


Slide 1

Basic Life Functions: Reproduction

*And God blessed them;
and God said to them,
"Be fruitful and multiply,
and fill the earth,
and subdue it; and over
the birds of the sky, and over
every living thing that moves
on the earth."*

Genesis 1:28

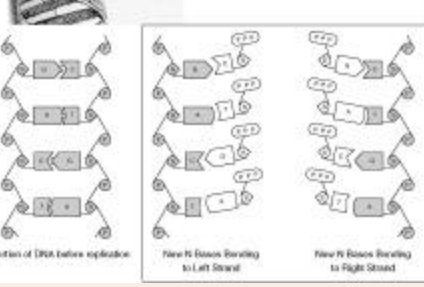
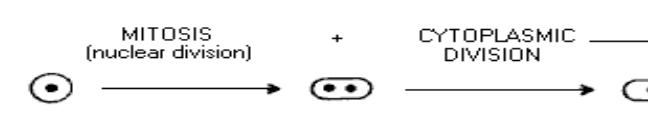


BIO 100 John E. Silvius, Professor of Biology

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Cellular Reproduction - Overview

MITOSIS (nuclear division) + CYTOPLASMIC DIVISION

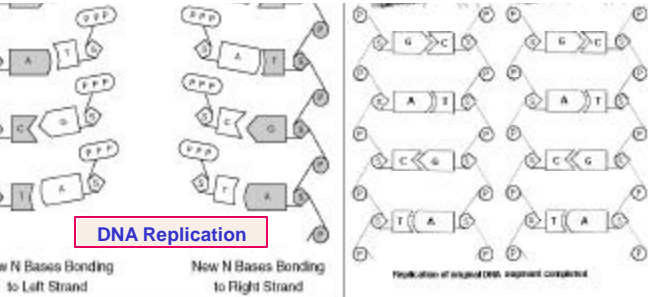



Portion of DNA before replication
New N Bases Bonding to Left Strand
New N Bases Bonding to Right Strand

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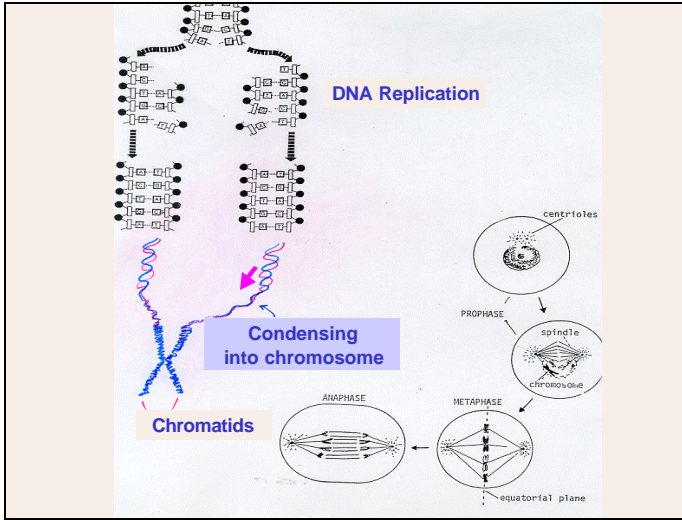
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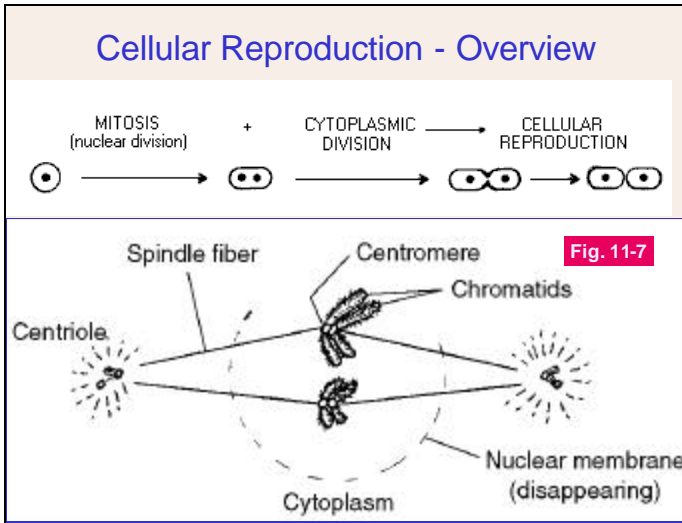


New N Bases Bonding to Left Strand
New N Bases Bonding to Right Strand
Replication of original DNA segment completed

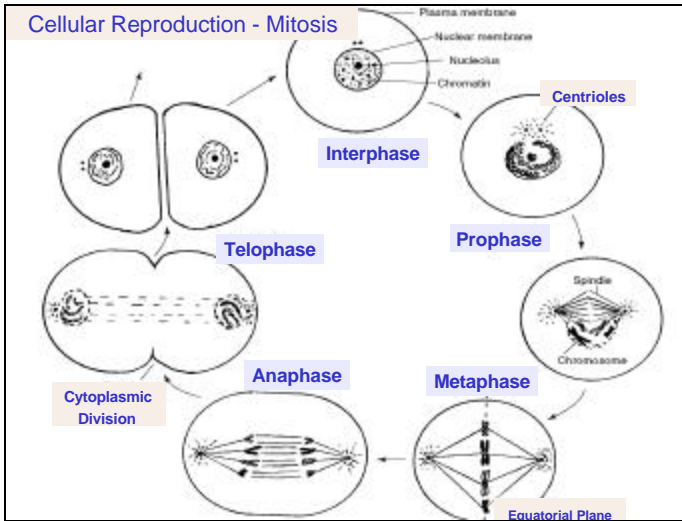
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Sexual Reproduction

Three Hurdles:

1. Gamete production
> MEIOSIS



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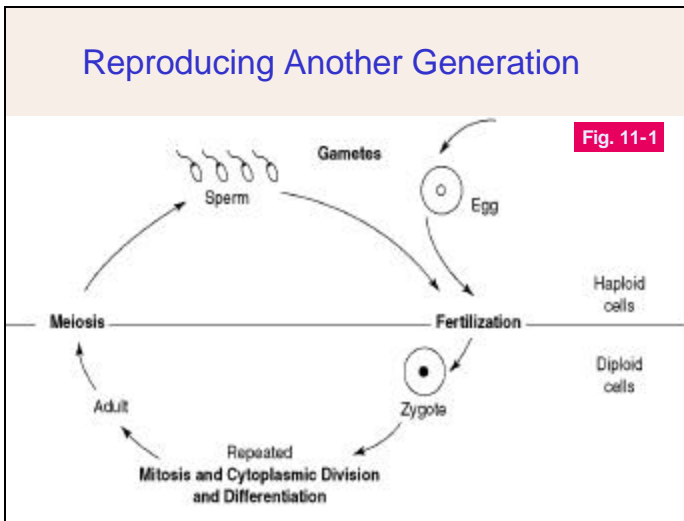
Sexual Reproduction

Three Hurdles:

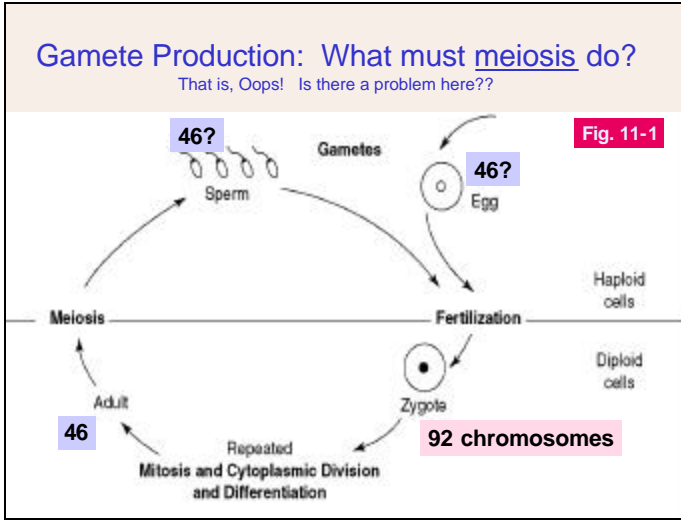
1. Gamete production
> MEIOSIS
2. Finding a Mate:
> FERTILIZATION
3. Nurturing Offspring
> from ZYGOTE



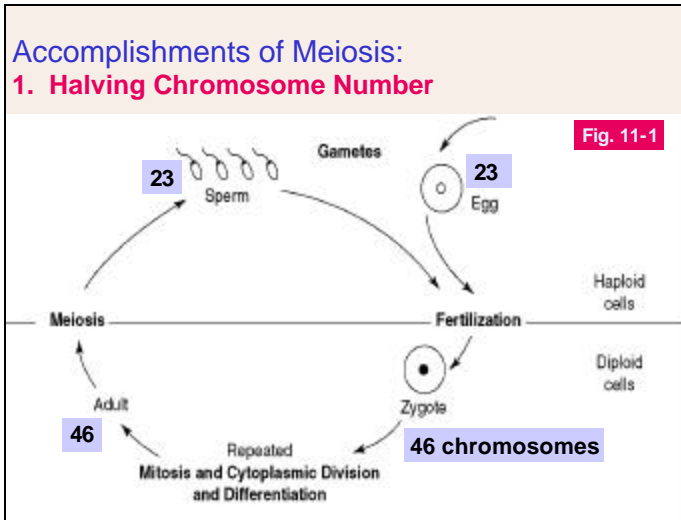
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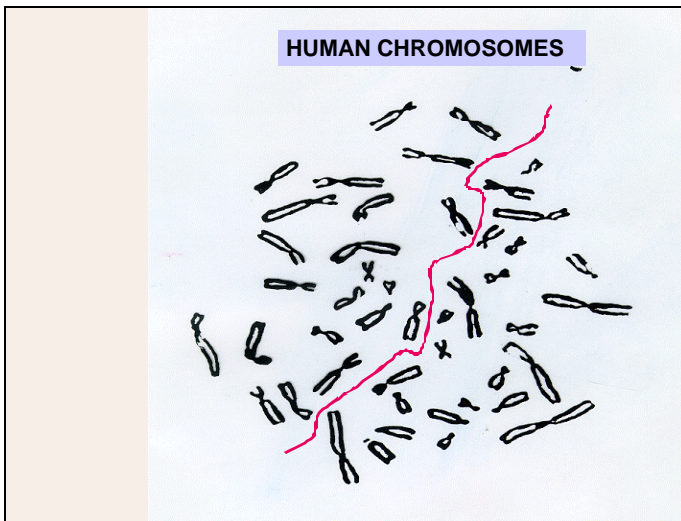
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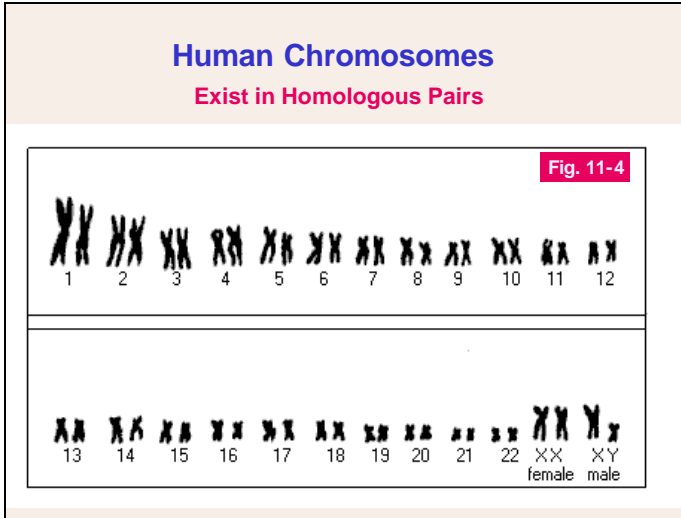
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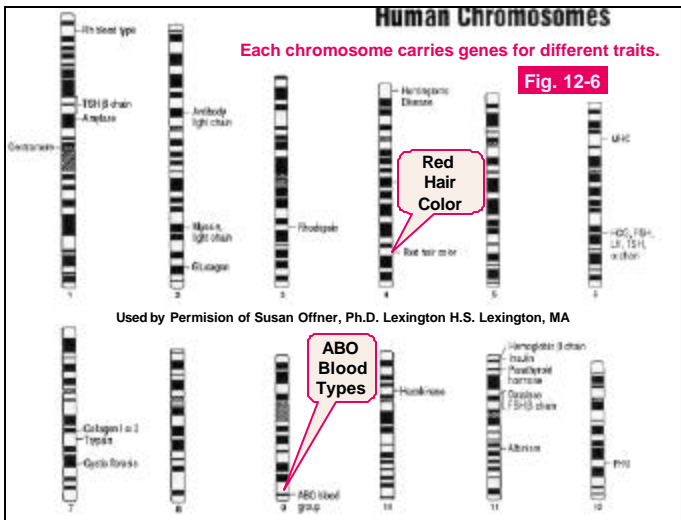
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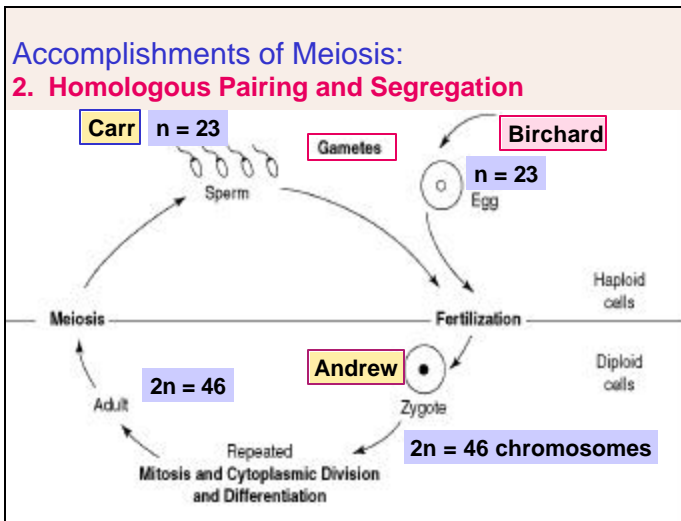
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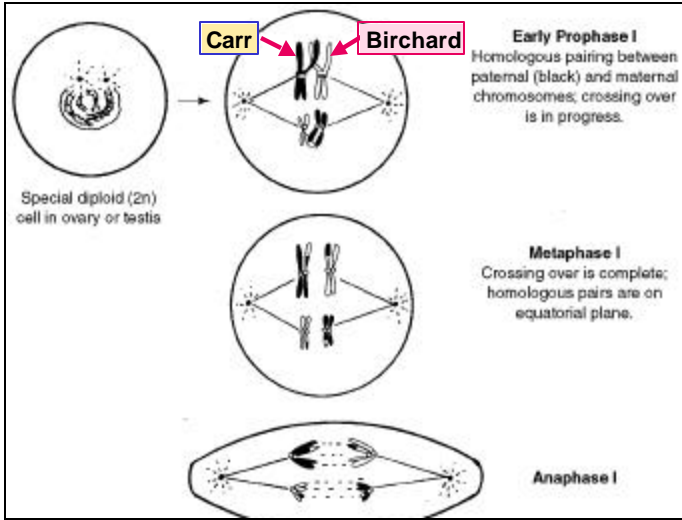
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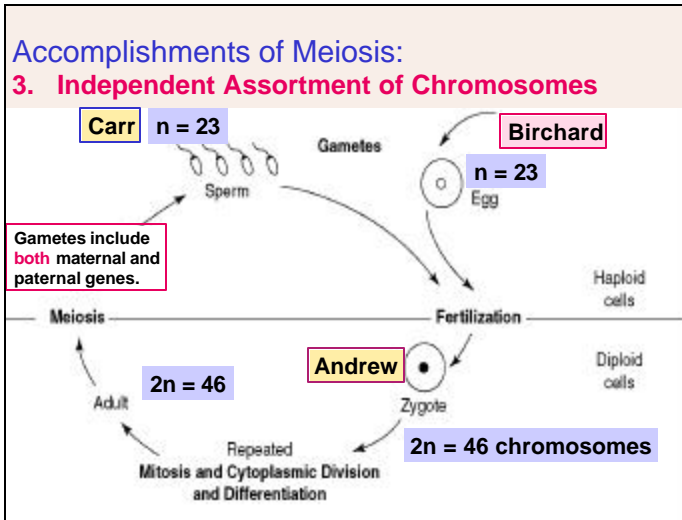
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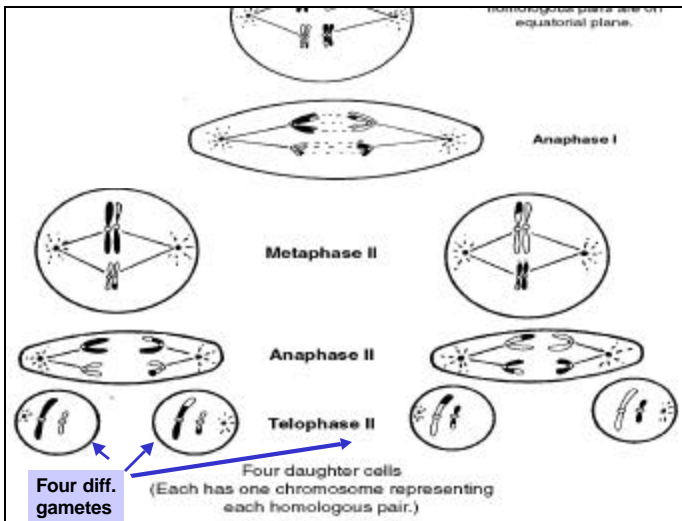
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Slide 18

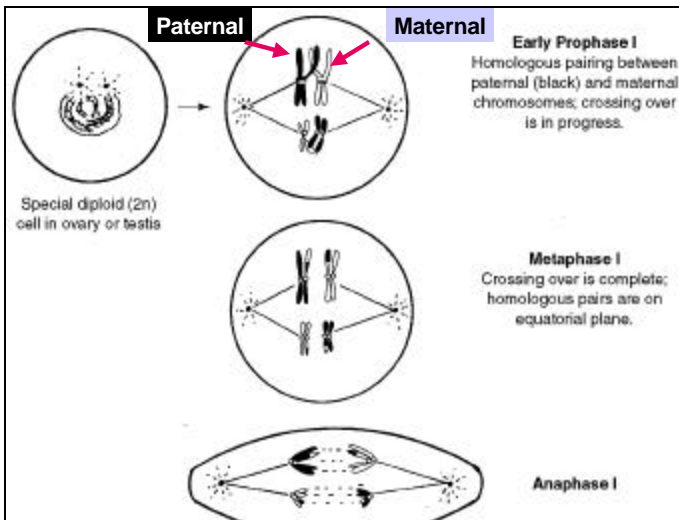


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What Meiosis Accomplishes:

1. Reduction of chromosome number by half.
2. Forms homologous pairs before separation so that each chromosome pair is included in gametes.
3. Independent Assortment – homologous pairing so that both paternal and maternal chromosomes can be present in each resultant gamete.
4. Crossing over -- some chromatids exchange between paternal and maternal.

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RESULT: Genetic continuity across generations,
Genetic diversity among offspring.

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GREGOR MENDEL (Austrian Monk, 1822-1884)











“Father of Genetics”



From: MendelWeb by Roger B. Blumberg From: Simon Mawer.
<http://www.aconet.it/private/SimonMawer/Photopagehtm>

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Table 12-1. Mendel's Experiments with Garden Peas

Trait	Dominant	Recessive
Seed shape	 Smooth	 Wrinkled
Seed color	 Yellow	 Green
Flower color	 Purple	 White
Pod shape	 Inflated	 Constricted
Pod color	 Green	 Yellow

PRINCIPLES OF HEREDITY

Observation #1:
“Many traits have two expressions”

TRAIT

A parameter such as shape, color, or height (Nouns)

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