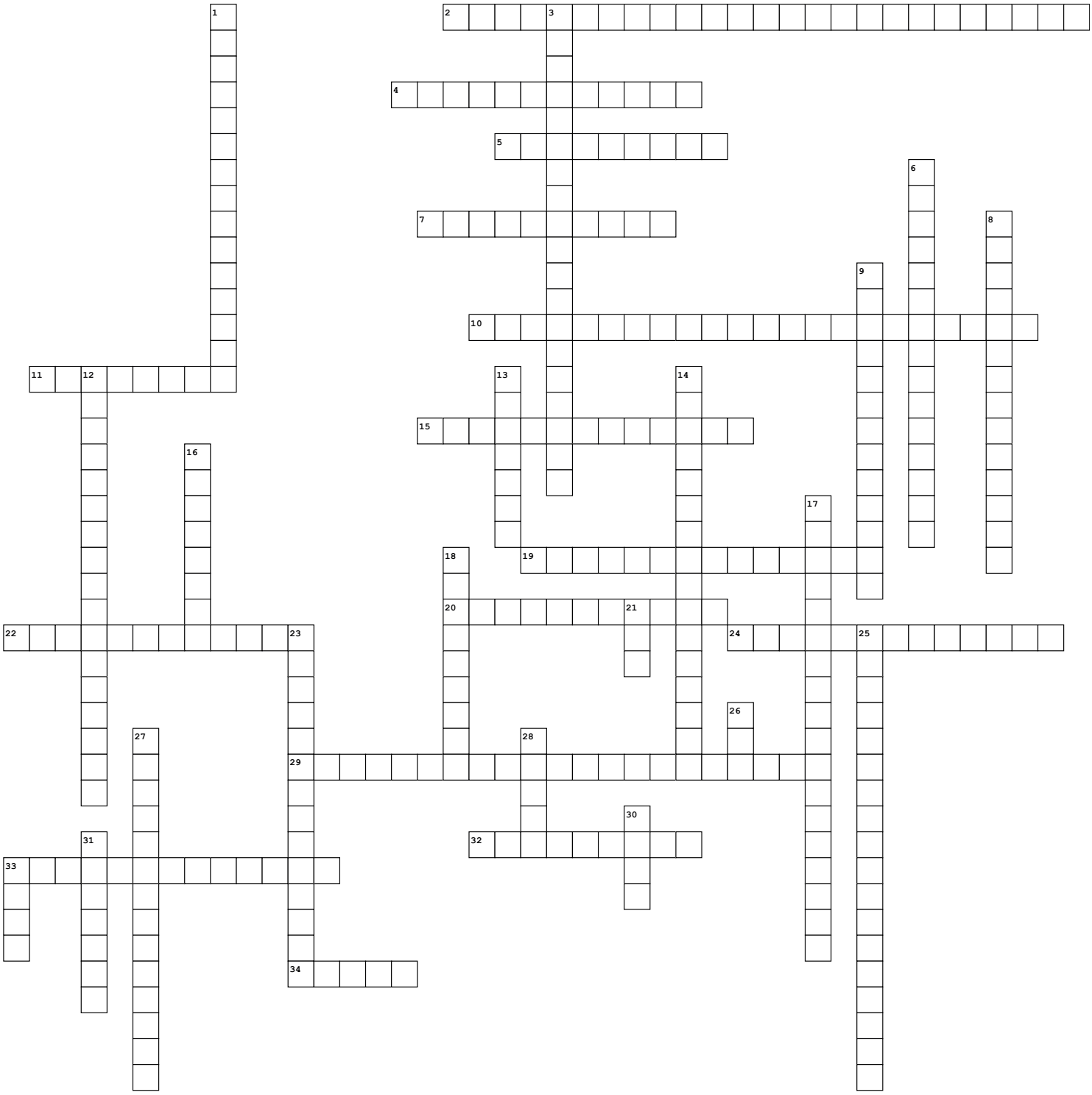
Unit 3 Outcome 2 – Energy Systems Crossword 2



Across

2. represents the highest intensity point where there is a balance between lactate production and removal from the blood.

Down

1. completed after maximal intensity and short duration activities, to replenish ATP and creatine phosphate stores within the muscle. Generally when the ATP–CP system is to be utilised for the next activity.

4. a fatiguing byproduct resulting in a decreased pH level and an increase in the acidity within the muscle which affects energy production and muscle contraction, resulting in muscular fatigue.

5. Available energy is contained in the bonds between these and is released when they are broken

7. a series of reactions involving the oxidative metabolism of acetyl coenzyme A, which releases energy for the resynthesis of ATP.

10. the third and final stage in aerobic metabolism in which hydrogen ions are converted into water and carbon dioxide while generating energy for ATP resynthesis.

11. the reversal of the fatigue experienced as the result of an exercise bout, where body systems repair damaged tissue and replenish energy stores.

15. an accumulation of blood in the veins in inactive muscles following activity.

19. the process by which lactate is moved from one location to another where it is converted to glucose that can then be used to provide further energy.

20. an intermediate product in the metabolism of carbohydrates, formed by the anaerobic metabolism of glucose.

22. cell structures or organelles that can be viewed as the power generators of the cell, converting nutrients into ATP. The greater the number and size of these within the muscle cells, the greater the capacity for aerobic energy production.

24. provides energy for the resynthesis of ATP through the breakdown of fuels through more complex chemical steps that require oxygen. the most versatile energy system with the slowest rate and highest yield used predominantly when at rest and during low- to moderate-intensity exercise

29. refers to the energy systems working together, but at different rates, to supply the ATP required for an activity depending on intensity and duration.

32. refers to how much ATP is required during an activity and the rate at which it is expended and, therefore, needs to be resynthesised.

33. when energy fuels or substrates that serve to power muscular contractions including creatine phosphate (CP)and glycogen are exhausted

34. the amount of ADP that can be resynthesised to ATP. A higher amount of ATP available means more ATP can be broken down, providing larger amounts of energy for muscle contraction

3. provides energy for the resynthesis of ATP through the breakdown of glycogen through a series of chemical steps that do not require oxygen. By-products lactate and hydrogen ions are produced. contribution to ATP resynthesis increases rapidly after the initial 5–15 seconds of maximal-intensity exercise

6. an important molecule in metabolism. It is produced during the second stage of aerobic metabolism, which occurs in the mitochondria.

8. a condition caused by the depletion of glycogen stores in the muscles and liver, which manifests itself as fatigue and loss of energy due to the increased reliance on fats for ATP resynthesis.

9. are the most versatile fuel source available to supply energy for ATP resynthesis. Carbohydrates stored in the body as glycogen can provide the energy for ATP resynthesis under both anaerobic and aerobic conditions.

12. a chemical compound that, like ATP, is stored in limited quantities within muscle cells and provides energy for ATP resynthesis at a rapid rate

13. contributes only minimal energy for ATP resynthesis

14. storage form of fats found inside the muscle as intramuscular_____

16. the body's stored carbohydrates in the muscle and liver

17. a substance produced as a result of chemical reactions within the body associated with the production of energy for ATP resynthesis. examples include lactate, hydrogen ions, CO2 and H2O

18. the metabolic breakdown of triglycerides into free fatty acids and glycerol within muscle cells.

21. the chemical energy 'currency' of all body cells, including muscle cells for muscle contraction

23. low-intensity (60–70% MHR) activity completed at the end of an exercise bout that allows the body to recover by maintaining an elevated blood flow to the muscles and preventing venous pooling, gradually returning the body to its resting physiological state.

25. a consequence of rapid creatine phosphate breakdown during high intensity exercise is the accumulation of this, which has also been shown to inhibit muscle contraction.

26. a by-product that results when ATP breaks down and loses one of its phosphate groups located at the end of the molecule.

27. a condition in which the pH of the muscle decreases as a result of the accumulation of metabolic by-products such as hydrogen ions within the muscle cells.

28. the least complicated of the three energy systems, and it produces energy for ATP resynthesis most rapidly. It relies on the muscular stores of ATP and creatine phosphate.

30. the speed at which ADP can be resynthesised to ATP. The quicker that ADP can be resynthesised, the quicker it can be broken down again to provide energy for muscle contraction.

31. the broken down form of carbohydrates for it to be transported in the blood

33. provide more energy than carbohydrates, primarily used during rest and low-intensity exercise. During exercise the percentage of fats being used as an energy source decreases as the exercise intensity increases. They require more oxygen to breakdown and therefore, their rate of energy release is slow