**Most of What You Need to Know For the Science 8 Final**

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| Scientific Method1. **Contro**l= Group used for comparison
2. **Constant=** Anything that stays the same between groups
3. **Independent Variable**= The change you make between test groups
4. **Dependent** **Variable**= The difference measured in the results of an experiment
5. **Hypothesis=** What you predict the results of the experiment will show
6. **Observation=** Anything that can be seen or measured
7. **Inference=** A possible explanation or conclusion from an observation
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| Cells1. All living things are unicellular (single celled) or multicellular.
* Single celled: Paramecium, ameba, bacteria
* Multicellular: Plants, animals, mushrooms, most fungi
1. Cells are only found in living things.
2. Cells are living and perform all the characteristics of life.
3. Cells **have specialized structures** that perform life functions.
4. All cells have certain parts like the **cytoplasm (goo)**  and a cell membrane.
5. Plant cells have **cell walls and chloroplasts,** which animal cells do not.
6. Most cells have a **nucleu**s, which holds genes, chromosomes, DNA.
7. The **chloroplasts** of plant cells perform a function called **photosynthesis.**
8. **Photosynthesis** is when a chloroplast makes **sugar and oxygen**.
9. **Tissues**: More than one identical cells working together.
10. **Organs**: **More than one tissue working together**
11. System:  **More than one organ working together.**
12. When **cells divide**, it allows an organism to grow or heal.
13. **Abnormal cell division**= cancer
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| Plants1. Plants are multicellular living things with specialized structures.
2. **Roots=** Absorb water
3. **Stem=** Support
4. **Leaves=** Photosynthesis
5. **Flowers**= Sexual reproduction
6. **Seeds**=
* Produced by **sexual reproduction and fertilization**
* Contain food for developing plant
* Have a protective seed coat
* Developing plant= embryo
1. **Photosynthesis=**
* Plants make food in their leaves using **light, co2, and h20**
* Food= Sugar
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| Human Body SystemsStudy the excretory, respiratory, digestive, circulatory and endocrine systems.There is a whole section on this in the NYS Review book I laboriously copied for you. |
| Ecology:1. **Populations:** Group of all one species
2. **Community:**  All the different populations (plants, animals, etc.)
3. **Ecosystem:**  All the communities AND the non-living factors (water, air, light)
4. **Producers:**
* Make their own sugar. Plants are producers.
* **Must have chlorophyll**
* Begin food webs and chains for entire community
* **Use energy of sunlight to produce food**
1. **Consumers:**
* Must take in food from outside their cells (eat)
* Different types: **Herbivores, carnivores, omnivores, decomposers**
* **Herbivores:** Eat plants / producers
* **Carnivores:** **“Meat Eaters” ;** eat other consumers
* **Omnivores:** Eats producers, consumers
* **Decomposers**: Usually bacteria and fungi. They feed on dead or decaying matter to recycle it
1. **Food webs/ Chains:**
* Arrows represent **energy flow**
* All energy comes from **the sun**
* If a population is increased or decreased, other populations will be affected.
1. **Relationships:**
* **Beneficial:** Two different species help each other out
* **Predator/ Prey: Nom nom nom**
* **Competition**: Two organisms need the same limited resource. Competition can occur between different species OR members of the same species.
1. **Succession:**

Over time, one type of community is replaced by another. For example, an empty field will first have weeds, then grasses, then small trees, and then large trees. After a natural disaster, the organisms in the area may have been destroyed. Over time, new types of plants and animals will recolonize. |
| Genetics:1. **DNA=** The hereditary instructions for the traits of an organism
2. **Chromosomes**: Strands of DNA found in the nucleus. Different species have different numbers. For example , humans have 46 chromosomes in every body cell.
3. **Genes**: **Look like bands on chromosomes.** Each gene carries instructions for one specific trait.
4. **Offsrping=** New organisms created in reproduction
5. **Asexual Reproduction**:
* Only one original parent
* Offspring have 100% identical genes and chromosomes of the one parent
1. **Sexual reproduction**
* **DNA comes from two parent organisms**
* **Each parent gives ½ of their chromosomes**
* **Creates LOTS of VARIATION in offspring**
* **Offspring only has 50% of chromosomes from each parent**
1. **Fertilization:** Sperm and egg cells combine chromosomes
* **Internal----**Occurs inside the body of the female
* **External---** Occurs outside the body of the female (fish, amphibians)
1. **Development:** The first new cell of the organism divides repeatedly to form tissues,

organs, systems before birth1. **Pedigree:** Chart that shows a trait being passed on through generations of a family

See the source image1. **Punnett Square:** Used to predict probability (25% chance, 50% chance, 75% chance, etc.) of the genes an offspring may inherit. BASED ON DOMINANT AND RECESSIVE GENES.

http://elementalblogging.com/wp-content/uploads/2015/03/punnett-square.png |