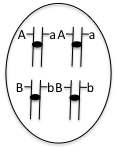
1. **Using your knowledge of genetics, explain how human brain cells and heart cells are different.**
2. **Suppose a single DNA base change of an A to a C occurs and is copied during replication. Is this a mutation? Yes or No. Explain your answer.**
3. **There is a G to A base change at the position marked with an asterisk. Consequently, a codon normally encoding an amino acid becomes a stop codon. How will this alteration influence DNA replication?**



1. **How will this alteration influence transcription?**
2. **How will this alteration influence translation?**
3. **Explain how new alleles (gene versions or variants) arise in populations of animals.**
4. **Explain how new alleles (gene versions or variants) arise in a bacterial colony.**
5. Suppose there are two genes on two different chromosomes, one gene called A and the other called B. An individual has the genotype AaBb. You are asked to draw cells in this individual **after DNA replication but before cell division of the first meiosis**. Your classmate makes the following drawing: **Do you think this drawing is correct? Why or why not?**

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