Why do germinated peas undergo cell respiration

Updated July 21, 2017 by John Brennan Pea Seeds, or Embryonic Plants. When they are exposed to the right conditions, the plant will come out of the seeds and begin to grow; this process is called germination. Cellular respiration is necessary for germination. Susan Fox/iStock/Getty Images Cells in pea plants need energy to synthesize proteins, replicate their DNA and separation, and maintain stable internal conditions. Without an energy source, the cell will cease to function or die. Cells collect energy from sugar and fat molecules through a series of reactions called cellular breathing. The energy extracted from sugar is stored using it to synthesize a molecule called adenosine triphosphate or ATP, which the cell can then use as a kind of energy currency for other processes. Mendel Perkins/iStock/Getty Images A pea plant grows during germination, meaning its cells actively divide. The food stored in the seed provides the pea plant cells with the energy needed to sustain themselves and separate, as the plant does not yet capture sunlight through photosynthesis. Pea plant cells depend on cellular respiration to provide them with the energy they need to stay alive and grow. The pea plant cells cannot survive without cellular respiration. The pea cells will continue to extract energy from sugar through cellular respiration even after the plant is fully grown; At this point, however, sugar for cellular respiration will come from photosynthesis rather than stored food that supports immature plants during germination. About the author based in San Diego, John Brennan has written about science and the environment since 2006. His articles appeared in Plenty, San Diego Reader, Santa Barbara Independent and East Bay Monthly. Brennan holds a Bachelor of Science degree in Biology from the University of California, San Diego. In order to continue to use our website, we ask you to confirm your identity as a person. Thank you so much for your cooperation. Cell metabolism is a series of enzyme catalysis reactions that build or break down molecules. Enzymes suffer from temperature and pH. Aerobic and anaerobic breathing produces ATP and heat. The introduction of cellular respiration is a series of enzymes mediated by reactions that are released energy from carbohydrates. It starts in cytosol with glycolysis and ends in the mitochondria. Cellular respiration can be summarized by the following equation: $C_6H_{12}O_6$ - $6O_2$ → $6CO_2$ - $6H_2O$ - 686 kilocalories of energy/mole of oxidized cellular respiration can be measured in several ways, but this experiment uses oxygen consumption. To do this, it uses a number of physical laws of gases, including the equation, PV and nRT, where means pressure, V for volume, n for the number of molecules, R for constant gas, and T for temperature. This law shows the many relationships between these factors and how they affect each other. This experiment compares breathing rates in germining and non-sprouting peas. Hermination is the process of seed growth. It takes a lot of energy to break the seed layer and as it continues to grow this energy need increases. Breathing is required to access this energy, as the seed sprouts its breathing speed increases. The non-growth of seeds, however, doze off and use very little breathing. Some breathing must occur in order for the seeds to live. The hypothesis of cellular respiration rate will be greater in germinate peas than in dry peas, and the temperature will have a direct impact on this rate. Materials This lab requires room temperature baths and 10 degrees Celsius bath, ice, 100-ml finished cylinder, 50 sprouting peas, paper towels, 150 ml of water, dry peas, beads, six vials with attached corks and pipettes, absorbent cotton, 5-ml pipettes, 15% KOH, non-absorbent cotton, masking tape and timer. The methods of bath room temperature and bath at 10 degrees Celsius have been prepared. The 100ml cylinder was filled with 50 ml of water. Then 25 germination peas were added and the amount of water moved was determined and recorded. The peas were then removed and placed on a paper towel until necessary for Respirometer 1. Then the graded cylinder was replenished with 50 ml of water. Twenty-five dry peas and beads were added until the volume was equal to that of the germination peas. Peas and beads have been removed and placed on a paper towel for use in Respirometer 2. After refueling the graded cylinder with 50 ml of water, the beads were added until the volume was again equal to the germination of the peas. They have been removed and placed in a paper towel for use in Respirometer 3. The above treatments were repeated to prepare the second set of germination peas, dry peas and beads, and beads for use in Respirometers 4, 5 and 6. The spirometers were prepared next by first placing a small pack of absorbent cotton at the bottom of each respirometer and saturating it with 15% OF THE, being careful not to get any on the sides of the vial. Then a piece of non-rescue cotton was placed on top of the AIR-soaked cotton. The first set of sprouting peas, peas and beads as well as beads were added to respirometers 1, 2 and 3. Then the second set was added to Respirometers 4, 5 and 6. A camouflage tape was created for each of the water baths to keep the respirometers out of the water during equilibrium. Respirometers 1, 2 and 3 were placed in a room-temperature bath, and respirometers 4.5 and 6 were placed in a bath with water 10 degrees Celsius. Respirometers equal equation for 10 minutes and were completely submerged in the water bath. They were checked for leaks and the initial reading was accepted. Additional readings are then taken every 5 minutes for 20 minutes. Minutes.