

Answers from CK-12 Life Science For Middle School Teacher's Edition

<http://www.ck12.org/saythanks>

Day 48

1. Sample answer: Five human senses are vision, hearing, touch, taste, and smell.
2. Light from an object enters the eye through the cornea and pupil and passes through the lens. Along with the cornea, the lens focuses the light to form an image on the retina at the back of the eye. This stimulates light-sensing cells in the retina to send nerve impulses to the optic nerve, which carries the impulses to the brain.
3. Sound waves enter the outer ear and strike the eardrum, which vibrates. The vibrations are passed on to three tiny bones in the middle ear. These bones, called ossicles, amplify the vibrations. The vibrations next pass to the cochlea in the inner ear. The vibrations cause waves in the liquid inside the cochlea. The waves bend tiny hair cells that line the cochlea. These cells send nerve impulses to the auditory nerve, which carries the impulses to the brain.
4. Food tastes bland when your nose is stuffy because your sense of smell is not working well. Without the smell of food, you are able to distinguish only five basic tastes.
5. Human beings have 3-D vision because our two eyes face the same direction but are a few inches apart. This allows the eyes to focus on the same object at the same time but from slightly different angles. The brain uses the slightly different images from the two eyes to determine the distance to the object.
6. Both taste and smell are senses that detect chemicals. Taste neurons are on the tongue and sense chemicals in food. They can detect only five different tastes. Smell neurons are in the nose and sense chemicals in the air. They can detect thousands of different odors.

Day 56

1. The two main roles of the male reproductive system are producing sperm, which are male gametes, and secreting testosterone, which is the major male sex hormone.
2. Sample answer: Three male reproductive organs are the penis, testes, and epididymis. The penis contains the urethra, which carries sperm out of the body. The testes form sperm and secrete testosterone, which is needed for sperm production. The epididymis holds sperm while they mature and then stores the mature sperm until they leave the body.
3. Sperm are male gametes, or sex cells, which have the haploid number of chromosomes. The function of the tail of a sperm is to propel the sperm toward an egg.
4. Cutting the vas deferens prevents sperm from traveling from the epididymis to the urethra. Therefore, the sperm are unable to leave the body through the penis, prohibiting the man from having more children.
5. Sperm production begins when special cells in the testes go through mitosis to make identical copies of themselves. The copies then divide by meiosis to form haploid spermatids. The spermatids move from the testes to the epididymis, where they slowly mature. They grow a tail and lose some of the cytoplasm from the head. The mature sperm remain in the epididymis until it is time for them to leave the body.

Day 57

1. Three functions of the female reproductive system are producing eggs, secreting estrogen, and supporting and giving birth to a baby.
2. Sample answer: Three organs of the female reproductive system are the ovaries, fallopian tubes, and uterus. The ovaries release eggs. The fallopian tubes carry eggs from the ovaries to the uterus. If fertilization occurs, it takes place in a fallopian tube. The uterus is where a baby develops until birth. The muscular walls of the uterus contract to push the baby out during birth.
3. During ovulation, an egg that has developed in its follicle in an ovary bursts out of the follicle and through the wall of the ovary.
4. Even if a woman produces healthy eggs, she will be unable to become pregnant if her fallopian tubes are blocked. For pregnancy to occur, an egg must travel through a fallopian tube to reach the uterus, and the fallopian tube is also where fertilization normally takes place.
5. Menstruation is the shedding of the lining of the uterus. Blood and other tissues pass out of the body from the uterus through the vagina. Menstruation occurs when fertilization doesn't take place, so the lining of the uterus is not needed to support a fetus.

Day 60

1. Light microscope
2. All organisms are composed of cells; Cells are alive and the basic living units of organization in all organisms; All cells come from other cells.
3. Cell, tissue, organ, organ system
4. Transmission electron microscope
5. No, cells can only come from other cells.

Day 61

1. prokaryotic and eukaryotic
2. Organelles are compartments within a cell where specialized functions occur.
3. Prokaryotic cells are much smaller and simpler than eukaryotic cells; eukaryotic cells can be considered to be "specialized" and contain membrane-bound organelles. Prokaryotic cells are surrounded by a cell wall. In prokaryotic cells the DNA forms a single large circle that coils up on itself. Eukaryotic cells have a nucleus with numerous chromosomes.
4. The plasma membrane is a double layer of phospholipids lipids along with many special proteins. The function of the plasma membrane is to control what goes in and out of the cell. The plasma membrane gives the cell an inside that is separate from the outside world.
5. The mitochondria is known as the powerhouse because it creates ATP which is used as energy for cell functions.
6. As animal cells lack chloroplasts, the organelle in which photosynthesis occurs, this process cannot occur in animal cells.