1 Draw *one* line from each person to show one thing they did to help discover the structure of DNA.

Francis Crick	took very clear photos of DNA using X-rays.
Rosalind Franklin	tested and made corrections to the DNA model.
James Watson	helped to build the double helix model in 1953.
Maurice Wilkins	saw from a photo that DNA was a spiral.

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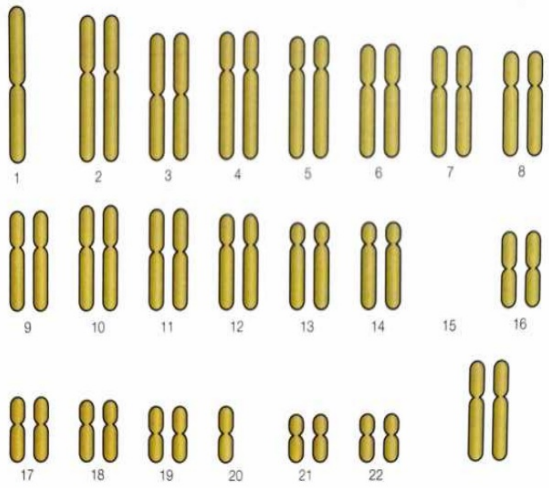
2 Answer these questions by writing a number.

a The number of DNA molecules in a chromosome. one

b The number of Y chromosomes in a body cell from a male. one

c The number of copies of each gene in a body cell from a female. two

3 The diagram shows chromosomes from a human liver cell.



a Draw in the missing chromosomes.

b Explain whether these chromosomes are from a male or a female.

They are from a female because there are two X sex chromosomes.

c Give the reason why chromosome 1 contains the most genes.

SB

4 How many chromosomes does the nucleus of each of these human cells contain?

a sperm cell 23

b heart muscle cell 46

c egg-making cell 46

d zygote 46

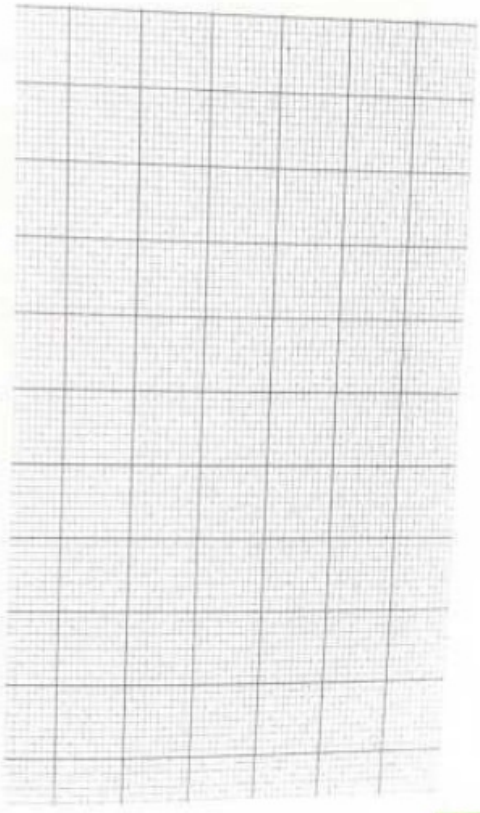
5 The table shows the number of chromosomes in the body cells of some common animals.

Animal	Number of chromosomes
lion	38
elephant	56
chicken	78
rabbit	44
horse	64

a Plot the data on a suitable chart or graph, making sure you organise the data in a logical way.

b Give the reason why the number of chromosomes in each species is an even number.

Because chromosomes come in pairs in body cells.



c A student says, "This data shows that birds have more chromosomes in their cells than mammals." Discuss in a group whether this is a good conclusion. Write your answer below and why your group thinks this.

Is this a good conclusion? No, it is not a good conclusion.

Why we think this:

- There is too little data on birds
- The sample size of the birds is too small.