How is energy released inside organisms?

1. Glucose, a sugar is broken down in process using oxygen called cellular respiration.
2. But, organisms can’t use the energy released yet.

Where does cellular respiration take place?

1. First some energy is released in cytoplasm, but most energy is released inside mitochondria.
2. Both plants and animals have mitochondria.
3. Cellular respiration is reverse of photosynthesis, taking in glucose and oxygen, and releasing carbon dioxide, water, and energy.

What are the parts of mitochondria?

1. Mitochondrial DNA
2. Ribosome
3. Matrix
4. Inner membrane
5. Outer membrane
6. Intermembrane space

What are the steps of cellular respiration?

1. A molecule of glucose is broken down in cytoplasm into two separate 3-carbon molecules, releasing 2 ATP, in a process called glycolysis.
2. The two molecules travel to inner membrane of mitochondria, where they are combined with oxygen to create carbon dioxide, hydrogen, oxygen, and lots of energy. Hydrogen and oxygen combine to form water. This process is called Krebs cycle, or citric acid cycle. However, the energy is in wrong form, and only 2 ATP is released.
3. Some energy is transferred to a series of proteins called as electron transport chain, while remaining amount is released as heat. This energy creates 32-34 ATP, or adenosine triphosphate. ATP is used to do most of the work inside a cell.

What are the uses of energy?

1. In animals:
2. Muscle contraction so animals can move
3. Mammals and birds keep steady body temperatures (37 degrees Celsius in mammals and 40 degrees Celsius in birds.)
4. Building small molecules into larger ones:
5. Making proteins, sugars, fats, DNA, and other molecules
6. Building new tissues such as muscle, skin, and bone
7. In plants:
8. Building small molecules into larger ones:
9. Sugars, nitrates, and other nutrients make amino acids
10. Amino acids build to make proteins