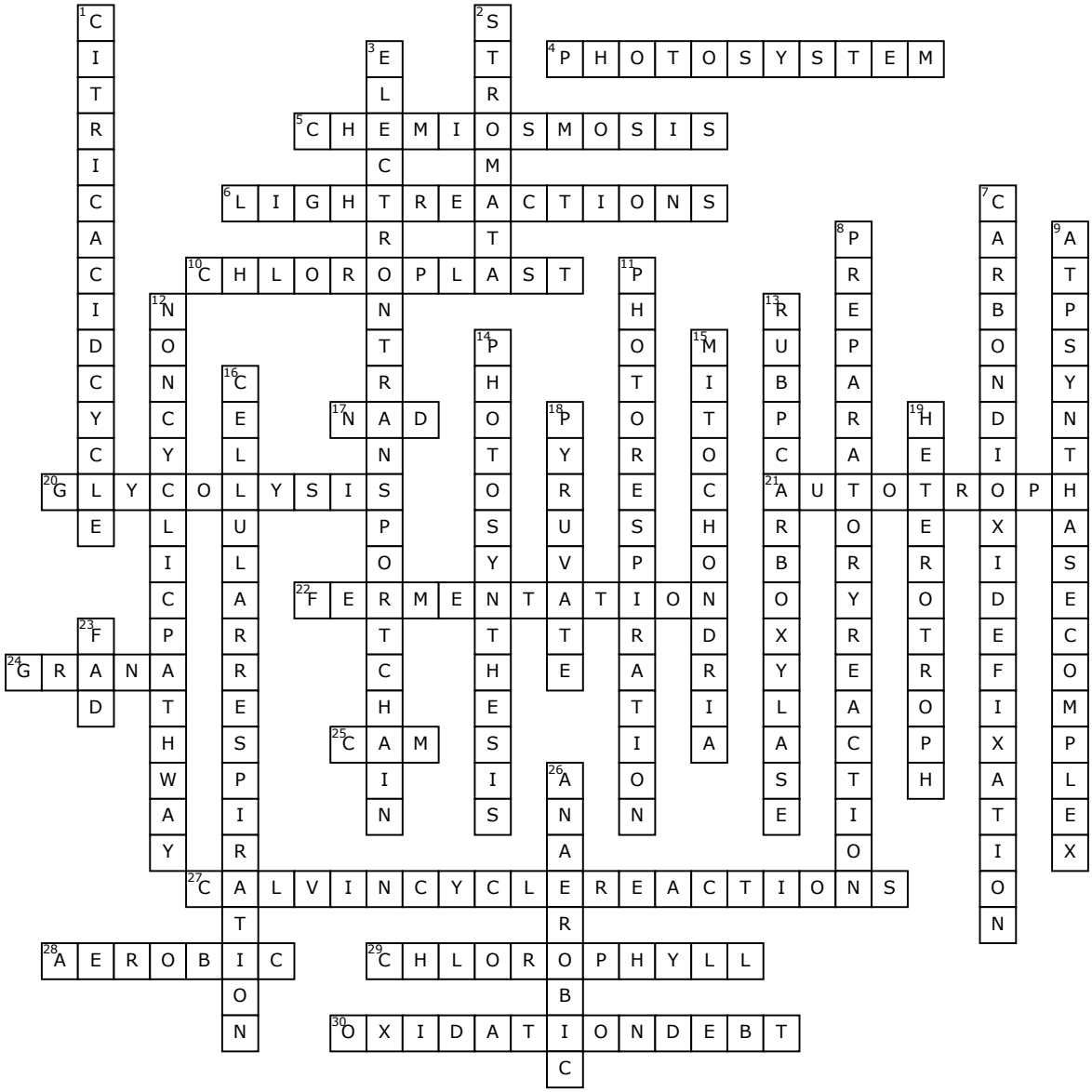
Photosynthesis and Cellular Respiration



Across

4. The photosynthetic unit where energy is absorbed and high energy electrons are generated; occurs as PSII & PSI.

5. The process by which the mitochondria and chloroplasts use energy of an electron transport chain to create a hydrogen ion gradient that drives ATP formation.

6. The _____ _____ are the portion of photosynthesis that captures solar energy and takes place in the thylakoid membranes and produces ATP and NADPH.

10. The membrane bounded organelle, _____ in algae and land plants with chlorophyll containing membranous thylakoids are where photosynthesis takes place.

17. _____ is the coenzyme of oxidation reduction that results in a NADH, and carries electrons to the electron transport chain during cellular respiration.

20. The anaerobic breakdown of a glucose molecule into two pyruvates is also known as _____.

21. An _____ is an organism that can capture solar energy and synthesize organic molecules from inorganic nutrients.

22. _____ is the anaerobic breakdown of glucose that a net gain of 2 ATP molecules and end products such as lactate and alcohol.

24. In the chloroplast of a plant cell, _____ are stacks of the chlorophyll- containing thylakoids.

25. _____ photosynthesis is a carbon fixation pathway that has evolved in some plants as an adaptation to hot/dry conditions.

27. The _____ _____ is a portion of photosynthesis that takes place in the stroma of the chloroplasts, and use the products of light reactions to reduce CO2 to a carbohydrate.

28. Phase of cellular respiration that requires oxygen is _____.

29. The green pigment that absorbs solar energy is known as _____.

30. _____ is term that describes the amount of oxygen that is required to oxidize lactic acid.

Down

1. The _____ _____ _____ is a cycle of reactions in the mitochondria that breaks down acetyl groups and and produce Carbon Dioxide, ATP, and FADH.

2. The small opening between two guard cells on the underside of a leaf epidermis through which gas passes is called the (plural)_____

3. The _____ _____ _____ is a passage of electrons through along a series of membrane-bound electron carrier molecules from a higher to lower energy level; releases energy for ATP synthesis.

7. _____ _____ _____ is a photosynthetic reaction in which CO2 is attached to an organic compound.

8. The _____ _____ is the reaction that oxidizes pyruvate with the release of carbon dioxide; connects glycolysis to the citric acid cycle.

9. _____ _____ _____ is a complex of proteins in the cristae of the mitochondria and the thylakoid of chloroplasts that produces ATP as hydrogen flows down a concentration gradient.

11. _____ is a series of reactions that occur in plants when CO2 levels depleted, but oxygen continues to accumulate and the enzyme RuBP carboxylase fixes oxygen instead of CO2.

12. In a _____ _____, the electrons flow through photosystem II and photosystem I, them move on the Calvin cycle.

13. _____ _____ is an enzyme that starts the calvin cycle reactions by catalyzing attachment of the carbon atom from CO2 to RuBP.

14. The process of _____ is the process by which chlorophyll-containing organelles capture solar energy to to reduce carbon dioxide to carbohydrate.

15. A _____ is a membrane bounded organelle that carries out cellular respiration, and in which ATP molecules are produced.

16. _____ _____ is metabolic reactions that use energy from carbohydrates, fatty acids and amino acids to produce ATP molecules.

18. The end product of glycolysis is 2 _____ molecules.

19. A _____ is an organism that cannot synthesize organic compounds from inorganic substances.

23. The coenzyme of oxidation reduction that oxidizes to become FADH, and delivers electron to the ETC is _____.

26. Growing or metabolizing with an absence of oxygen would be considered to be _____.