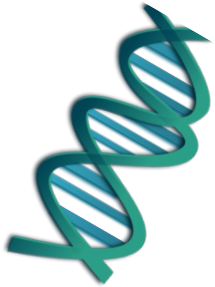
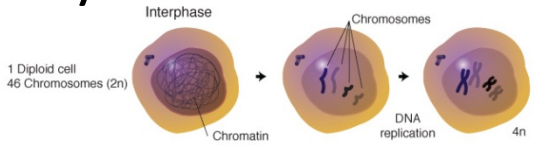
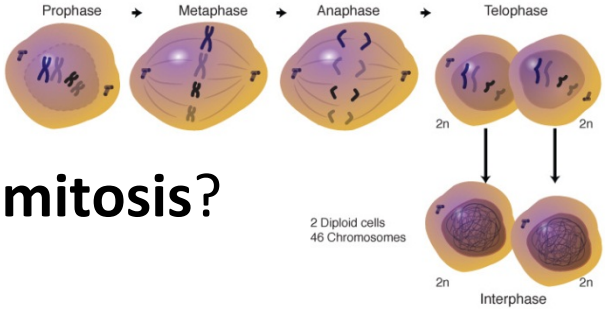


Mitosis, meiosis, and ploidy

Mitosis

- Produces two **diploid** daughter cells genetically identical to single parent **diploid** cell.
  - Essential for growth & development





- Basically identical to original fertilized egg.
- What happens when have mutation during **mitosis**?

Mitosis

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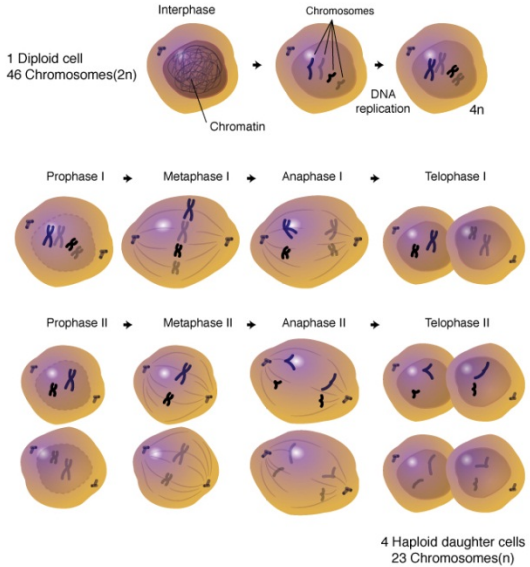
  - Essential for growth & development

- Basically identical to original fertilized egg.
- What happens when have mutation during **mitosis**?

Answer:
You get a *genetic mosaic*:
Different cells within individual have different genetic code.
Mutations in mitosis control genes often lead to cancer.

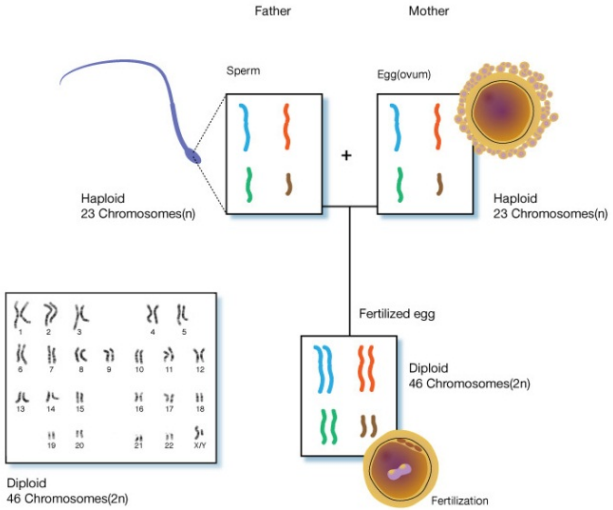
Meiosis

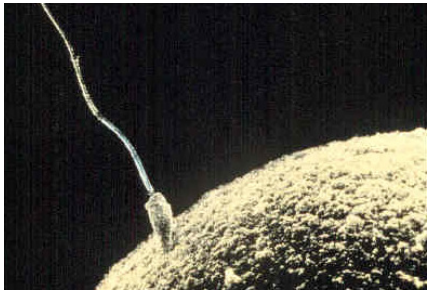
- Produces **haploid (1N)** daughter cells with *one copy of genes from a parent* **diploid** cell.
- Precursor to fertilization



Fertilization brings together gametes from the two parents in an offspring

- 1N meiotic gametes come together to form a new 2N diploid cell (zygote)
- Half of genetic material is from “mother”, half from “father”





Meiosis

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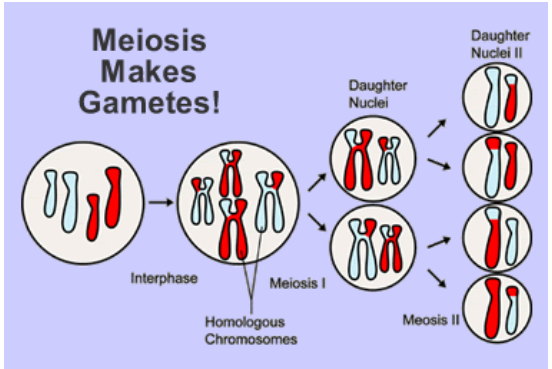
- What would happen if got *two* copies of a chromosome from one parent (and a third copy from the other)?



Meiosis

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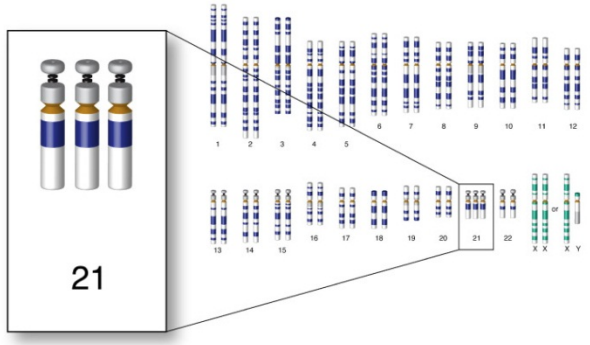
- Precursor to fertilization
- What would happen if got *two* copies of a chromosome from one parent (and a third copy from the other)?

Down syndrome,
Klinefelter syndrome,
etc



Fictional Example:

Fictional Example:

- Cells in your face are affected
- Could these cells spread via mitosis?
- Could these cells spread via meiosis?
- Would you pass on affected cells to your offspring?

Starting cell has a (homologous) pair of one chromosome

Chromatids are “identical”
This picture has 2 pairs of chromatids

Fig 2-8 in Griffiths et al

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