What happens when a baby is growing and changing inside the womb? The human body is a complex structure. Ideally, a baby needs 37 - 40 weeks to form inside his or her mother. Every minute of every day, changes occur in the baby. Each change signals other changes to occur — like a chain reaction. As the baby grows and develops, he or she is able to do more things, like move his or her arms and legs or suck his or her thumb.

While inside the mother, the baby grows and changes, and gains functions that will help the baby live outside the mother’s womb. Of course, each baby grows and changes at a different rate. The mother’s health and baby’s genetic make-up affect this growth and change. Even when a baby is born at full-term, many systems, such as the nervous system (the network of nerves that run throughout the body and connect with the brain) continue to grow and change for many years.

What happens if a baby is born too soon? If a baby is born too soon, many changes that should have occurred in the womb now must take place outside the mother’s body. Let’s look at the “growth charts” that show how a baby develops in the womb: this gives a basic picture of changes that still must occur for premature babies. It also helps to see what special care these babies may need after birth.

In the womb, from 0 - 26 weeks: Most of the major change happens during this time. The main organs not yet fully working include the lungs, heart, brain, and spinal cord. Most babies born before 24 weeks cannot survive outside the mother.

0 - 26 weeks — main growth and change:
- structures (such as hands and feet) and organs (such as brain and heart) form
- fine hair (called lanugo) grows over the body
- baby moves arms and legs and begins to hear sounds
- heart begins to beat
- lungs begin to move as if the baby is breathing, but the baby still gets oxygen from the mother’s blood
- eyes still closed until about 26 weeks
In the womb, from 27 - 38 weeks:
You can think of the changes during this time as “fine tuning.” The main organs and structures are formed, but still are making their way to the stage that will help the baby live outside the womb. For example, the tiny air sacs in the lungs (called alveoli) are still forming.

27 - 38 weeks — main growth and change:
- lungs are still forming
- more brain connections form and connect with the nerves throughout the body
- small breast buds appear on chest of both boys and girls
- hair covering the body begins to go away and body fat increases to keep the baby warm after birth
- bones are fully formed, but are still soft
- stomach and intestines mature to allow feeding to begin

From womb to world — what premature babies may need: At birth, all babies must adjust from a warm, dark, watery world to one filled with light, air, sound, cold/warmth, and touch. In order to cope with this, the baby’s body must adapt in 4 major ways: through breathing, blood flow, feeding, and warmth. Before birth, the baby receives nutrients and oxygen carried by the blood from the mother’s placenta. Warmth came from the fluid in the womb. When the baby is born, his or her body must adjust quickly to doing these functions on his or her own. This is a big change for all babies. It is a special challenge for premature babies because their systems are still in that “fine tuning” stage and can’t adjust in the same way as a fully mature baby.

Premature babies need special care to help them adjust to a world of light, air, sound, cold/warmth, and touch. The key idea behind much of this care is to keep the baby’s new world as much like his or her mother’s womb as possible.

What can parents do? The most important thing you can do right now is to be an active member of your baby’s health care team. Learn about your baby and the special care needed. Talk to the doctors, nurses and health care team about your baby, and about how you can help in his or her care.

Also, take care of yourself. Having a premature baby in the NICU can cause a great deal of stress for parents. Seek help from your family, community, and health care staff. Ask to talk with a social worker, counselor, or the hospital’s pastoral staff. These people are there to help you through stressful times.

Take a closer look at these Pediatrix topics

stress - D1 - Coping with stress in the NICU

This information is for educational purposes only and is not intended to substitute for professional medical advice. Always consult with a health care professional if you have any questions about the health of your baby.

B1 - About premature babies