


I'm not robot  reCAPTCHA

Continue

Life's greatest miracle worksheet pdf

The documentary *Life's Greatest Miracle* by the Public Broadcasting Station (PBS), available at [PBS.org](#), is perhaps one of the most vivid illustrations of the realization of a new human life. Presented as part of PBS' NOVA television series, *Miracle* is just under an hour old and premiered on November 20, 2001. The program was written and produced by Julia Cort and features images by renowned Swedish photographer Lennart Nilsson. It is a sequel to the award-winning 1983 NOVA production, *The Miracle of Life*, which also exhibits Nilsson's photography. The program presents a combination of graphic animation, endoscopic and microscopic images, as well as the story of a couple expecting a child. It presents a number of new technological and scientific developments not present in its prequel, providing additional relevant information. By portraying human development in a clear and fresh way, *Miracle* helps shed light on this indispensable aspect of life. Here is a description of the documentary, highlighting the key points of the film and explaining the images presented there. *Miracle* is divided into eight sections. The first section, entitled *Transmitting Your DNA*, opens with a discussion of the prodigious natural will to reproduce. This universal work is recognized as a unifying theme for life on earth, and DNA is identified as the four billion-year brain behind the entire operation. Sexual reproduction, unlike asexual reproduction (cloning), practised by most bacteria, involves mixing genes and producing crucial variations. The discussion of the biological benefits of sexual reproduction is accompanied by the representation of various organisms that engage in their reproductive processes. Aware of the complexity of such processes, the film raises the question of what is happening, and how? How do such complex and functional life systems emerge from these humble beginnings? Closer examination of human testicles begins to answer this question; detailed photographs reveal the tiny coil tubes that make up the male organ. These tubes produce about a thousand new genetically unique sperm every second per meiosis, which is digitally animated in *Miracle* and explained in the context of its importance for sexual reproduction. After discussing the gamete production process and the importance of sexual reproduction, *Miracle* takes a closer look at mating and the female reproductive system in the second section, *The Egg's Journey*. This section with Melinda Tate Iruegas and Sergio Iruegas, a couple expecting their first child. Intermittently throughout the film, the couple discusses their experiences, hopes and feelings during the various stages of Melinda's pregnancy. *Miracle* then explains the significant differences between the male and female reproductive systems. Female. Sergio, like all other healthy males, has produced sperm continuously since puberty. Melinda's eggs all formed when she was a fetus. The age of a Melinda woman (early thirties) has a few thousand of her original eggs millions, but normally only one is capable of fertilization each month. The live video illustrates how a single egg is selected, pampered by supporting cells in the ovary, and introduced into the fallopian tube where it awaits fertilization by sperm. However, before a male can mate with a female and fertilize his egg, he must obtain mating rights. Here, *Miracle* depicts the struggle between males as they compete for the chance to mate with a female, essentially competing for a chance to pass on their genetic material. The film explains that when a male manages to woo a female and performs to mate with her, a series of chemical changes take place, culminating in the ejaculation of the sperm, allowing fertilization of the egg. The course of sperm travel to escape the acidic environment; about 40% of the sperm of a healthy male will be able to propel itself towards the cervix using their flexible, whip-like tails. Around the time of ovulation each month, the protective cap of the mucus of the cervix liquefies, creating channels that allow any sperm present and able to enter. In addition, the uterine muscles contract in an undulating way to help the sperm progress into the fallopian tube. If the female has ovulated and an egg is present, the sperm that has travelled so far will attempt to fertilize it. As the film points out, however, the sperm that fertilizes the egg is usually not the first sperm out there, but rather one of those that have been captured in fallopian lashes, modified, and gradually released. Once these sperm reach the egg, they must pass in front of the help cells and penetrate the thick protein coating of the egg, called shingle pellucida. Through animation, *Miracle* explains that entering the egg requires chemical as well as mechanical forces; that is, the proteins on the surface of the sperm cap must match the proteins of shingles pellucida. Once this match occurs, the cap disintegrates and the membranes of the two gametes merge, introducing the genetic content of the sperm into the egg itself. After capturing the in words and images, *Miracle* continues with section four, *The First Two Weeks*. Despite successful fertilization, the majority of fertilized eggs still fail to become viable offspring, as a number of additional obstacles are to come. Over the next five days, the fertilized egg, still locked up zona pellucida, makes its way to the uterus, undergoing repeated cell division along the way. Once in the uterus, the mass of cells now known as blastocyst secretes enzymes that open the shingle pellucida and are seen escaping onto the uterine lining. Here, he negotiates with the mother's immune system, convincing him that it is not a harmful foreign body. After suppressing the response of the maternal immune system, the blastocyst implants in the rich uterine lining, from which it receives food. Some, like Melinda Iruegas, report having morning sickness and nausea at this stage because the baby has a greater impact on their bodies. Sergio experiences similar symptoms, even though he has no uterus or baby in him. Once the implantation is produced, the blastocyst undergoes a number of transformations through the gastrulation process; this is the beginning of the fifth section, *The embryo takes shape*. While *Miracle* is able to depict frogs' gastrulation as it occurs in a transparent egg, human gastrulation remains invisible and is explained by animation. The formation of the three germ layers and the explanation of their future structures serve as a prelude to a more in-depth examination of differentiation. In utero photos of a three-week-old embryo show the onset of the neural tube, and subsequent photos of a four-and-a-half-week embryo show early brain development. Other developments around this time, such as the formation of blood vessels, a beating heart, the primitive backbone, and appendix buds, are also represented. Recognizing the incredible complexity of such a cascade of events, *Miracle* once again turns to micro-DNA to explain the macro-formation of a complex organism. The film explains that different cells in the body are different because different genes light up; the ignition of genes by certain proteins is animated for clarification. It is thought that once a basic plane of the body has formed, the cells develop according to their location in this arrangement. Cells communicate with each other using chemical signals, and the resulting gene expression allows the production of different proteins that serve various functions in the body; an explanation of some of these proteins is also provided. The following section, *Messages in Genes*, highlights the importance of genes for the development of various characteristics of the embryo, including its sex. An ultrasound of the Iruegas' fetus shows him moving and his heart beating, while the couple discusses their decision not to discover the sex of their child. At this early stage males and females are anatomically identical. In fact, before the formation of distinct sexual organs, the only way to say it is to look at the twenty-third pair of chromosomes: if both are X chromosomes, it is a girl; if a one and a Y is a boy. *Miracle* demonstrates how the SRY gene, which is found on the Y chromosome and is active for only a few days during the sixth week of development, initiates a cascade of reactions that produce a male child. If the Y chromosome - and therefore the SRY gene - is not present, the embryo will develop into a female. Other genes, such as those that direct cell growth or death, are also described. At the end of article six, two months have passed since fertilization and the embryo is now considered a fetus. It has taken shape, but still needs to grow and develop into a full-fledged baby. As the fetus continues to mature, section seven, *Feeding the Growing Fetus*, deals with the nutrition of the mother and fetus. Melinda describes her need to smell and approve any food before she consumes it, making it a bit difficult to make dinner plans. During this time, the fetus receives all its nutrients and oxygen from its mother's blood, via the placenta and umbilical cord. Images of placenta villi, which absorb materials from pools of enriched maternal blood, help explain how the fetus is fed without contact between its own blood and that of the mother. The bone replaces part of the cartilage of the fetus during the fourth month of development, and the fetus also begins to hear sounds. Melinda and Sergio Iruegas enjoy playing different types of music and sounds to their child and assessing their reactions. The last part of this section consists of a succession of photos of the development process, documenting various characteristics from different angles. This chronology in a complex way illustrates the human form that unfolds and emphasizes the details of each step. The last section, *The Third Quarter*, details the progression of the events that led to birth, and the miracle of birth itself. In the third trimester, the fetus formed all of its organ systems and is mainly growing in size. In preparation for birth, fat stores are established throughout the fetal body, and myelination (myelin deposit on nerve cell axons) begins. Myelination greatly increases the speed and effectiveness of brain and nerve impulses. *Miracle* points out that as the baby gets so hungry for fat as the end of the third trimester becomes that the supply through the placenta becomes inadequate. It is at this stage that the baby must leave the uterus, i.e. be born. The film shows the birth of Melinda's baby and explains the process. It also indicates that since human births are extremely dangerous due to the of the baby's skull and the narrowness of the birth canal, humans are the only mammal that gives birth regularly in the company of other people. By showing the birth, *Miracle* involves the viewer in the emotion and joy felt by the family upon the arrival of their child. The greatest of life is available on the PBS website, as well as a number of other related resources. These include *Windows on the Womb*, a discussion of the different modern screening techniques used by health professionals to assess the baby's progress in the womb; A discussion on the stem cell debate; an explanation of how cells divide and how sex is determined; and a diary of a woman describing the different aspects of her pregnancy. The film's companion website also provides other resources for curious minds. *Miracle's* prestige comes not only from its content, but also from its being a NOVA production. He has won countless awards, including numerous Peabody and Emmy Awards. Julia Cort, the author and producer of the documentary, won the 2001 Science in Society Journalism Award for her work on the subject. Since it follows the whole process of human procreation, *Life's greatest miracle* is a useful resource, providing the public with accurate information about what is happening in the world of the embryo and the fetus. Sources © Arizona Board of Regents Licensed as Creative Commons Attribution-NonCommercial-Share Alike 3.0 Unported (CC BY-NC-SA 3.0)