Questions page 130.

1a According to Sutton's observations the number of chromosomes in a grasshopper's body cells have twice the number of chromosomes in its sex cells (24-12)

1b When two grasshopper sex cells join in fertilization, the fertilized egg gets 24 chromosomes

1c Sutton's observations about chromosome number supports the chromosome theory of inheritance in that just as the offspring get one allele from each parent for every gene, the offspring get one set of chromosomes from

2a Meiosis is the process by which the number of chromosomes is reduced by half to form sex cells.

2b During Meiosis I: Chromosomes duplicate and divide into two cells, each with half the number of chromosomes. Meiosis II: the two sex cells divide once more, producing sex cells that have half as many chromosomes as body cells.

2c A sex cell does not normally receive both chromosomes from a pair because in Meiosis I, the members of each chromosome pair separate and end up in different cells.

3a Genes are aranged on a chromosome like beads are joined on a string

3b Genes are lined up in the same order on both chromosomes.