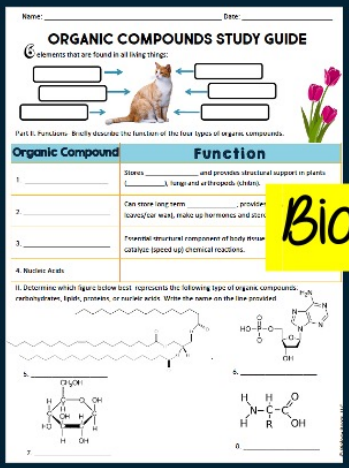
# STUDY GUIDE BUNDLE

- Perfect for high school biology
- Answer keys included
- Digital options included
- 13 editable study guides:

  biochemistry, cells, cell transport, DNA, mutations, cell division, genetics, photosynthesis, cellular respiration, ecology, evolution, classification


Name: _____ Date: _____

ORGANIC COMPOUNDS STUDY GUIDE

6 elements that are found in all living things:

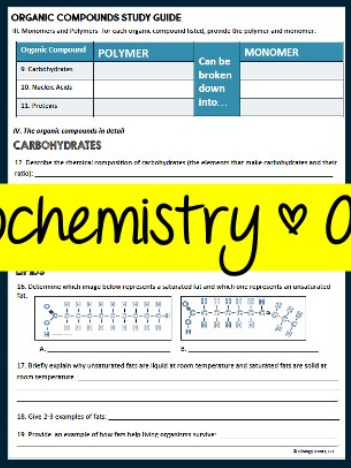
Part I: Functions- Briefly describe the function of the four types of organic compounds.

| Organic Compound | Function |
|---|---|
| 1. _____ | Stores _____ and provides structural support in plants (_____), fungi and arthropods (chitin). |
| 2. _____ | Can store long term _____, provides _____ (cocoa/cut wax), make up hormones and store _____. |
| 3. _____ | Essential structural component of body tissue. _____ catalyze (speed up) chemical reactions. |
| 4. Nucleic Acids | |

II. Determine which figure below best represents the following type of organic compounds: carbohydrates, lipids, proteins, or nucleic acids. Write the name on the line provided.

a. _____ b. _____ c. _____ d. _____




ORGANIC COMPOUNDS STUDY GUIDE

III. Monomers and Polymers- For each organic compound listed, provide the polymer and monomer.

| Organic Compound | POLYMER | Can be broken down into… | MONOMER |
|---|---|---|---|
| 9. Carbohydrates | | | |
| 10. Nucleic Acids | | | |
| 11. Proteins | | | |

*IV. The organic compounds in detail*

CARBOHYDRATES

17. Describe the chemical composition of carbohydrates (the elements that make carbohydrates and their ratio): _____

LIPIDS

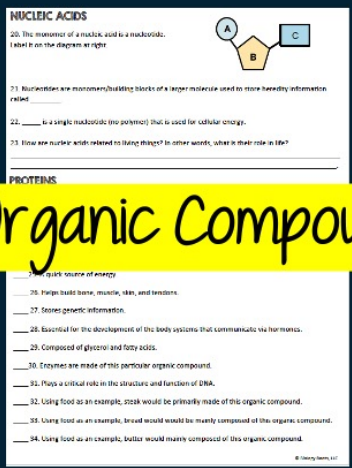
18. Determine which image below represents a saturated fat and which one represents an unsaturated fat.

A. _____ B. _____

17. Briefly explain why unsaturated fats are liquid at room temperature and saturated fats are solid at room temperature: _____

18. Give 2-3 examples of fats: _____

19. Provide an example of how fats help living organisms survive: _____


NUCLEIC ACIDS

20. The monomer of a nucleic acid is a nucleotide. Label it on the diagram at right




21. Nucleotides are monomers/building blocks of a larger molecule used to store heredity information called _____

22. _____ is a single nucleotide (no polymer) that is used for cellular energy.

23. How are nucleic acids related to living things? In other words, what is their role in life?

_____

PROTEINS

_____ 25. Quick source of energy.

_____ 26. Helps build bone, muscle, skin, and tendons.

_____ 27. Stores genetic information.

_____ 28. Essential for the development of the body systems that communicate via hormones.

_____ 29. Composed of glycerol and fatty acids.

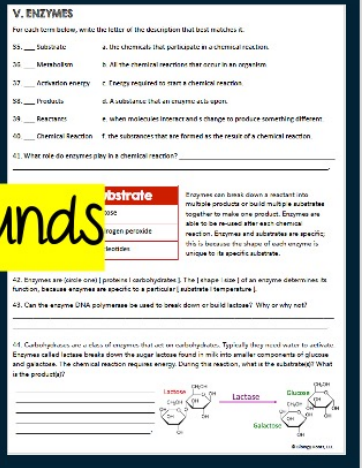
_____ 30. Enzymes are made of this particular organic compound.

_____ 31. Plays a critical role in the structure and function of DNA.

_____ 32. Using food as an example, steak would be primarily made of this organic compound.

_____ 33. Using food as an example, bread would be mainly composed of this organic compound.

_____ 34. Using food as an example, butter would mainly composed of this organic compound.


V. ENZYMES

For each term below, write the letter of the description that best matches it.

35. ___ Substrate — a. the chemicals that participate in a chemical reaction.

36. ___ Metabolism — b. All the chemical reactions that occur in an organism.

37. ___ Activation energy — c. Energy required to start a chemical reaction.

38. ___ Products — d. A substance that an enzyme acts upon.

39. ___ Reactants — e. when molecules interact and change to produce something different.

40. ___ Chemical Reaction — f. the substances that are formed as the result of a chemical reaction.

41. What role do enzymes play in a chemical reaction? _____

| Substrate |
|---|
| …ose |
| …rogen peroxide |
| …lecules |

Enzymes can break down a reactant into multiple products or build multiple substrates together to make one product. Enzymes are able to be re-used after each chemical reaction. Enzymes and substrates are specific; this is because the shape of each enzyme is unique to its specific substrate.

42. Enzymes are (circle one) [ protein | carbohydrates ]. The [ shape - size ] of an enzyme determines its function, because enzymes are specific to a particular [ substrate | temperature ].

43. Can the enzyme DNA polymerase be used to break down or build lactose? Why or why not?

_____

44. Carbohydrases are a class of enzymes that act on carbohydrates. Typically they need water to activate. Enzymes called lactase breaks down the sugar lactose found in milk into smaller components of glucose and galactose. The chemical reaction requires energy. During this reaction, what is the substrate(s)? What is the product(s)?

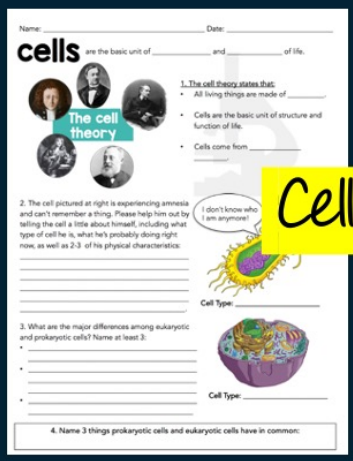
_____

_____

_____




# Biochemistry ♥ Organic Compounds


Name: _____ Date: _____

cells are the basic unit of _____ and _____ of life.




1. The cell theory states that:
- All living things are made of _____
- Cells are the basic unit of structure and function of life.
- Cells come from _____

2. The cell pictured at right is experiencing amnesia and can't remember a thing. Please help him out by telling the cell a little about himself, including what type of cell he is, what he's probably doing right now, as well as 2-3 of his physical characteristics:



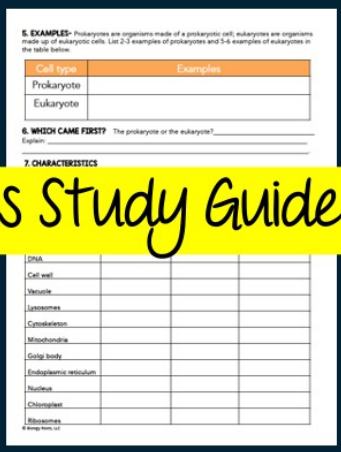

Cell Type: _____

3. What are the major differences among eukaryotic and prokaryotic cells? Name at least 3:



Cell Type: _____

4. Name 3 things prokaryotic cells and eukaryotic cells have in common:


5. EXAMPLES- Prokaryotes are organisms made of a prokaryotic cell; eukaryotes are organisms made up of eukaryotic cells. List 2-3 examples of prokaryotes and 5-6 examples of eukaryotes in the table below.

| Cell type | Examples |
|---|---|
| Prokaryote | |
| Eukaryote | |

6. WHICH CAME FIRST? The prokaryote or the eukaryote?_____
Explain: _____

7. CHARACTERISTICS

| | | | |
|---|---|---|---|
| DNA | | | |
| Cell wall | | | |
| Vacuole | | | |
| Lysosomes | | | |
| Cytoskeleton | | | |
| Mitochondria | | | |
| Golgi body | | | |
| Endoplasmic reticulum | | | |
| Nucleus | | | |
| Chloroplast | | | |
| Ribosomes | | | |


8. PLANT VS ANIMAL CELLS- Name at least 3 similarities and 3 differences among plant and animal cells.

| Similarities | Differences |
|---|---|
| | |

9. THE JOURNEY OF A PROTEIN- Fill in the blanks of the brief passage below.

Here, proteins are packaged into _____ where they may be delivered to other parts of the cell or outside the cell.

10. ANIMAL CELL LABEL- write each labeled part as per the numbered diagram.

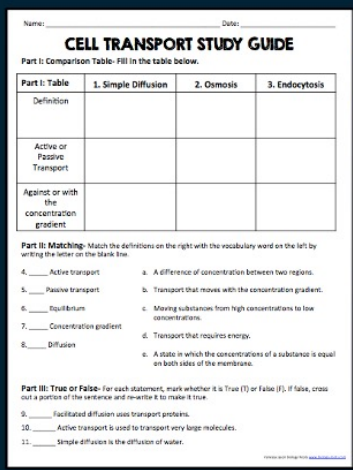
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____ Cytoskeleton
7. _____
8. _____
9. _____
10. _____ Vesicles
11. _____
12. _____
13. _____
14. _____




8. FUNCTIONS Directions: Fill in the table below for each missing location and function.

| CELL PART | LOCATION IN CELL | FUNCTION(S) |
|---|---|---|
| Cell Membrane | Surrounds the Cell | |
| | "Background" of cell; organelles are suspended within it | |
| Nucleus | | |
| Nucleolus | | |
| Chromosomes | Nucleus | |
| | | |
| | | |
| | | |
| Ribosomes | Cytoplasm of cell; sometimes attached to surface of _____ ER | |
| Lysosome | | |
| Golgi | | |
| Mitochondria | | |
| Centriole | Within cytoplasm of _____ cells. | |
| Cell Wall | | |
| Chloroplast | | |

# Cells Study Guide ♥ Types and organelles


Name: _____ Date: _____

CELL TRANSPORT STUDY GUIDE

Part I: Comparison Table- Fill in the table below.

| Part I: Table | 1. Simple Diffusion | 2. Osmosis | 3. Endocytosis |
|---|---|---|---|
| Definition | | | |
| Active or Passive Transport | | | |
| Against or with the concentration gradient | | | |

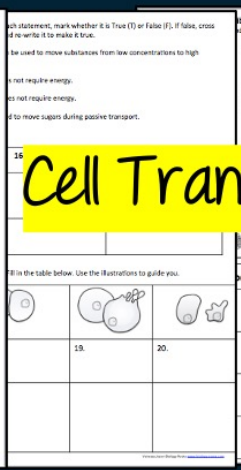
Part II: Matching- Match the definitions on the right with the vocabulary word on the left by writing the letter on the blank line.

4. _____ Active transport
5. _____ Passive transport
6. _____ Equilibrium
7. _____ Concentration gradient
8. _____ Diffusion

a. A difference of concentration between two regions.
b. Transport that moves with the concentration gradient.
c. Moving substances from high concentrations to low concentrations.
d. Transport that requires energy.
e. A state in which the concentrations of a substance is equal on both sides of the membrane.

Part III: True or False- For each statement, mark whether it is True (T) or False (F). If false, cross out a portion of the sentence and re-write it to make it true.

9. _____ Facilitated diffusion uses transport proteins.
10. _____ Active transport is used to transport very large molecules.
11. _____ Simple diffusion is the diffusion of water.


…ch statement, mark whether it is True (T) or False (F). If false, cross …d re-write it to make it true.

…be used to move substances from low concentrations to high …

…s not require energy.

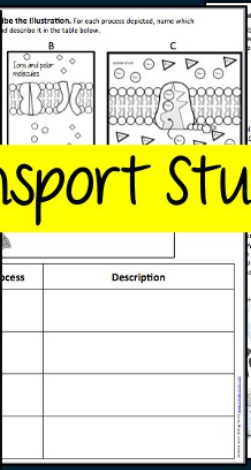
…es not require energy.

…d to move sugars during passive transport.

16. _____

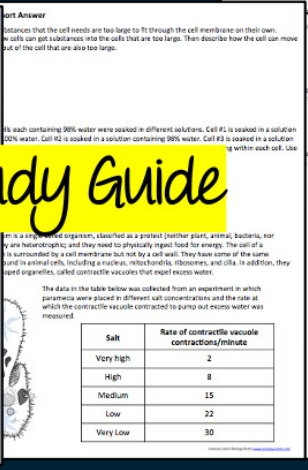
…fill in the table below. Use the illustrations to guide you.

| | | |
|---|---|---|
| | 19. | 20. |
| | | |
| | | |


…be the Illustration. For each process depicted, name which …d describe it in the table below.




| …cess | Description |
|---|---|
| | |
| | |
| | |
| | |


…ort Answer

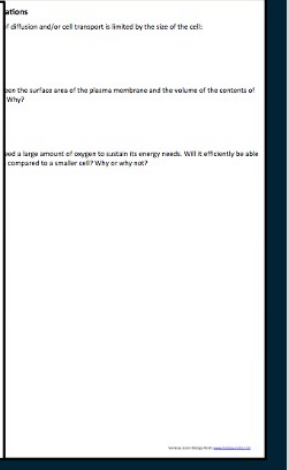
…bstances that the cell needs are too large to fit through the cell membrane on their own. …e cells can get substances into the cells that are too large. Then describe how the cell can move …out of the cell that are also too large.

…ls each containing 98% water were soaked in different solutions. Cell #1 is soaked in a solution …00% water. Cell #2 is soaked in a solution containing 98% water. Cell #3 is soaked in a solution …g within each cell. Use …

…m is a single-celled organism, classified as a protest (neither plant, animal, bacteria, nor …y are heterotrophic; and they need to physically ingest food for energy. The cell of a …is surrounded by a cell membrane but not by a cell wall. They have some of the same …und in animal cells, including a nucleus, mitochondria, ribosomes, and cilia. In addition, they …oped organelles, called contractile vacuoles that expel excess water.

The data in the table below was collected from an experiment in which paramecia were placed in different salt concentrations and the rate at which the contractile vacuole contracted to pump out excess water was measured.

| Salt | Rate of contractile vacuole contractions/minute |
|---|---|
| Very high | 2 |
| High | 8 |
| Medium | 15 |
| Low | 22 |
| Very Low | 30 |


…tions

…f diffusion and/or cell transport is limited by the size of the cell:

…on the surface area of the plasma membrane and the volume of the contents of … Why?

…ed a large amount of oxygen to sustain its energy needs. Will it efficiently be able … compared to a smaller cell? Why or why not?

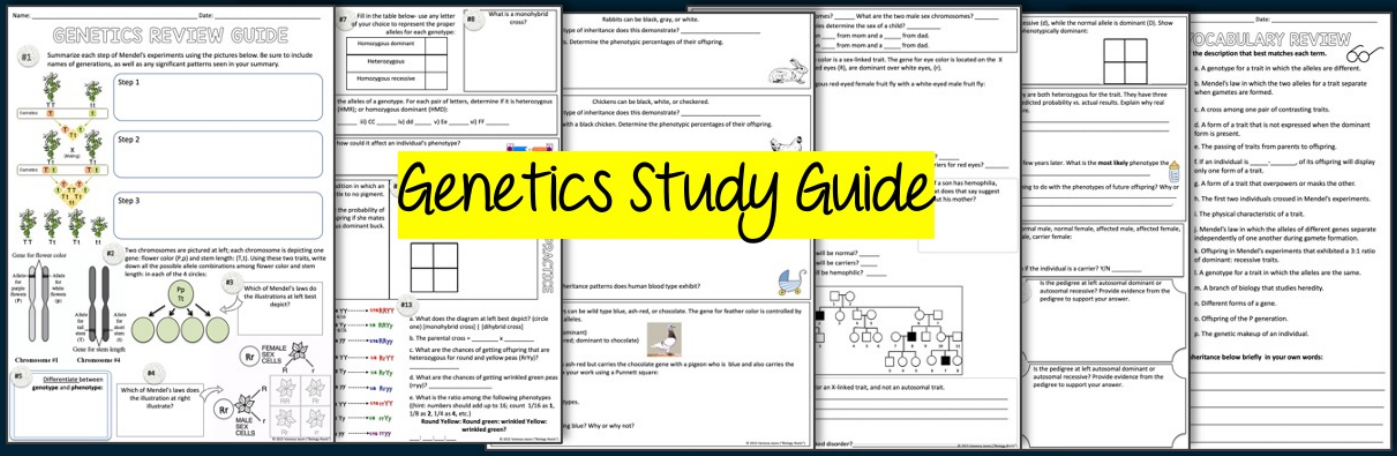
# Cell Transport Study Guide

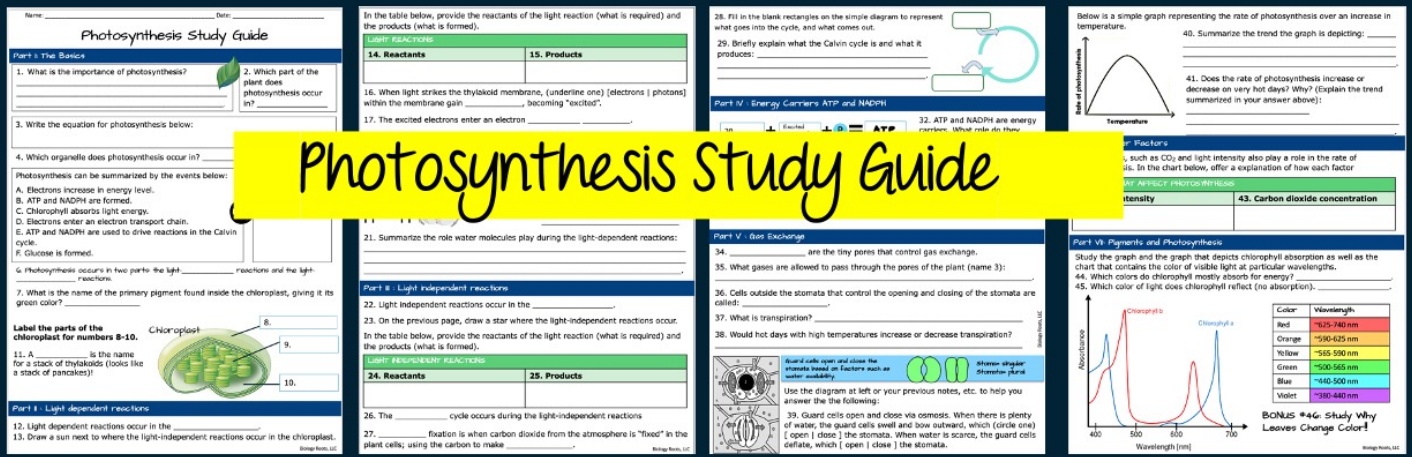
# DNA Study Guide

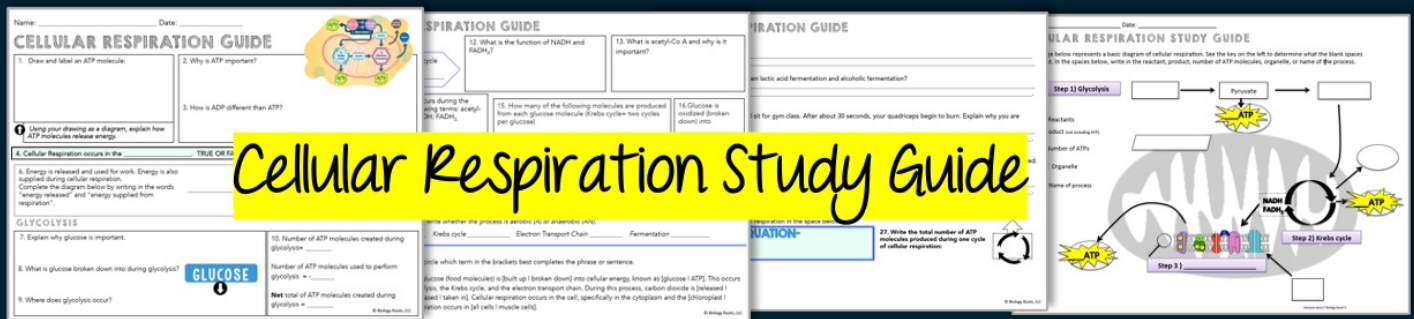
# Mutations Study Guide

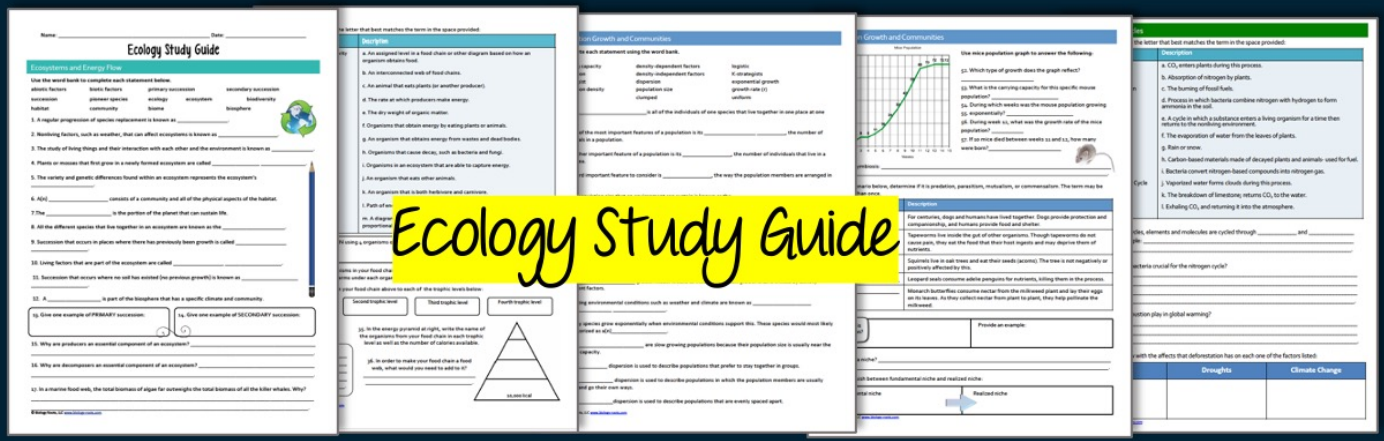
# Mitosis & The Cell Cycle

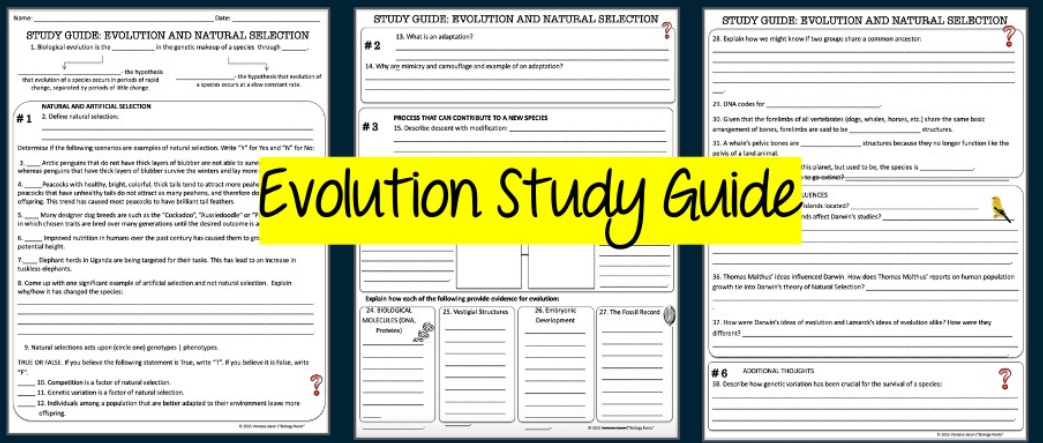
# Mitosis vs. Meiosis Study Guide

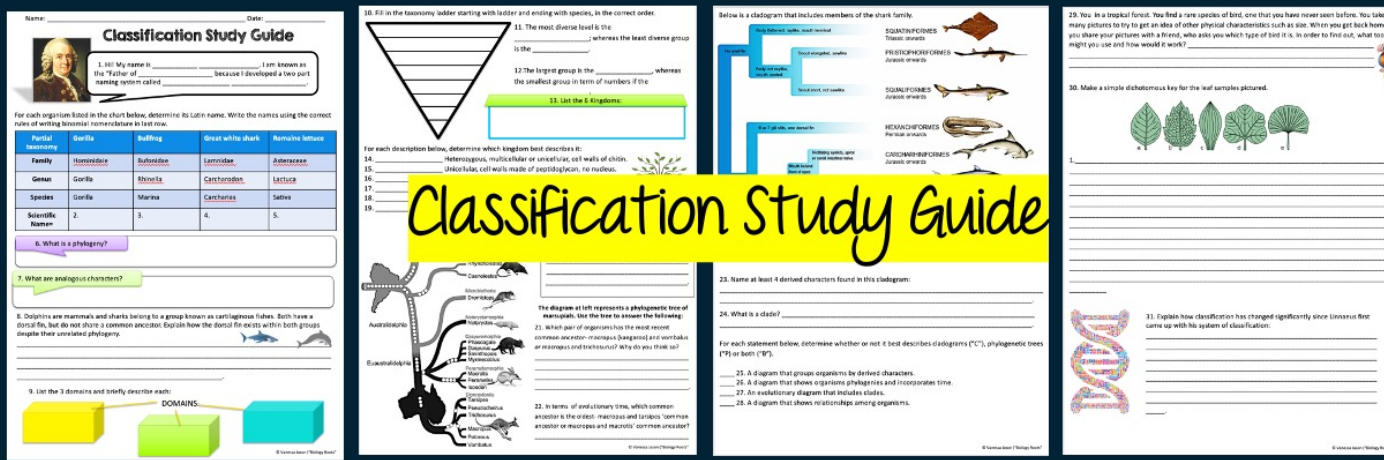

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Photosynthesis Study Guide

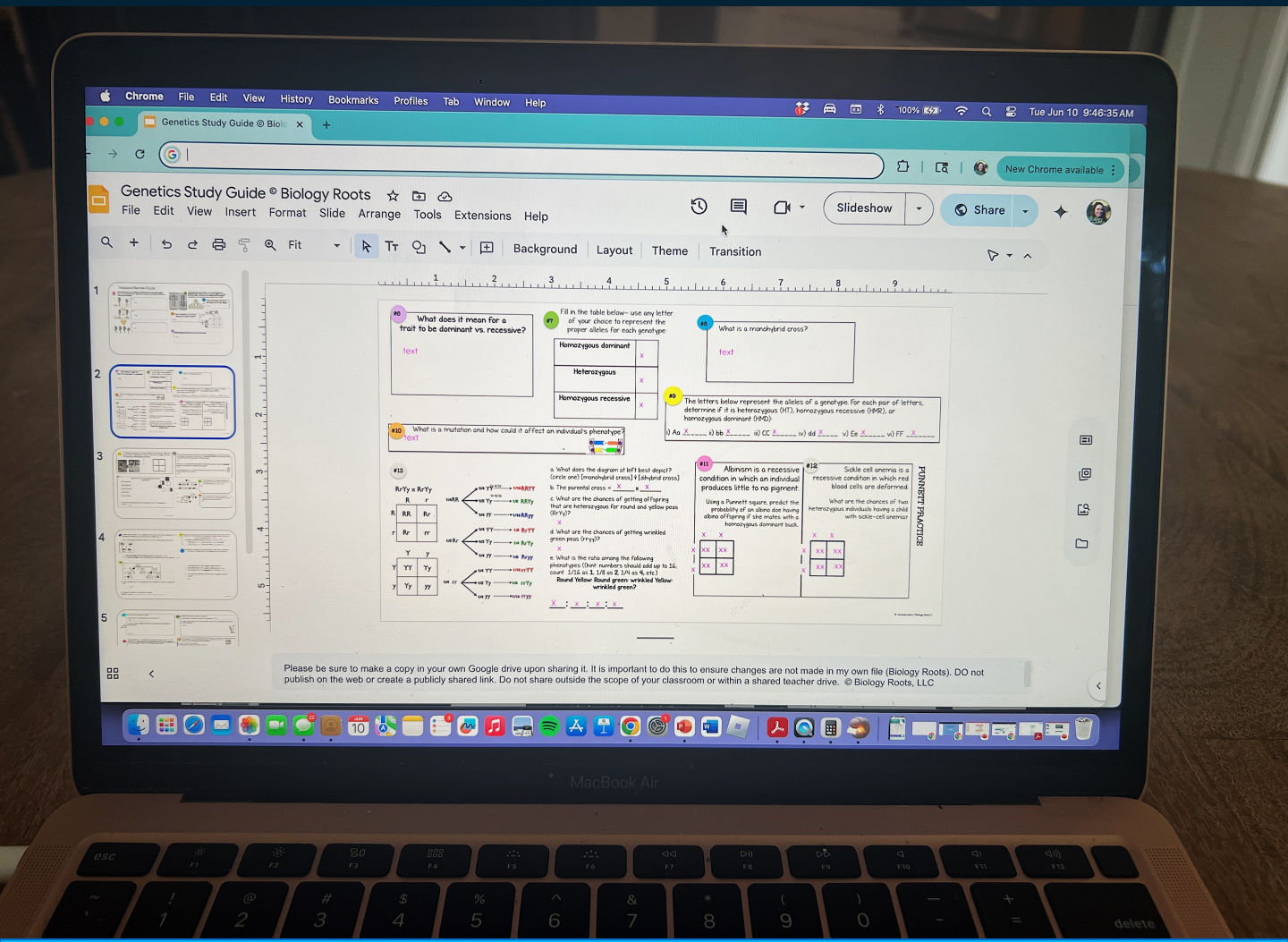

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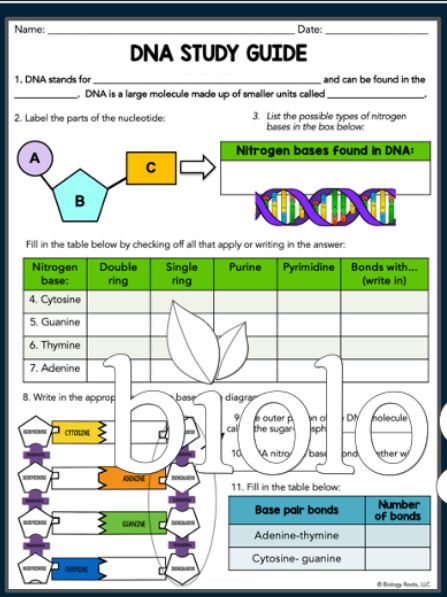

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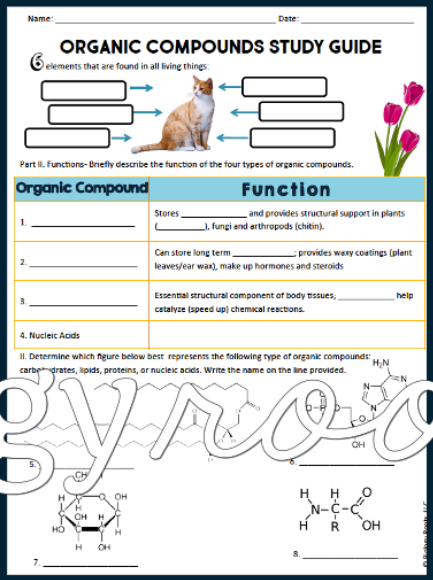

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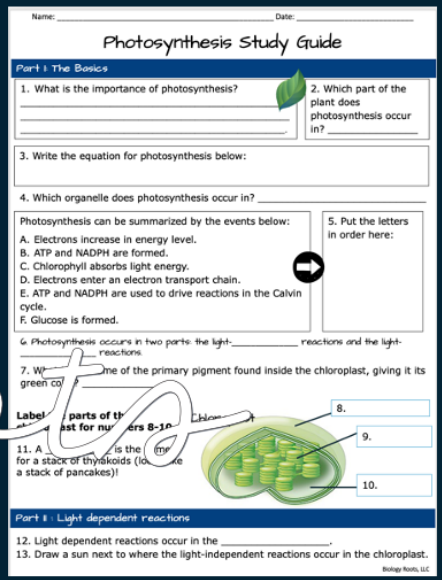
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biologyroots

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