MAINIDEA

Chromosomes can be studied using karyotypes.

K *What I Know*	**W** *What I Want to Find Out*	**L** *What I Learned*

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Essential Questions

- How are karyotypes used to study genetic disorders?
- What is the role of telomeres?
- How is nondisjunction related to Down syndrome and other abnormal chromosome numbers?
- What are the benefits and risks of diagnostic fetal testing?

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Vocabulary

Review

- mitosis

New

- karyotype
- telomere
- nondisjunction

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Karyotype Studies

- Scientists study not only genes but entire chromosomes.
- Images of chromosomes stained during metaphase allow scientists to study sister chromatids and homologous chromosomes.
- Karyotype – micrograph in which the pairs of homologous chromosomes are arranged in decreasing size.

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Telomeres

- Telomeres are protective caps on the end of chromosomes.
- Telomeres consist of DNA and proteins.
- They serve as a protective function for the structure of the chromosome.

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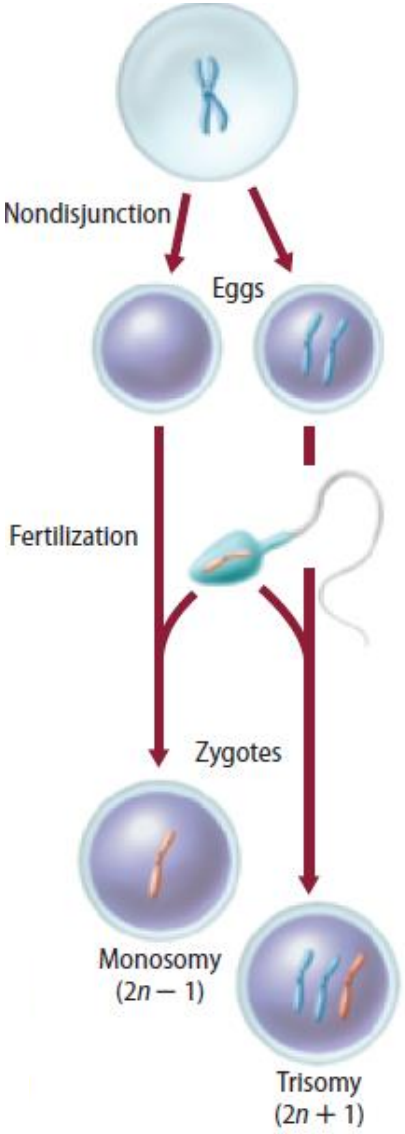
Nondisjunction

- Cell division where sister chromatids fail to separate properly is called nondisjunction.



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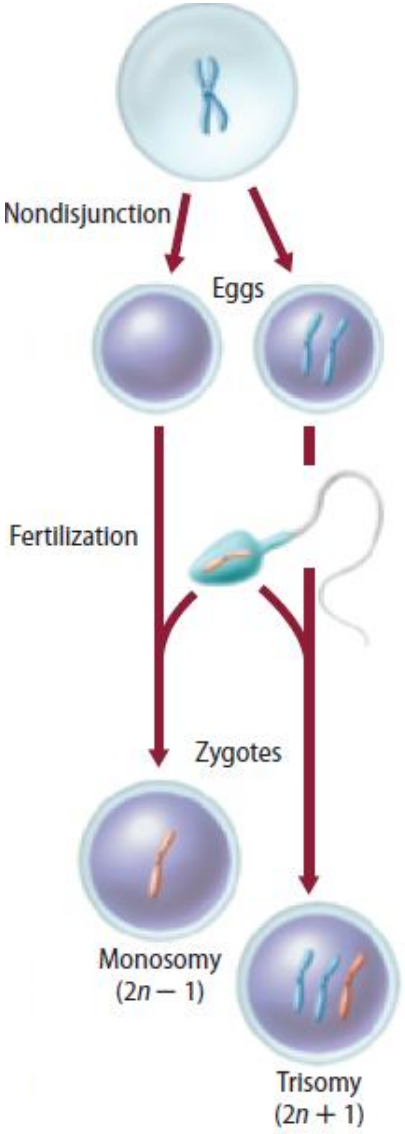
Nondisjunction

Down syndrome

- Result of an extra chromosome 21
- Characteristics include distinctive facial features, short stature, heart defects, and mental disability.



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Visualizing Nondisjunction

Animation

FPO

Add link to animation from page 312 (Figure 18) here.

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Nondisjunction in Sex Chromosomes

Interactive Table

FPO

Add link to the interactive table from page 314 (Table 4) here.

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Fetal testing

- Fetal tests can provide information on potential genetic disorders and chromosomal status of developing babies.

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Fetal Tests

Interactive Table

FPO

Add link to interactive table from page 315 (Table 5) here.

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Review

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Vocabulary

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- telomere
- nondisjunction

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