis I	Meiosis II
takes place during the formation of gametes	✓	✓	✓
DNA replicates before prophase	✓	✓	✗
chromosomes form pairs before prophase	✗	✓	✗
chiasmata form	✗	✓	✗
random assortment of chromatids occurs during anaphase	✗	✓	✗

2     **a**     Polygenic inheritance is the inheritance of phenotypes that are determined by the combined effect of several genes. (1)

**b**     9 possible genotypes. If the alleles are **a** and **A**, and **b** and **B**, possible genotypes are **aabb**, **Aabb**, **aaBb**, **AAbb**, **AbBb**, **aaBB**, **AaBB**, **AABb** and **AABB**. (2)

3     **D** (1)

4     The genes are linked. If the alleles are **R** = red and **P** = crested, then the heterozygotes are **RrPp**. The gametes are shown as **R P** and **r p**, because of the linkage. (2)

So in a Punnett grid:

	<b><u>R P</u></b>	<b><u>r p</u></b>
<b><u>R P</u></b>	red, crested	red, crested
<b><u>r p</u></b>	red, crested	white, non-crested

(2)