

CHAPTER 16	Investigation 16.A: Modelling a Karyotype	BLM 16.1.10
HANDOUT		
Question: How can you prepare and interpret a karyotype?		

Safety Precautions

- Use care when handling scissors.

Materials

- image of the chromosomes in a human somatic cell
- blank karyotype form
- scissors
- tape

Procedure

1. Work with a partner. Your teacher will provide an image of chromosomes in a human somatic cell. Examine the chromosomes. How many chromosomes can you count? What similarities and differences can you see? Record your observations.
2. Carefully cut out each chromosome.
3. Match the homologous pairs of chromosomes. Remember to match the length, location of the centromere, and banding pattern of the chromosomes in each pair.
4. Tape the pairs of autosomes 1 to 22 on the karyotype form in order, from longest to shortest. Place the sex chromosomes with each other, at the end of the karyotype. **Note:** The X and Y chromosomes are not a homologous pair. The length of the X chromosome is between the lengths of chromosome 4 and chromosome 5. The Y chromosome is much shorter, about the same length as chromosome 14.
5. Examine your finished karyotype, and record your observations.

Analysis

1. How many chromosomes does this cell have? How would you write the chromosome number to show the haploid chromosome number?

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2. How would the karyotype differ if this were a gamete? What would its chromosome number be?

3. Did these chromosomes come from a male or a female? How can you tell?

Conclusion

4. What kind of information can you infer from a karyotype?