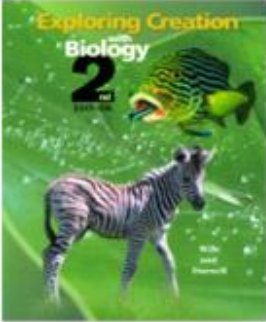


L1 Genes, Chromosomes, and DNA

Thursday, March 05, 2009
11:33 AM

VoiceThread	http://voicethread.com/share/284115/
Cmap	

Slides	Notes
 <p>Module 07: Cellular Reproduction</p> <p>👉 Lecture 1: Genes, Chromosomes, and DNA Mitosis: Asexual Reproduction</p> <p>Lecture 2: Meiosis: Sexual Reproduction Viruses</p> <p>Lab Day</p> <p>Interactive Practice</p>	<p>Just two lectures this week! Woohoo!</p> <p>New students - David and Patricia Thompson's student, Michelle Scriven's student, Lisa Overly's student</p>
<p>👉 Genes, Chromosomes, and DNA</p> <p>Mitosis: The Common Mode of Asexual Reproduction</p>	

Genetics

The science that studies how characteristics get passed from parent to offspring.



Long before science - farmers breed their animals for specific characteristics.

Some as large as a dane and some as small as a chihuahua

Mendel - Father of genetics. More in next module. More scientists than farmers now.

DNA to Protein to Eye Color



brown

Melanin present in great abundance
Dominant with over 1/2 the population



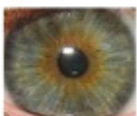
blue

Little melanin



gray

Even less melanin than blue eyes



hazel

Mix of eye colors brown and blue/gray



green

Mutation that changes the melanin structure

DNA is responsible for the information that makes traits.

Brown is from melanin. About half of population, brown is predominant.

Grey has even less melanin than blue eyes.

Hazel is blue and brown

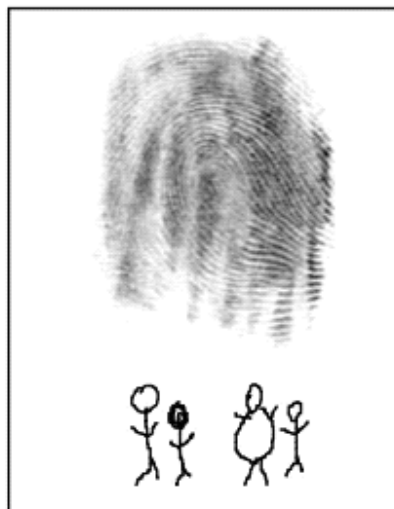
Green - mutation that changes the melanin's structure.

Genetics is only part of the story... Twins?



fraternal

identical



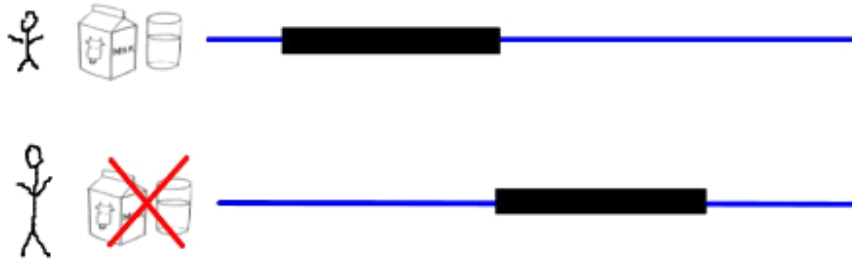
Twins are two individuals from the same pregnancy.

Fraternal - genetically different

Identical - same genetic mix.

Yet, identical can have some different traits such as fingerprints, body weight (environmental)

Genetics is only part of the story... Tendency



Genetic tendency

Stick figures is the genetic predisposition from parents/genes.

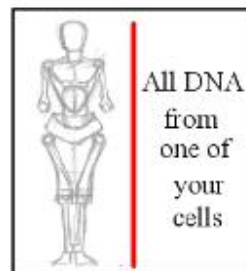
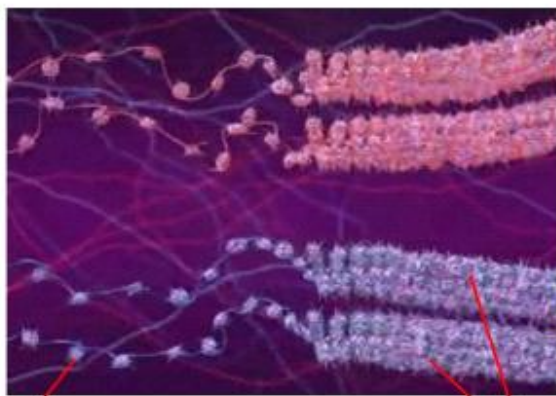
Gene ----> protein ----> trait



Where are those traits hidden.

Portions of the DNA - genes

Let's Pack it Up



All DNA from one of your cells



chromosome

histone protein (spools DNA)

sister chromatids

Length of your body

Let's pack it up

If histone is missing - DNA wouldn't wind up.

You have many chromosomes - 46

Genes, Chromosomes, and DNA

👉 Mitosis: The Common Mode of Asexual Reproduction

Sexual versus Asexual Reproduction



Sexual Reproduction

Meiosis: The process by which a diploid (2n) cell forms four gametes.

Asexual Reproduction



Mitosis: Duplication of a cell's chromosomes to allow daughter cells to receive an exact duplicate of the parent cell.

skin cells (10 min), liver cells (1 year), brain cells (never)

Mitosis

↪ Mother Cell ↩

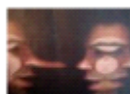
Interphase
Normal life processes

Cellular Division
prophase
metaphase
anaphase
telophase

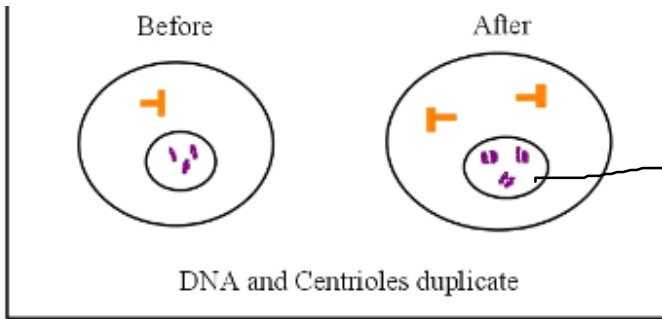
Daughter Cell



Early Prophase



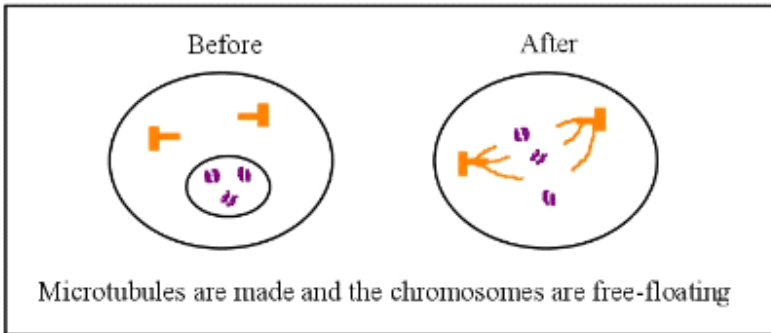
— duplicating
mesosomes



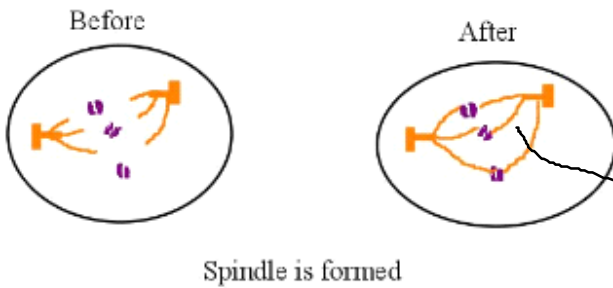
duplicate chromosome



Middle Prophase

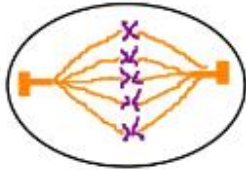


Late Prophase



mitotic spindle

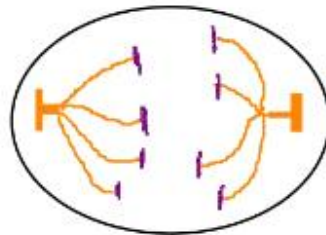
Metaphase



Tug O War

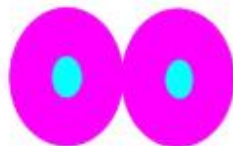


Anaphase



Telophase

Baby's Big hug!



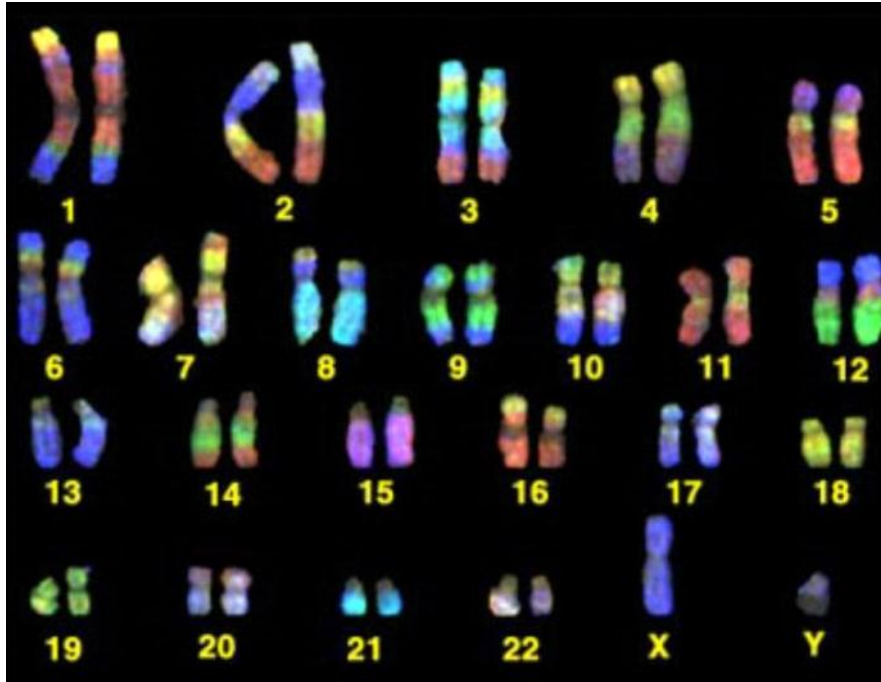
pinch

organelles?

Plants - use vesicles due to rigid cell wall

Chromosomes:

Humans = 46
Cats = 38
Horse = 64
Crayfish = 200



Pairs are exactly the same in the pairs.
Karyotype Chart - longest to shortest

Haploid - one of the pairs (n)
Diploid both pairs (2n)

What would be the haploid number for a human? 23

Diploid would be 46

Original - <http://www.virtualhomeschoolgroup.com/mod/quiz/view.php?id=840>
9am - <http://www.virtualhomeschoolgroup.com/mod/quiz/view.php?id=10915>
2:30 - <http://www.virtualhomeschoolgroup.com/mod/quiz/view.php?id=13921>

New Elluminate