

- Circle the words in bold that are correct: Gametic cells are **haploid**/**diploid** which means they are **$N/2N$** and are formed by **meiosis**/**mitosis**. Somatic cells are **haploid**/**diploid** which means they are **$N/2N$** and are formed by **meiosis**/**mitosis**.
- Create a T chart contrasting meiosis with mitosis. Include how many cells are produced from each, what type of cells are produced, which type leads to genetic variation, and any other differences you can come up with.

	meiosis	mitosis
◦ crossing over happens during meiosis.	◦ makes gametes ◦ makes 4 genetically unique cells ◦ goes through 2 rounds of PMAT	◦ makes somatic cells ◦ makes 2 identical cells ◦ 1 round of PMAT

- What are two things that happen during meiosis that lead to genetic variation?

Crossing over & independent assortment of chromosomes

- Homologous chromosomes exchanging segments of DNA during meiosis is called

Crossing over

- What is a karyotype? A picture of an organisms homologous chromosomes

- Nondisjunction leads to abnormal karyotypes and occurs during cell division when the homologous chromosomes or sister chromatids do not separate properly.

- In a karyotype, the homologous chromosomes are paired up.

- What is an allele? A form of a gene

- What does it mean if an organism is homozygous for a trait?

It has 2 of the same alleles

ex: BB or bb

- What does it mean if an organism is heterozygous for a trait?

It has 2 different traits ex: Bb

- What is the difference between a **genotype** and **phenotype**?

genotype is what you are (alleles)

phenotype is what you see physically.

12. One fly is heterozygous with long wings and another fly is homozygous with short wings. Which is dominant, long wings or short wings and why?

Long because it is expressed in the heterozygous fly.

13. Create a punnett square crossing the two flies described above. What percentage of the offspring will have long wings? What percentage will have short wings?

Ll x ll

	L	l
l	Ll	ll
l	Ll	ll

50% long
50% short

14. A bunny has brown fur (the dominant trait). If there a way I could find out if it is homozygous dominant or heterozygous? If so, how? Yes. do a test cross with a recessive bunny. IF all offspring are brown it is BB. If Some are white it is Bb

15. A red flower being crossed with a white flower producing all pink flowers is an example of what? incomplete dominance

16. A red flower being crossed with a white flower and producing flowers that contain both white and red in the same petal is an example of what?

codominance

17. Blood types exhibit what kind of dominance?

A & B are codominant w/ each other but both are dominant to O.

18. A woman has blood type O. She mates with a man who has blood type AB. Create a punnett square to show the blood type possibilities of the offspring.

woman = ii (oo) man = I^AI^B

	I ^A	I ^B
i	I ^A i	I ^B i
i	I ^A i	I ^B i

19. What is the difference between an autosome and a sex chromosome?

autosomes are chromosomes that are NOT sex chromosomes (X & Y)

20. Why are males more likely to have sex-linked genetic disorders?

Because they only have one X chromosome and therefore do NOT have a back up.

21. The gene which causes color blindness is carried on the x chromosome. A female who is a carrier for colorblindness mates with a man who is not color blind. Create a punnett square. a. What is the chance they will have a female who is color blind? b. What is the chance they will have a female who is a carrier for colorblindness? c. What is the chance they will have a male who is colorblind?

female: X^BX^b male: X^BY

	X ^B	X ^b
X ^B	X ^B X ^B	X ^B X ^b
Y	X ^B Y	X ^b Y

a: Zero! Both females have a B

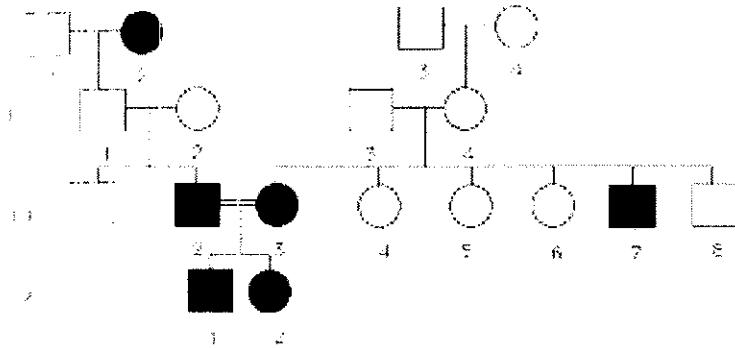
b: 25%

c: 25%

22. Can a male be a carrier for color blindness?

No because they only have one X. Their either have it or they dont

Refer to the following pedigree to answer questions 24 and 25



24. What can be determined about the trait being shown in the pedigree?

- A. It is dominant
- B. It is recessive
- C. It is neither dominant nor recessive
- D. It is an x-linked trait

25. What is the relationship between individual I-1 and III-1?

- A. I-1 is the uncle of III-1
- B. I-1 is the brother of III-1
- C. I-1 is the grandmother of III-1
- D. I-1 is the grandfather of III-1

26. Cells can communicate with one another by sending messages around the body. One type of message is sent by electrical signals through the nervous system while another type is sent by hormones traveling through the blood stream.

27. Cells of the same type come together to make tissue which end up making an organ.

28. Organs work together to make organ systems which make the organism.