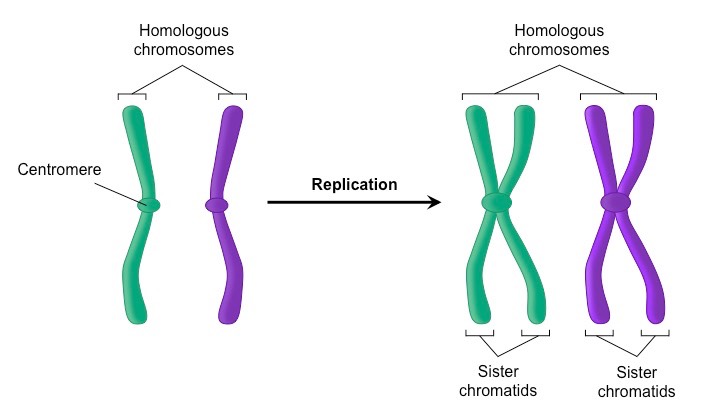
Chromosomes and Meiosis



(Yes these are repeats from cell cycle and mitosis review)

What is a chromosome made of?

What is the function/purpose of chromosomes? (name at least 3)

How can you tell if a chromosome has been copied?

What is a homologous pair?

What are sister chromatids?

What is the difference between homologous pairs and sister chromatids?

How can you tell the difference between a haploid cell and a diploid cell?

Using n, how would you write the chromosome numbers for each? Haploid: n= Diploid: 2n=

A haploid cell can also be called \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_

A diploid cell can also be called \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_

Which process helps create 2 identical diploid cells? \_\_\_\_\_\_\_\_\_\_\_\_\_

Which process helps create 4 unidentical haploid cells? \_\_\_\_\_\_\_\_\_\_\_\_

Have either of these cells gone through S phase? How can you tell?

How many chromosomes do humans have in their gametes? \_\_\_\_

How many chromosomes do humans have in their somatic cells? \_\_\_\_

Why do chromosomes in the sperm and egg have to match?

Diploid

Haploid

A picture containing photo, food, drawing

Description automatically generated

A picture containing game, sport

Description automatically generated

A close up of a logo

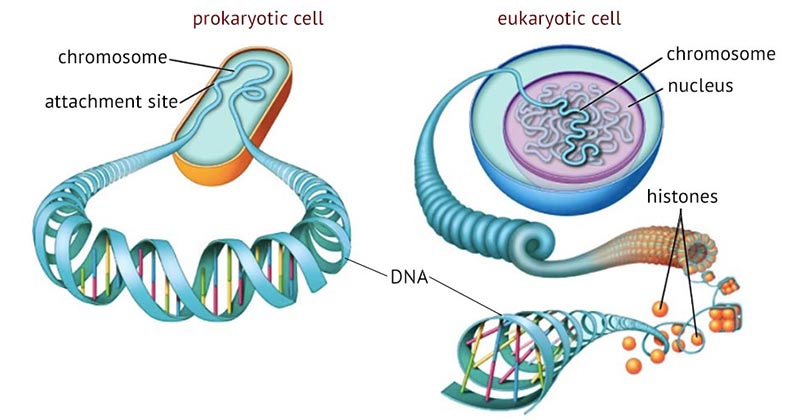
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What is the difference between euchromatin and heterochromatin as far as:

Condensation-

Gene Expression-

Number of genes-



Prokaryote vs. Eukaryote Chromosomes

Prokaryote Eukaryote

Location found:

Shape:

Histone proteins Present?:

Number of chromosomes:

Plasmids used?:

Amount of genes:

A picture containing sitting, star

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Telophase II

Anaphase II

Metaphase II

Prophase II

Telophase I

Anaphase I

Metaphase I

Prophase I

A picture containing object, game

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What is the purpose of meiosis?

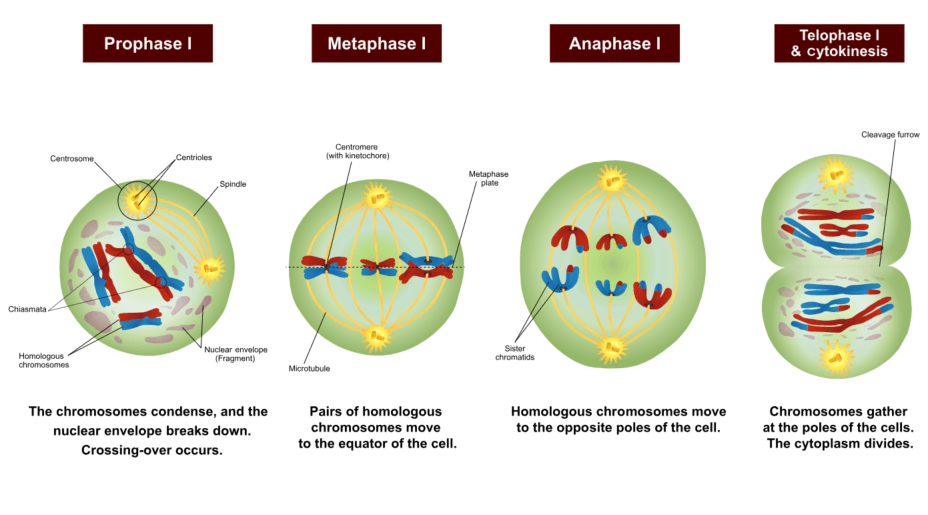
Move chromosomes around to ensure reduction of chromosome number (cut the number in half) and rearrangement of

genetic information (crossing over and law of independent assortment)

What happens during interphase before meiosis?

Which 4 phase are most important? Why?

What types of cells are made at the end? Identical/Unidentical? Diploid/Haploid? Gamete/Somatic Cell?



What is the purpose of meiosis I?

During which phase do homologous pairs form tetrads for synapsis and crossing over to occur?

What is the law of segregation?

What is the law of independent assortment?

Why are metaphase I and anaphase I so important?

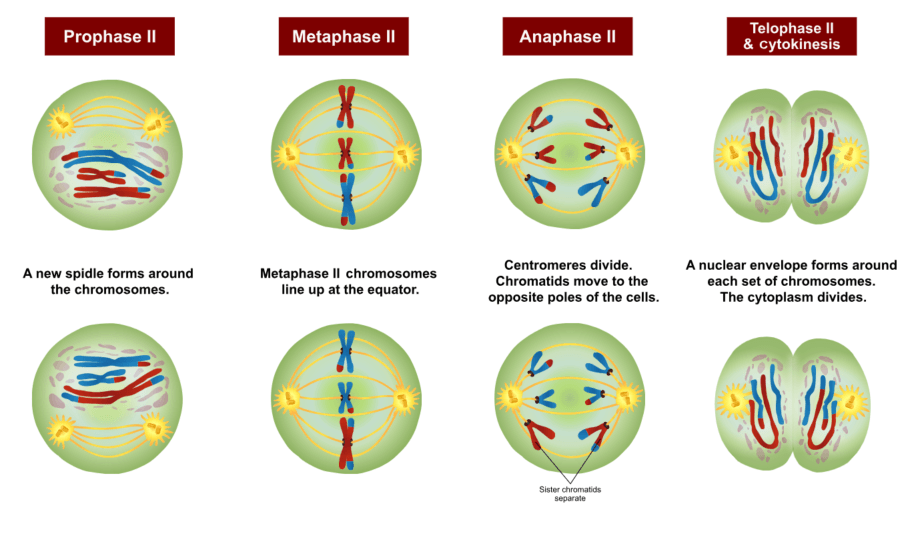
How many cells are made at the end? \_\_\_\_

Telophase I

Anaphase I

Metaphase I

Prophase I



What happens during each phase?

Prophase I- \*Anaphase I-

\*Metaphase I- Telophase I-

What is the purpose of meiosis II?

How is it different from what goes on in meiosis I?

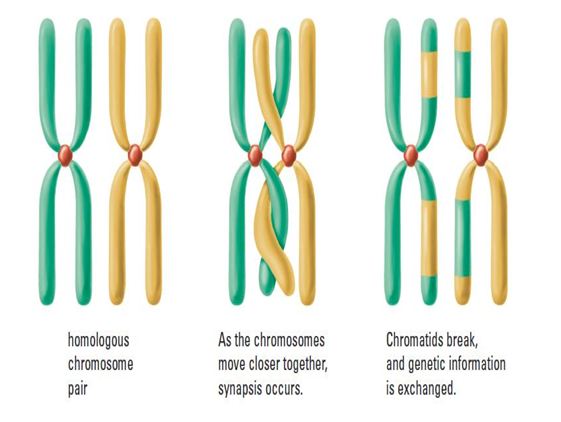
Why are metaphase II and anaphase II so important?

How many cells will be made at the end? \_\_\_\_\_\_

What happens during each phase?

Prophase II- \*Anaphase II-

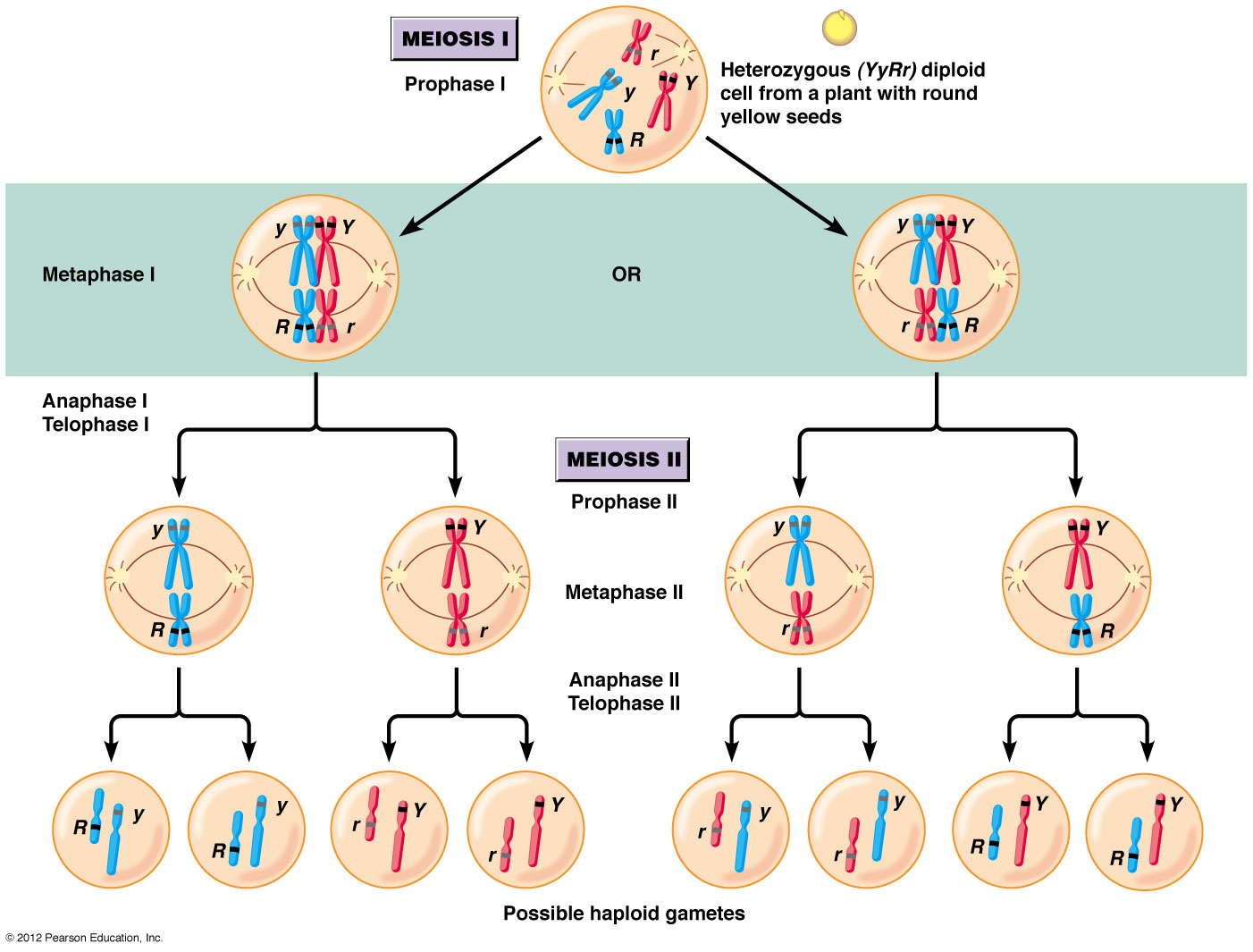
\*Metaphase II- Telophase II-



What happens during crossing over?

How does it create genetic variation?

Why would you not want this to happen during ***mitosis***?



Does independent assortment happen during meiosis I or II?

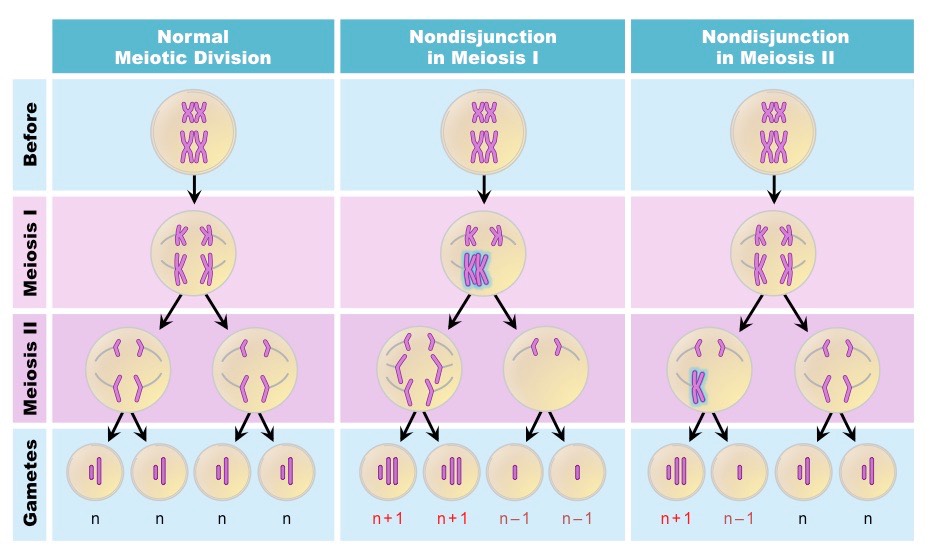
During which phase?

What happens during independent assortment?

How does it create genetic variation?

***\*\*\*Independent assortment does not happen during meiosis II***

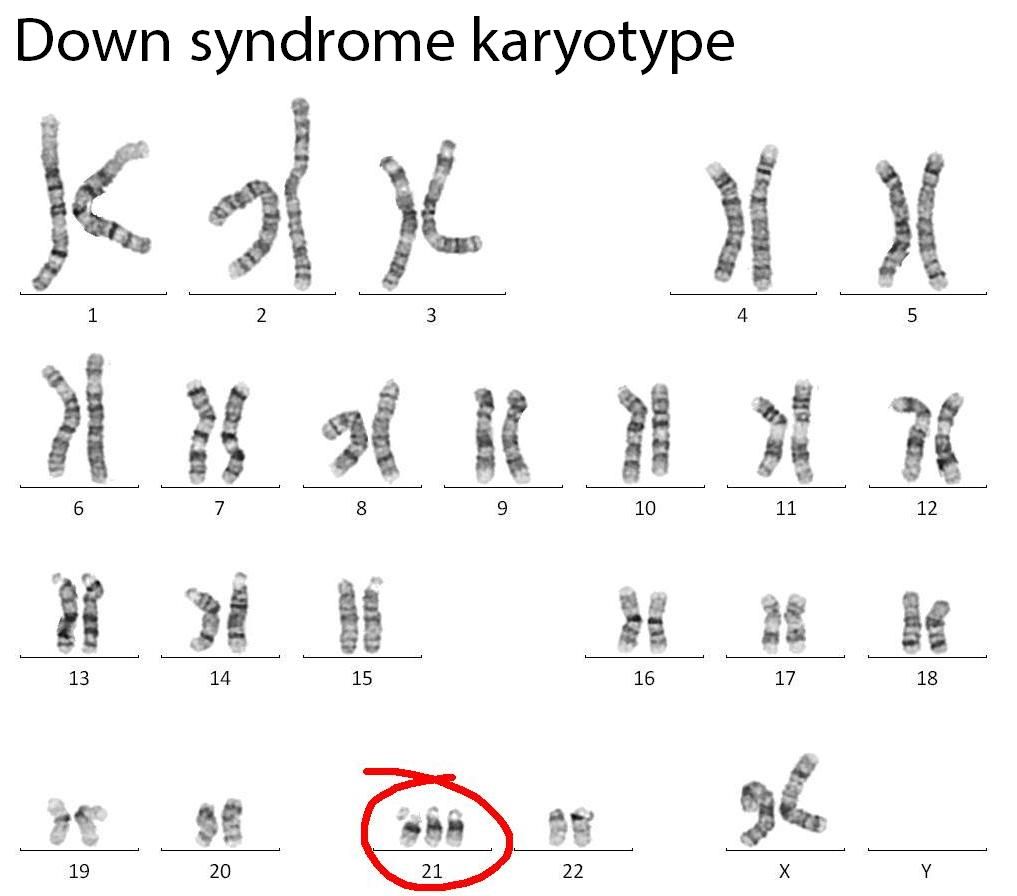
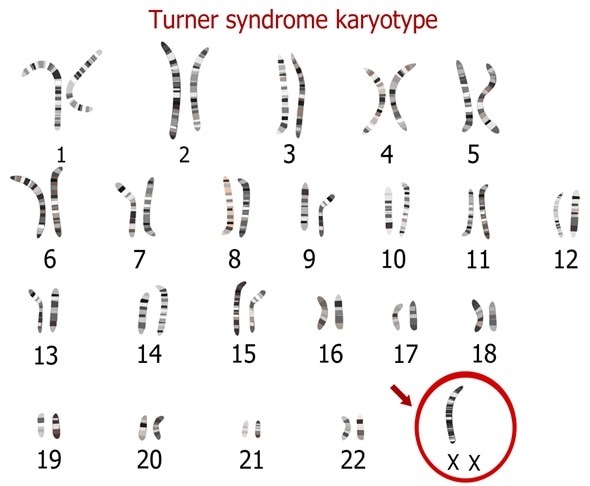
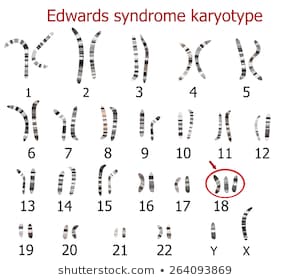
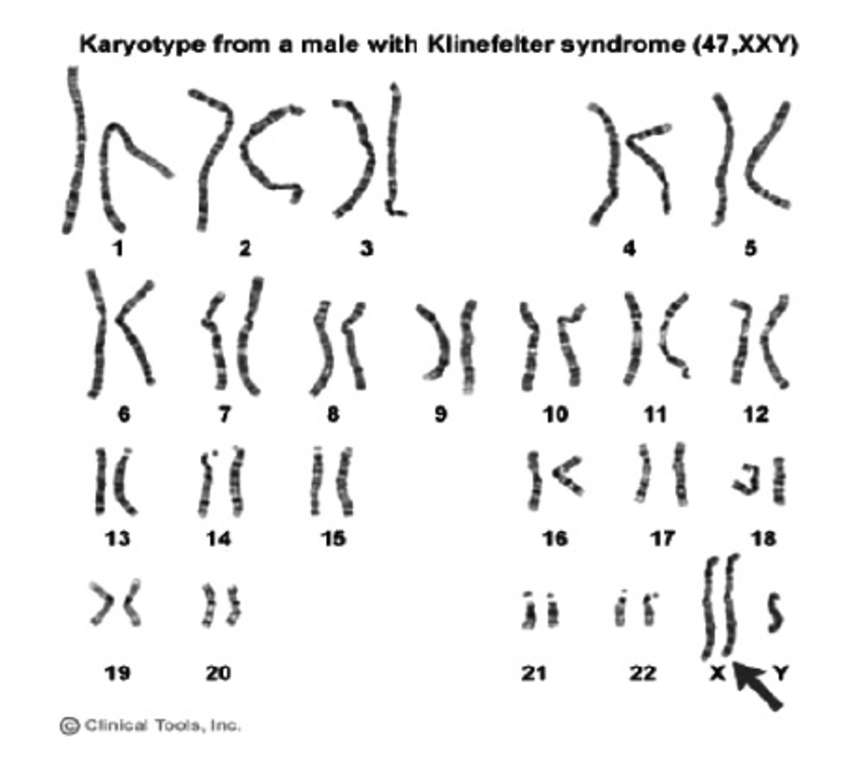
**OR**



What is nondisjunction?

During which phase of meiosis I and meiosis II can it occur?

What types of disorders can this cause?



Girl

Girl

Boy

Pictures off all 46 chromosomes in order from longest to shortest with sex chromosomes last are called \_\_\_\_\_\_\_\_\_

How do we know these 4 people had a parent that had nondisjunction occur during meiosis?

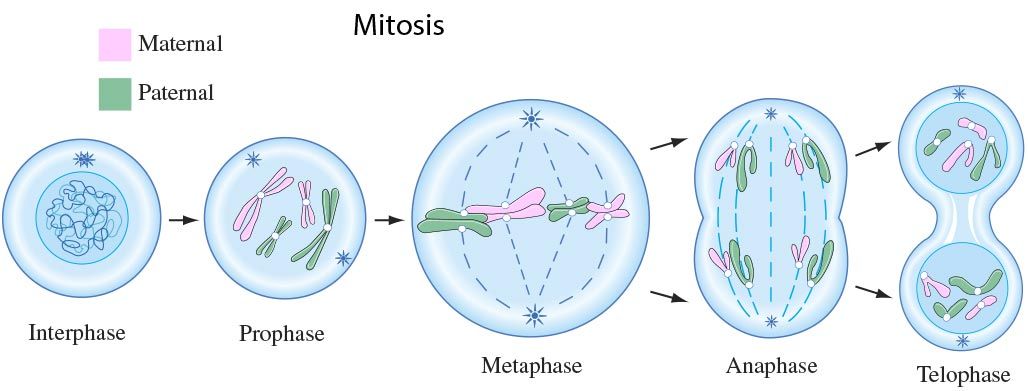
Are these gene or chromosome disorders? Explain.

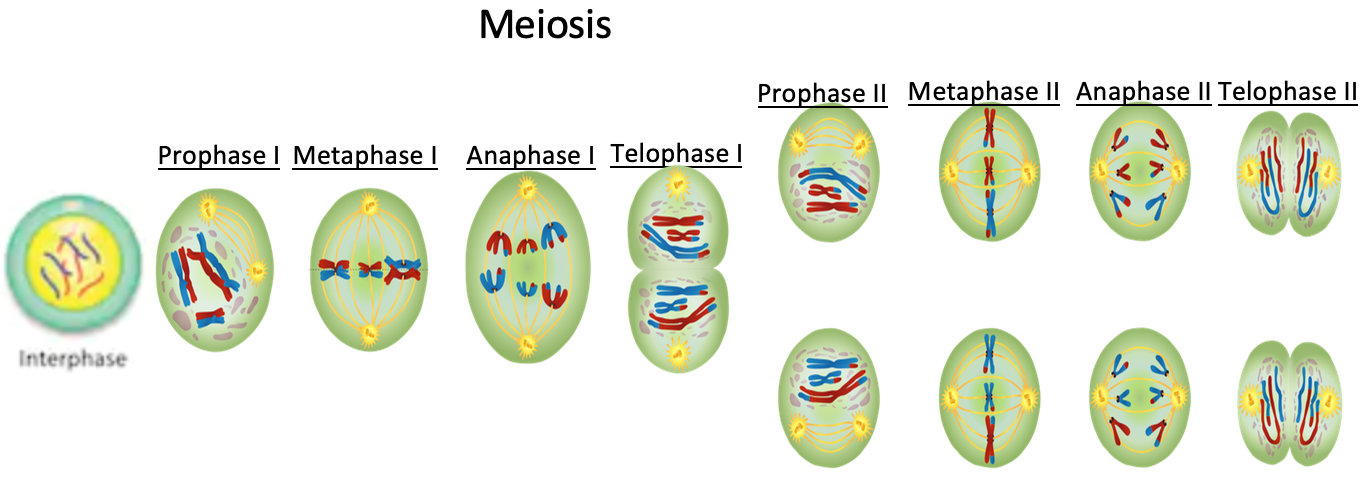
How many autosomes do humans have in a diploid cell? \_\_\_\_\_ How many sex chromosomes in a diploid cell? \_\_\_\_

How many autosomes do humans have in a haploid cell? \_\_\_\_\_ How many sex chromosomes in a haploid cell? \_\_\_\_

What 2 sex chromosomes does a female have? \_\_\_\_\_\_ What 2 sex chromosomes does a male have? \_\_\_\_\_\_

Boy





In what ways are mitosis and meiosis similar?

Mitosis Vs. Meiosis (mostly differences)

Mitosis Meiosis

Purpose:

Interphase?: \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_

Chromosome Numbers: 2n🡪2n 2n🡪n

Ploidy: \_\_\_\_\_\_\_\_\_\_\_\_ Haploid

Number of daughter cells made: 2 \_\_\_\_\_\_\_\_\_\_\_\_\_

Number of divisions: \_\_\_\_\_\_\_\_\_\_\_\_ 2

Genetic Results: Identical \_\_\_\_\_\_\_\_\_\_\_\_\_

Crossing over? : \_\_\_\_\_\_\_\_\_\_\_\_ Yes

Independent assortment?: No \_\_\_\_\_\_\_\_\_\_\_\_\_

Homologous chromosomes \_\_\_\_\_\_\_\_\_\_\_\_ Yes in metaphase I, no in meiosis II

pair in metaphase?

Synapsis: No \_\_\_\_\_\_\_\_\_\_\_\_\_

Sister Chromatid Separation: \_\_\_\_\_\_\_\_\_\_\_\_ No in meiosis I, yes in meiosis II