

**5.L.3** **Understand why organisms differ from or are similar to their parents based on the characteristics of the organism.**

5.L.3.1 Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.

5.L.3.2 Give examples of likenesses that are inherited and some that are not.

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| EssentialQuestions | * What are inherited traits?
* How are organisms different from and similar to their parents?
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**Cells** – the **“building blocks” of all organisms**; the smallest unit of living matter.

* Organisms can be **unicellular** (they only have one cell) or **multicellular** (they have many cells).
* Examples of unicellular organisms:
amoeba, bacteria, protists, algae
* Examples of multicellular organisms:
plants, animals (including people)

**Tissues** – a group of similar *cells* working together at the same job.

**Organ System** – a group of *tissues* that work together to do a certain job.



**DNA** – “Deoxyribonucleic Acid”

* It’s a **molecule that carries the instructions** for how each cell in your body should grow and behave.
	+ A *molecule* is two or atoms together!
	+ An *atom* is the smallest particle in anything living or nonliving!
* Carries the *genetic code*that makes you look and behave the way you do.
* **Present in all living cells**:
	+ Plants, animals, fungi, and protists…
* **No one shares your DNA!** (Unless you’re an identical twin…)
* DNA:blueprint::cell:brick

**Trait/Characteristic** – distinctive mark, feature, or attribute of an organism.

* **Inherited trait** – a trait that is inherited BY OFFSPRING, FROM PARENTS that helps an organism survive (also called an adaptation); instinct (automatic).
	+ *Examples*: Camouflaged fur on a rabbit, claws on a hawk, hitchhiker’s thumb, widow’s peak, hair color, eye color, skin tone, height, etc.
* **Acquired (Learned) trait** – a behavior that is learned from parents and other surrounding influences and circumstances; not instinctual.
	+ Examples: reading, nail biting, dancing, folding clothes, using a map, etc.

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| INHERITED TRAITS | ACQUIRED/LEARNED TRAITS |
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**Genes** – coded instructions in a cell’s DNA for everything the body needs, especially proteins.

* Genes and other genetic material are in the nucleus of a cell.
* Genes are packed into bundles called *chromosomes*.
* Each person has about 25,000 genes!



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**Chromosome** – carry all the information used to help a cell grow, thrive, and reproduce; made up of DNA.

* Humans have 23 pairs of chromosomes!
* 23 chromosomes from mom, 23 chromosomes from dad, 46 in all, 23 pairs.

**DNA** is in **chromosomes**, **chromosomes** are in **cells**, **cells** are in **tissues**, **tissues** make up **organs**, and **organs** make up the **organism**!

Resources:

* <http://www.biology-online.org/dictionary/Characteristic>
* <http://www.biology4kids.com/files/cell_chromosome.html>
* Interactive DNA: <http://www.worldofmolecules.com/3D/dna_3d.htm>
* <http://www.biology4kids.com/files/cell_main.html>
* <http://www.infoplease.com/dk/science/encyclopedia/single-celled-organisms.html>
* <http://www.britannica.com/EBchecked/media/102103/Bacterial-cells-differ-from-animal-cells-and-plant-cells-in>
* <http://rarediseases.about.com/od/geneticdisorders/a/genesbasics.htm>