Name: Date:

**Cellular Respiration Web Quest**

Follow the links/directions for each section. Answers need NOT be in complete sentences.

**Part 1: ATP - THE ENERGY OF LIFE**

Go to: “Biology in Motion” website. Read & complete the activity. Answer the questions below.

<http://www.biologyinmotion.com/atp/index.html>

1. What does the acronym “ATP” stand for?

2. What is the role of ATP in living things?

3. When ATP is used, a phosphate group is **removed/added** (circle one), and the energy from the broken bond can be used by the cell.

4. After a phosphate is broken off, ATP is converted into \_\_\_\_\_\_\_\_\_\_.

5. Can ADP be converted back into ATP? How? (briefly explain).

 6. In *frame* 2, use your mouse to break apart (digest) the food (ice cream cone). What happens?

 Now, take a phosphate off the ATP. What happens?

7. **THINK**: ATP provides the body with energy. Give ***3 specific*** examples of how ATP is used in organisms.

**Part 2: CELLULAR RESPIRATION: A CLOSER LOOK**

Go to “BioCoach Activity: Cell Respiration”. Click on each concepts and answer the following questions.

<http://phschool.com/science/biology_place/biocoach/cellresp/intro.html>

18. Click through Concepts 1 & 2. The function of the glycolysis stage is to split glucose into two molecules of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 19. Note how two molecules of ATP are used to drive glycolysis, yet the actual splitting of glucose *produces* four ATPs. Do the math! What is the net gain of ATP?

**Now, Click on *Concept 3*. Read through the information on the Krebs (Citric Acid) Cycle.**

20. Where in the mitochondria does the Krebs Cycle occur?

21. The chemical energy that was originally in Acetyl-CoA ends up in what 3 molecules?

**Click through the“Review” in the top right corner. Watch and read each of the animations.**

22. Why is the Krebs cycle sometimes referred to as the “Citric acid cycle”? (Hint: look at the first product made in the cycle!)

23. Explain why this process is called a “cycle”? (Hint: what is the starting and ending molecule?)

**Click “Next” at the bottom of the window. Watch animation and read the review.**

24. What are NAD+ and FAD+ picking up from the molecules in the Krebs Cycle?

25. Click on *Concept 4*. **Click through the “Review” in the top right corner**. Briefly summarize the *purpose* of the Electron Transport Chain (in your own words).

26. Click on ***A closer look at cellular inhibitors***. Read the summary. What does cyanide do that interferes with respiration?

 What effect does this have on ATP production?

**Part 3: FERMENTATION**

Go to *Cellular Respiration*. Scroll down and read about fermentation.

<http://en.wikipedia.org/wiki/Cellular_respiration>

27. Explain the difference between ethanol fermentation and lactic acid fermentation.

**Part 4: CELL RESPIRATION: A SUMMARY**

**a)** Go to *About.com: Biology: Cellular Respiration*. Read about ATP yields.

<http://biology.about.com/library/weekly/aa090601a.htm>

28. How many ATPs are produced total in cellular respiration?

**b)** **Game** Go to “*Quia: Cellular Respiration*”.

<http://www.quia.com/jg/835446.html>

You may select the “Matching Game” OR the “Word Search” to complete. Do ONE.

29. Which activity did you complete?

 **c) CELLULAR RESPIRATION: A QUIZ.**

Go to “*About.com: Biology: Cellular Respiration Quiz*”.

<http://biology.about.com/library/quiz/blcellresquiz.htm>

30. Take the quiz. Write your score here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For those that you miss, write the question with the correct answer underlined in the space below.

**Part 5: COMPARE RESPIRATION & PHOTOSYNTHESIS**

For the following statements write P if it describes photosynthesis, or write R if it describes respiration.

1. Occurs in the chloroplast \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Occurs in the mitochondria \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Uses Oxygen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Produces Oxygen \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Uses Water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Produces water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Relies directly on the sun \_\_\_\_\_\_\_\_\_\_\_
8. Producers are dependent on this process to produce food \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Only plants do this process \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Plant and Animals do this process \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. The goal of this process is to get ATP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. The goal of this process is to make glucose \_\_\_\_\_\_\_\_\_\_\_\_\_\_

*additional notes:* **pyruvate** = pyruvic acid **citrate** = citric acid **oxaloacetate** = oxaloacetic acid