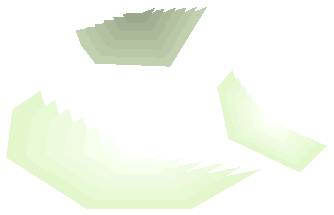
**GENETICS**



**BIG QUESTION: How are traits passed from one generation to the next??**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- |
| **Focus Question: What is DNA?**  **Learning Target:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| * DNA stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * DNA is found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of every cell in your body. * All \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ have DNA. | |
| **DNA BASICS** | |
| **What is DNA?**  DNA, or deoxyribonucleic acid, is the hereditary material in humans and almost all other organisms. Nearly every cell in a person’s body has the same DNA. Most DNA is located in the cell nucleus (where it is called nuclear DNA).  The information in DNA is stored as a code made up of four chemical bases: adenine (A), guanine (G), cytosine (C), and thymine (T). Human DNA consists of about 3 billion bases, and more than 99 percent of those bases are the same in all people. The order, or sequence, of these bases determines the information available for building and maintaining an organism, similar to the way in which letters of the alphabet appear in a certain order to form words and sentences.  An important property of DNA is that it can replicate, or make copies of itself. Each strand of DNA in the double helix can serve as a pattern for duplicating the sequence of bases. This is critical when cells divide because each new cell needs to have an exact copy of the DNA present in the old cell.  DNA is a double helix formed by base pairs attached to a sugar-phosphate backbone. | |
| **Function of DNA:** | |
|  | |
| **DNA Structure:** | |
| **Name three patterns you can see in the model.**   |  | | --- | | **Compare YOUR DNA strand to another group’s DNA strand. How are they different?** | | **Explain :**  **If all organisms have DNA, then why aren’t all organisms the same?** | | |
| **Focus Question: What are chromosomes and genes?**  **Learning Target:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Class model using your DNA models.** | **Your Definitions:**  **Gene:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Chromosome:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Official Definitions:**  **Gene: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Chromosomes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| http://classconnection.s3.amazonaws.com/730/flashcards/1276730/jpg/cell_types1330806303645.jpg | |
|  | |
| http://biomodel.uah.es/citogene/horwitz/gbandkar.jpg  http://www.poligene.com.br/ktml2/images/uploads/CARIOTIPO-M.gif?0.4782889827893311 | |
| * **Humans have \_\_\_\_\_\_\_ chromosomes in each body cell.** * **Chromosomes contain \_\_\_\_\_\_\_\_\_\_\_\_.** * **Males have \_\_\_\_\_\_\_\_\_ chromosomes.** * **Females have two \_\_\_\_\_\_\_\_\_ chromosomes.** * **Each band represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   http://www.anselm.edu/homepage/jpitocch/evolution/fruitfly/aptfemalemale1.jpghttp://01.edu-cdn.com/files/static/mcgrawhillprofessional/9780071625036/CHROMOSOMES_03.GIF   * **How many chromosomes does a fruit fly have in each body cell?**   **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   * **Each chromosomes contains many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** * **The chromosomes and genes are made of \_\_\_\_\_\_\_\_ and found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   http://www.polyvore.com/cgi/img-thing?.out=jpg&size=l&tid=28860645http://4.bp.blogspot.com/-cCcPWasNdwQ/URXauW_-ojI/AAAAAAAADU4/jqFHMXkosos/s1600/kitten+1.jpg   * **How many chromosomes do cats have in each cell? \_\_\_\_\_\_** * **Are these chromosomes from a male or female cat?**   **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **I claim that for each organism, the number of chromosomes:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **I know this because:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Question :**  **Humans have 46 chromosomes. So does this squirrel:** http://upload.wikimedia.org/wikipedia/commons/thumb/2/2e/2009-Beldings-Ground-Squirrel.jpg/250px-2009-Beldings-Ground-Squirrel.jpg  **How can we have the same number of chromosomes and look so different?**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Learning Target:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Asexual Reproduction Sexual Reproduction**  http://www.devbio.biology.gatech.edu/wp-content/uploads/2011/04/HydraBudding.jpghttp://4.bp.blogspot.com/-baTkF-YUvbU/TfcA0nmqLlI/AAAAAAAAARk/lPFuhmFX-Q4/s1600/CrossPollinationLG.gif  http://www.biologycorner.com/resources/fission.jpghttp://pregnentcare.files.wordpress.com/2012/10/fertilization1.jpg  http://snowbio.wikispaces.com/file/view/planaria-regeneration.jpg/393753582/planaria-regeneration.jpg  **Content:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­\_**  Fertilization:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  http://home.comcast.net/~clupold96/images/notes/chromosomes/fertilization.gif  In sexual reproduction, the sperm and egg cells only have \_\_\_\_\_\_\_ the number of chromosomes of a regular body cell.  Why is that important?   |  |  |  |  | | --- | --- | --- | --- | |  | Organism | Number of chromosomes  In body cells | Number of chromosomes in sperm or egg | | 1. | Horse |  |  | | 2. | Housefly |  |  | | 3. | Fruit fly |  |  | | 4. | Cat |  |  | | 5. | Chicken |  |  |   **What happens AFTER fertilization?**   |  | | --- | | **Video Notes** | |  |   **Which parts of the body produce sperm or egg cells?**      **Functions:** | |