Biology Photosynthesis Worksheet Name_____Hr____

1. What is energy? _____

Autotrophs and Heterotrophs

2. Where does the energy that living things need come from? _____
3. Where does energy originate from? _____
4. Define **autotroph:** _____
5. Define **heterotroph:** _____
6. What molecule must organisms use to release energy? _____

Chemical Energy and ATP

7. What are four forms energy can be found in? _____
8. Define **adenosine triphosphate:** _____
9. How do you abbreviate adenosine triphosphate? _____
10. Draw an ATP molecule. Label the **adenine, ribose sugar,** and the **phosphate groups.**

11. What does ADP stand for? _____
12. What is the difference between ATP and ADP? _____
13. When cells want to store up energy they will: add / delete (circle one) a phosphate group.
14. What is ATP like when it has all three phosphate groups? _____
15. When cells want to release energy they will: add / delete (circle one) a phosphate group.
16. Name three cellular activities that ATP helps power. _____

    _____

Using Biochemical Energy

17. True/ False (circle one) Cells have a lot of ATP to carry out their many activities.
18. "Even though ATP is a great molecule for _____ energy, it is not a good one for _____ large amounts of energy over the long term"

8-2 Photosynthesis: An Overview

19. Explain the process of **photosynthesis:** _____

    _____

    _____

The Photosynthesis Equation

20. Write the numerical equation of photosynthesis (the top one)

21. Write the equations using the molecule names (bottom one)

22. What goes three products go into photosynthesis? _____
23. What two products come out of photosynthesis? _____
24. What do plants use the sugars they create for? _____
25. Where do plants get carbon dioxide? _____

Light and Pigments

26. Photosynthesis requires _____ and _____.
27. What organelle can chlorophyll be found in ? _____
28. What does our eyes see in the visible spectrum? _____
29. What are the two types of chlorophyll? _____

Biology Photosynthesis Worksheet Name Key Hr____

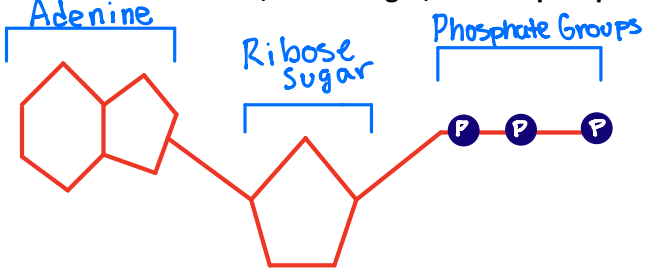
1. What is energy? The ability to do work

Autotrophs and Heterotrophs

2. Where does the energy that living things need come from? Food
3. Where does energy originate from? The sun
4. Define **autotroph:** Organisms that make their own food
5. Define **heterotroph:** Organisms that obtain energy from the food they eat
6. What molecule must organisms use to release energy? sugars and other compounds

Chemical Energy and ATP

7. What are four forms energy can be found in? light, heat, electricity, chemical compounds
8. Define **adenosine triphosphate:** Chemical compounds that stores and releases energy
9. How do you abbreviate adenosine triphosphate? ATP
10. Draw an ATP molecule. Label the **adenine, ribose sugar,** and the **phosphate groups.**



11. What does ADP stand for? Adenosine diphosphate
12. What is the difference between ATP and ADP? ADP has 2 phosphate groups, ATP has 3
13. When cells want to store up energy they will: add / delete (circle one) a phosphate group.
14. What is ATP like when it has all three phosphate groups? Fully charged battery
15. When cells want to release energy they will: add / delete (circle one) a phosphate group.
16. Name three cellular activities that ATP helps power. Active transport, protein synthesis, muscle contractions

Using Biochemical Energy

17. True/ False (circle one) Cells have a lot of ATP to carry out their many activities.
18. "Even though ATP is a great molecule for transferring energy, it is not a good one for _____ large amounts of energy over the long term"

8-2 Photosynthesis: An Overview

19. Explain the process of **photosynthesis:** Plants use the energy of sunlight to convert water and carbon dioxide into high energy carbohydrates- sugars and starches- and oxygen, a waste product

The Photosynthesis Equation

20. Write the numerical equation of photosynthesis (the top one)

$6CO_2 + 6H_2O \xrightarrow{light} C_6H_{12}O_6 + 6O_2$

21. Write the equations using the molecule names (bottom one)

carbon dioxide + water $\xrightarrow{light}$ glucose + oxygen

22. What goes three products go into photosynthesis? Carbon dioxide, water, sunlight
23. What two products come out of photosynthesis? Glucose and oxygen
24. What do plants use the sugars they create for? Producing complex carbohydrates (starches)
25. Where do plants get carbon dioxide? The air or water

Light and Pigments

26. Photosynthesis requires Water and carbon dioxide
27. What organelle can chlorophyll be found in ? Chloroplasts
28. What does our eyes see in the visible spectrum? Different wavelengths as different colors
29. What are the two types of chlorophyll? Chlorophyll a & chlorophyll b