



What is ...?

Looking **at** Life
in the Womb
FOR KIDS

TEACHER GUIDE

Looking **at** Life in the Womb

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Introduction

The Ultrasound Education Project, “Looking at Life in the Womb,” brings the miracle and sanctity of human life into your upper elementary school (Grades 3–5) and early middle-school classrooms through the use of carefully planned activities and ultrasound technology. Through the use of high-quality film and an age-appropriate teaching curriculum, the reality that the pre-born are human beings will be evident. By the end of the unit, learners will recognize that human life exists in the womb prior to birth — life that is worth loving, caring for and protecting from harm. The content and activities in this unit have been aligned with the Common Core State Standards and the Next Generation Science Standards (NGSS). The curriculum also intentionally incorporates STEM/STEAM elements.

Research has shown that ultrasound is the most effective means of providing education about prenatal development and unborn life. This is because the very sight of a beating heart or a moving limb of a baby in the womb is enough to convince observers of the humanity of the unborn. For this reason, real ultrasounds, provided by volunteers, have been chosen to be at the heart of this unit. The curriculum surrounding these ultrasounds has been developed to enhance their inherent effectiveness. Although the concept of abortion is NOT addressed in this curriculum, it is hoped that this unit will help build a foundation in the cause to eliminate abortions across our nation.

It is also important to note that this curriculum does NOT attempt to incorporate any sex education, nor does it assume any prior knowledge in that regard. Any decision to integrate sex education with this curriculum is left solely to the discretion of the teacher. That said, it would be naïve to assume that the question of “Where do babies come from?” (in the mother’s womb) will not arise. A response consistent with God’s Word would be appropriate — God makes babies (Psalm 139:13).

This curriculum is comprised of five sessions, each of which builds upon the previous one. The basic lesson in each session will require about 40 minutes of class time. However, each session will also provide supplemental, optional activities that could require more time, depending upon the activity chosen and the depth covered. Thus, you could cover all five sessions in as little as five days, arranged over the course of one week, or five weeks, if taught once per week. Concordia Publishing House offers sex education resources for families and schools in their *Learning about Sex* series. Find more information at cph.org/c-2910-learning-about-sex.aspx.

The entire curriculum is based on the 5E learning model (Engage, Explore, Explain, Elaborate, Evaluate),¹ and each session is titled with a simple question: “What is...?” (Except for Session 4.) The five sessions build upon each other as follows:

Session 1 — Engage: What Is a Life Cycle?

Session 2 — Explore: What Are Human Life Stages?

Session 3 — Explain: What Is Life Before Birth?

Session 4 — Elaborate: Modeling Me!

Session 5 — Evaluate: What Do You Think?

Sessions 1–5 can be taught from a secular perspective for appropriate use in both public and Christian schools. However, faith has been distinctly integrated into each of the modules for specific use in Christian schools. (See the green text.)

Each session begins with distinct learning objectives, a list of materials needed and a listing of relevant vocabulary words. Procedural instructions for each lesson follow. A Student Life Notebook is provided for each learner to record information generated in the various session activities. Finally, each session ends with some ideas for extending the lesson. Additionally, each session has a PowerPoint presentation that can be used to guide your instruction.

Digital versions of the teacher and student booklets, PowerPoint presentations, as well as the “Looking at Life in the Womb” videos, are available free of charge by creating an account on LCMSlife.org. These resources were made possible by a generous mission grant from the Lutheran Women’s Missionary League.

¹ “The BSCS 5E Instructional Model,” BSCS Science Learning, June 12, 2006, media.bsccs.org/bsccsmw/5es/bscs_5e_full_report.pdf.





Session 1

Engage: What Is a Life Cycle?

Objectives

- Learners will recognize that all living things have a life cycle.
- Learners will define the components of all life cycles.
- Learners will identify the uniqueness of the human life cycle.

Materials

Materials for creating a human life cycle (see “Graphic Organizer for Human Life Cycle” in Student Life Notebook)

Vocabulary

life cycle — the series of stages through which a living thing passes from the beginning of its life until its death (*merriam-webster.com/dictionary/life%20cycle*)

human life cycle — fetus, baby (birth), child (growth), adolescent/teenager (growth), adult (reproduction), elderly person (death)

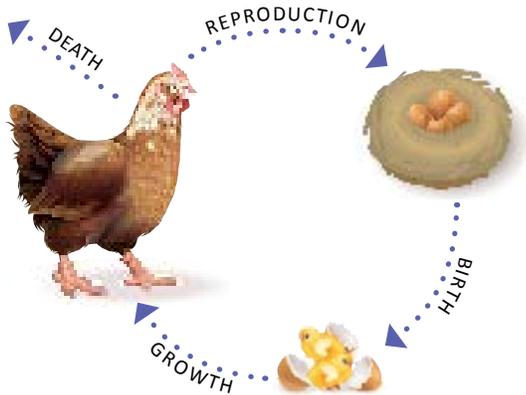
Scripture

“So God created man in his own image, in the image of God he created him; male and female he created them. And God blessed them. And God said to them, ‘Be fruitful and multiply’” (Genesis 1:27–28a).

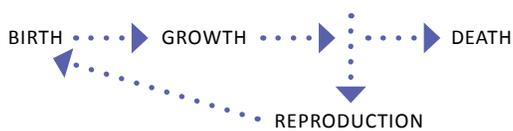
God tells us to “be fruitful and multiply.” Either ask learners what this means or tell them. This should lead to the concept that this happens during the life cycle of living things and the question of whether all living things have a life cycle.

In groups or as a class:

Define a life cycle and create a generic life cycle graphic. Agree on a definition that at least contains these concepts: birth, growth, reproduction and death. Reproduction should be connected to what it means to “be fruitful and multiply.” It may be useful to use the egg, chick and chicken illustration to solidify the basic components of the life cycle.



Have learners identify the four primary concepts of a life cycle for the human life cycle and create a human life cycle consistent with this:



Learners could conduct a web search on the definition of “life cycle” and see how it compares to the definition they developed. Their definition could be revised, as appropriate.

Their life cycles may have more than four components (baby, child, teenager, adult, old person, etc.), but learners should be able to distinctly identify where in their life cycles the primary components are represented. These human life cycles may be circular or linear, and can be hand drawn, digitally created or represented by any other visual means.

Extensions

As an introduction to the unit, read Genesis 1:26: “Then God said, ‘Let us make man in our image, after our likeness.’” Give each learner a piece of clay and have them create something. Let them share their creations with one another. Ask how they would feel if another person destroyed their creations. God created each of us to be uniquely special. We will be exploring our uniqueness in this unit.

God created each of us to be different and special to Him. Read Genesis 2:7: “Then the Lord God formed the man of dust from the ground and breathed into his nostrils the breath of life, and the man became a living creature.” To see our special differences, examine each learner’s fingerprint to see how they differ. An easy way to do this:

1. Use a pencil to color a 1-inch square. (Index cards work well for this.)
2. Rub one finger over the colored square, making the finger black with pencil.
3. Take a piece of clear tape and press it against the finger, lifting the pencil. Be careful not to press too hard or it will smudge.
4. Stick the tape against a white background. (Index cards work well for this.)
5. Observe the print and identify any patterns. (Magnifying glasses are helpful, but not necessary.)
6. Compare and contrast fingerprints with classmates.

Use the formative assessment probe, “Does It Have a Life Cycle” (Keely, 2010), to probe current conceptions of what a life cycle is and what living things have them. It will be helpful to read the article cited for this probe² to guide learners in this activity. The article also documents the misconceptions children have regarding life cycles.

<https://my.nsta.org/resource/120412/does-it-have-a-life-cycle>

1. Have learners check off those items that have a life cycle and document their reasoning.
2. Have learners compare and discuss with partners or in small groups the items that they checked and why.
3. Allow learners to revise their choices and reasoning.

Use the Frayer Model³ to have learners think critically about the meaning of the life cycle. (Note: This is used in the “Looking at Life in the Womb” curriculum for middle school/high school students.)

Learners can act out the life cycle.

Resources

Guidance for having learners act out science concepts: McGregor, Debbie, and Precious, Wendy. “Dramatic Science.” *Science and Children* (October 2010): 56–59.

² Page Keeley, “Does It Have a Life Cycle?” *Science and Children* (November 2010): 26–28.

³ “Frayer Model,” WETA Washington DC, Accessed 22 September 2022, adlit.org/in-the-classroom/strategies/frayer-model



Session 2

Explore: What Are Human Life Stages?

Objectives

- Learners will model the stages of the human life cycle.
- Learners will describe how humans grow and develop at each stage of life.

Materials

Masking tape

Tokens (100 per group — Starburst candies work nicely)

Sticky notes or paper plates

“Human Time Line Graphic Organizer” (in Student Life Notebook)

Vocabulary

human life cycle — fetus, baby (birth), child (growth), adolescent/teenager (growth), adult (reproduction), elderly person (death)

growth — how a human being physically grows in size (e.g., height, weight)

development — how a human being changes and advances in what he/she has or is able to do

Scripture

“Teach us to number our days that we may get a heart of wisdom” (Psalm 90:12).

Show the following video clip to see how the days of one’s life can be separated into piles of jellybeans by what they do: [youtube.com/watch?v=BOKsW_NabEk](https://www.youtube.com/watch?v=BOKsW_NabEk).



Explain that learners will be doing a similar activity by dividing up a pile of tokens, each representing one year of human life, into groups that represent human life stages.

Place learners into groups to create a human life cycle using a number line and tokens (e.g., Starbursts). Each group should receive 100 tokens, with each token representing one year of human life. Have learners:

1. Create a number line from 0 to 100 using masking tape and a pen/marker. Place the number line across a table, a couple of desks or the floor.
2. Group the tokens into appropriate piles on paper plates to represent life’s stages. Learners should use their knowledge and personal experiences to identify what size people are — height, weight (growth) — and what they are able to do (development) as

the life stages are determined. (Each token represents one year of life.)

3. Place the token groups at appropriate places along the number line.
4. Use sticky notes to record the identification of each stage. (Alternatively, paper plates can be used to hold the tokens and life stage categories can be written on them.)
5. Record the criteria used to determine each stage (growth and development). This can be done on the sticky notes/paper plates or on a graphic organizer.

Allow time for learners to share their time lines with each other and compare the life stages that they have depicted.

Note: It is ideal to keep these number lines until the next session. If this is not possible, be sure to take a picture of them, either digitally or in a “Human Time Line Graphic Organizer.”

Resources

Concordia Publishing House offers sex education resources for families and schools in their *Learning about Sex*

series. Find more information at cph.org/c-2910-learning-about-sex.aspx.

Extensions

Have learners bring in photos (and/or videos) of themselves and family members at a variety of ages. Provide an opportunity for them to sort the photos into various life stages and analyze the growth (what size they are) and development (what they are doing) that is evident in the pictures.

Have learners analyze the growth that occurs during the human life cycle by examining the height of human beings from birth through adulthood.

Have learners focus on how they are growing. Measure and record each learner’s height.

- For younger learners (Grades 3–5): Graph the results on a line plot.
- For older learners (Grades 6–8): Create an xy plot of height vs. age.
- Calculate statistics such as the mean, median and mode.
- Discuss what these graphs/statistics show about the amount a human being grows during his/her lifetime.





Session 3

Explain: What Is Life Before Birth?

Objectives

Learners will explore the stage of life prior to birth.

Materials

Ultrasound video

“Ultrasound Notes Organizer” (in Student Life Notebook)

Rulers

String

Click here. lcmslife.org/resource/looking-at-life-in-the-womb-for-kids/

Vocabulary

womb — place where the baby lives until it is born

fetus — baby before it is born

conception — the moment of sperm-egg fusion, also known as fertilization

zygote — fertilized egg; single-celled, week 1–2.⁴ Fertilization occurs within 24 hours of ovulation, which takes place on roughly day 14 of a woman’s cycle. Therefore, a zygote is created roughly during week 3.

⁴ Gestational age from mother’s last menstrual period.

embryo — after zygote starts to multiply, week 3 to 10 weeks 6 days. There is conflicting information on the internet about when the blastocyst is considered an embryo. According to Lozier, an embryo is from week 3 right up to 10 weeks 6 days.

ultrasound — medical imaging of a baby using sound waves

sonographer — medical person who performs the ultrasound

Scripture

“For you formed my inward parts;
you knitted me together in my mother’s womb.
I praise you, for I am fearfully and wonderfully made.
Wonderful are your works;
my soul knows it very well.
My frame was not hidden from you,
when I was being made in secret,
intricately woven in the depths of the earth.
Your eyes saw my unformed substance;
in your book were written, every one of them,
the days that were formed for me,
when as yet there was none of them”
(Psalm 139:13–16).

Refer to the number line of life stages created in the last session and ask what “0” represents on the number line. (Birth.) Add one token at the beginning of the time line, before zero. Ask learners what this might represent. Explain, if needed, that this represents the approximate year (40 weeks) before a baby is born.

Read this selected verse from Psalm 139: “For you formed my inward parts; you knitted me together in my mother’s womb.”

Ask and discuss:

1. What is a womb? (*The place in a mother’s body where the baby is formed and grows — i.e., where inward parts are formed and knitted together.*)
2. What happens in the womb? (*Baby grows and develops — i.e., inward parts are formed and knitted together.*)

Expand on the first token and its representation of life in the womb by showing an ultrasound video. Explain that just as videos and photos are taken of children growing and developing after they are born, a video, called an ultrasound, shows how a baby is growing and developing before it is born. This special kind of video is filmed by a person called a sonographer.

Show the “Looking at Life in the Womb” video available at lcmsslife.org/resource/looking-at-life-in-the-womb-for-kids/. Have learners take notes on their observations during the video, paying particular attention to the growth and development of the baby. These notes can be recorded in the “Ultrasound Notes Organizer.”

Read these selected verses from Psalm 139: “My frame was not hidden from you, when I was being made in secret, intricately woven in the depths of the earth. Your eyes saw my unformed substance; in your book were written, every one of them, the days that were formed for me, when as yet there was none of them.”

Ask and discuss:

How did you see the baby growing and developing while in the womb?

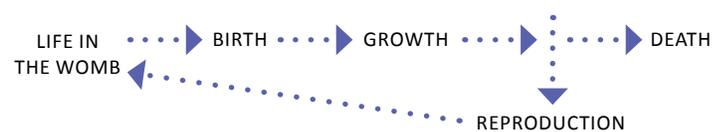
Ultrasound technology allows us to see this happening in the womb, but God sees this all long before we are born.

Present the week-by-week growth and development of the baby.⁵ This can be accomplished utilizing the PowerPoint presentation with pictures and descriptive text. An alternative would be to assign a fetal age to students (groups or individuals) to present to their

classmates. As each week of development is presented, learners should use a ruler to measure the length of the baby at this age. The measurement should be recorded as a line drawn or a string cut to the appropriate length. This could be done individually or as a class.

Line these measured segments up as they are presented to allow for visualization of how quickly a baby grows at different ages. Discuss how this time of growth in length compares to their growth after birth to adulthood. (40X from month 1 [1/2-inch] to month 9 [20 inches] of pregnancy; 3.5X from birth [20 inches] to adulthood [67 inches].)

Insert “life in the womb” before “birth” to the human life cycle graphic created back in Session 1.



Read this selected verse from Psalm 139: “I praise you, for I am fearfully and wonderfully made. Wonderful are your works; my soul knows it very well.”

Discuss the ways that God has “fearfully and wonderfully” made us, helping learners to recall what they have learned about their growth and development in the womb.

Extensions

Prior to introducing the concept of life before birth, show a home video of a young child (ideally one of the learners). Discuss what the video shows about the child’s growth and development at their life stage.

Learners can act out the life before birth as the fetus grows and develops. Or have learners play “What Can I Do?” In this game, a player would act out one of the weeks of fetal development and have classmates guess how old they are.

Resources

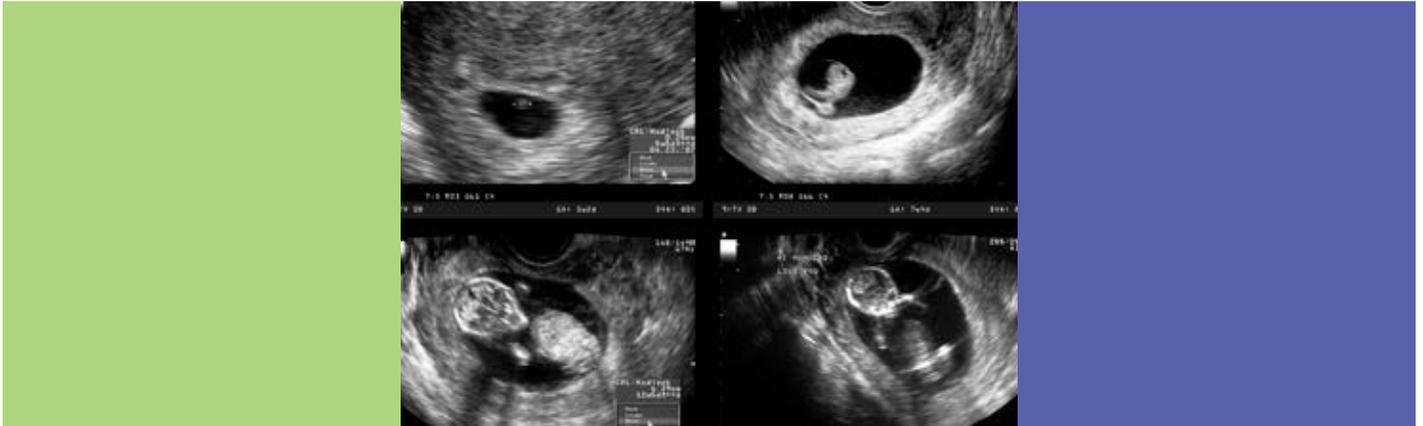
Guidance for having learners act out science concepts: McGregor, Debbie, and Precious, Wendy. “Dramatic Science.” *Science and Children* (October 2010): 56–59.

Check out the 3 Act Math Tasks, especially this one that incorporates an ultrasound:

Pearce, Kyle. “Baby Beats: Does the Baby have a Healthy Heart?” Tap Into Teen Minds, tapintoteenminds.com/3act-math/baby-beats/.

Charlotte Lozier Institute, lozierinstitute.org.

⁵ “Stages of Pregnancy Week by Week”, Parents, accessed 3 October 2022, parents.com/pregnancy/week-by-week/



Session 4

Elaborate: Modeling Me!

Objectives

Learners will design and create a model of themselves at a specific age prior to birth.

Materials

Photo album

Colored paper, Pipe cleaners, Paper cups, Paper plates, String, Balloons, Beads, Pom poms, Scissors, Tape, Glue, Crayons/markers and/or any other craft building materials

“Modeling Me! Blueprint Activity Sheet” (in Student Life Notebook)

Vocabulary

model — a representation, built to scale, of the “real thing” that one is studying for understanding

blueprint — a design plan; technical drawing

Scripture

“I praise you, for I am fearfully and wonderfully made. Wonderful are your works; my soul knows it very well” (Psalm 139:14).

Tell learners that they will be designing and creating a model of themselves at a specific age in the womb, prior to birth. Models are representations of real things for the purpose of understanding. They are creating models to see how big they were and what they looked like before they were born.



Allow learners to choose a specific age (in weeks) in the womb, prior to birth, that they want to model themselves at. See the Appendix for specific information to help with the models.

Have learners design a blueprint model of themselves at their chosen age using the “Modeling Me! Blueprint Activity Sheet.” The design should be drawn to scale and have:

1. Measurements indicated for the real model, including the overall length;
2. Building materials that will be used, clearly labeled;
3. Description of something that the baby could be developing/doing at its age; and
4. Name (hopefully the learner’s own name) and age (in weeks).

A photo album resource with pictures and descriptive text from the previous session should be made available for learners to use as a reference. This resource is found in the Appendix.

After their designs are approved, learners should create the models, following their design blueprint.



When learners have completed their models, have them compare their models to those of their classmates. How are they alike? How do they differ?

Extension

For a unique twist, models could be created using a variety of different pasta types.



Session 5

Evaluate: What Do You Think?

Objectives

- Learners will present their model babies.
- Learners will argue their position on a question prompt about life in the womb.
- Learners will recognize that a human life exists in the womb, prior to birth.

Materials

“Argumentation Graphic Organizer” (in Student Life Notebook)

Vocabulary

argumentation — the practice of using evidence and reasoning to support a claim

Scripture

“Then God said, ‘Let us make man in our image, after our likeness’” (Gen. 1:26a).

“Then the Lord God formed the man of dust from the ground and breathed into his nostrils the breath of life, and the man became a living creature” (Gen. 2:7).

“So God created man in his own image, in the image of God he created him; male and female he created them. And God blessed them. And God said to them, ‘Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth’” (Gen. 1:27–28).

Have learners introduce their models of “Me,” made in the previous session, to their classmates. This presentation should include the model baby’s name (their own), age (in weeks), and something that they were developing or were able to do at that age.

Place the baby models on display in the classroom for learners to view.

Note: Some learners will likely have an emotional attachment to their baby models. Be sure to take advantage of this opportunity to emphasize the human life that exists in unborn babies at this age.

Refer to the baby models that learners created and are on display in the classroom. Ask how they would feel if someone harmed their creations.

Neither does God want anyone to harm what He has created. In Session 1, Genesis 1:28a was discussed. By “be fruitful and multiply,” God is telling us that He wants us to have babies. But then in Genesis 1:28b, He also tells us to care for “every living thing that moves on the earth.” Furthermore, the Bible tells us that children are a blessing from God: “Behold, children are a heritage from the Lord, the fruit of the womb a reward” (Psalm 127:3).

Ask learners to consider one of the following questions.

Can you care for an unborn baby?

Prompt learners with questions such as:

- What does it mean to care for something?
- Can you care for something you cannot see?

Is an unborn baby a living thing?

Prompt learners with questions such as:

- What are the characteristics of living things?
- When does the life cycle begin?

Learners will apply the practice of argumentation.⁶ Have learners make a claim and support it with evidence they obtained from these sessions, explaining their reasoning. Choose an appropriate way for learners to share their thinking. This can be done using the “Argumentation Graphic Organizer” and/or other tools, including a classroom debate. Additional suggestions for preparing arguments and holding debates can be found in the following resource:

Bruno, Tracy. “How to Hold a Classroom Debate.” TeachHUB. March 21, 2016. teachhub.com/classroom-activities-how-hold-classroom-debate.

“And God saw everything that he had made, and behold, it was very good” (Gen. 1:31).

Extensions

Learners can analyze historical events and situations where the meaning of human life has been in question.

Social Studies — Sanctity of Life

- Slavery (Rosa Parks)
- Indians (Pocahontas)
- Holocaust (Anne Frank)
- Civil War



Religion — Babies in the Bible

- Abraham, Sarah and Isaac (Gen. 21:1–7)
- Midwives Puah and Shiphrah save the Israelite babies (Ex. 1:15–21)
- Pharaoh drowning babies (Ex. 1:22)
- Hannah prays for a child, Samuel (1 Sam. 1:9–28)
- Herod killing babies after Jesus was born (Matt. 2:16–18)
- The angel announces Mary will have a child, Jesus (Luke 1:26–38)

Resources

Examples of using the CER (claim, evidence, reasoning) framework for argumentation:

Allen, Jared, and Park Rogers, Meredith. “Putting Ideas on Paper.” *Science and Children* (November 2015): 32–37.

⁶ Lori Fulton and Emily Poeltler, “Developing a Scientific Argument,” *Science and Children* (Summer 2013): 30–35.

Appendix

First Trimester (Weeks 1–12)

(0 week 1 day through 3 weeks 6 days)

- Conception and implantation occurs
- Height is 0.04 in. (1 mm) (3 weeks)



(4 weeks 0 days through 7 weeks 6 days)

- The size of a blueberry (a little under 0.25 in. long) (by week 7)
- Heart begins beating (5½ weeks)
- Upper and lower limb buds are forming (week 6)
- Brain and nervous system are developing (week 5)
- Eyes, ears and nose are forming (week 6)
- Almost all major organs are starting to form (week 7)
- The respiratory system begins forming (week 6)



(8 weeks 0 days through 12 weeks 6 days)

- About 1.25 in. (3.1 cm) from crown to rump (week 10) (info taken from babycenter.com/pregnancy/your-body/growth-chart-fetal-length-and-weight-week-by-week_1290794)
- Has lips and nose (week 8)
- Arms start developing paddle-shaped hands (week 8)
- Limbs and body are moving (week 8)
- At this point, baby grows 1 mm/day (week 8)
- Embryo has four-chambered heart (week 9)
- Taste buds appear and eyelids form (week 9)
- Toes start to form (week 9)
- Cartilage starts to harden and becomes bone (week 9)
- Stomach and pancreas produce digestive enzymes (week 10)



- Movements are complex and purposeful, such as thumb sucking (week 11)
- The baby is now called a fetus (week 11)
- Fingerprints start forming (week 12)

Second Trimester (Weeks 13–27)

(13 weeks 0 days through 15 weeks 6 days)

- Complex facial features have formed (week 13)
- Practices breathing in the womb (week 13)
- Vocal cords start developing (week 13)
- Approximately 6.5 in. (16.7 cm) from crown to heel (week 15) (info from babycenter.com)



(16 weeks 0 days through 19 weeks 6 days)

- Height is 9.5 in. (24 cm) from crown to heel (week 19) (info from babycenter.com)
- Body develops fat (weeks 17–18)
- Mother begins feeling movement



(20 weeks 0 days through 23 weeks 6 days)

- Approximately 12 in. (30.6 cm) from crown to heel (week 23)
- Sweat glands have developed (week 20)
- Babies as young as 21 weeks have survived outside the womb
- Inner ear has developed and baby responds to loud sounds (week 22)



(24 weeks 0 days through 27 weeks 6 days)

- Approximately 14.5 in. (36.6 cm) (week 27) (info from *babycenter.com*)
- Responds to music, reading and singing
- Eyes respond to changes in light
- Surfactant is produced in the lungs
- Kicks are more powerful
- Baby sleeps and dreams

Third Trimester (Weeks 28–40)

(28 weeks 0 days through 31 weeks 6 days)

- Approximately 16.5 in. (41.8 cm) from crown to heel (week 31)
- Sleep patterns are forming
- Can smell different odors in the amniotic fluid
- Heart pumps 750 quarts of blood each day



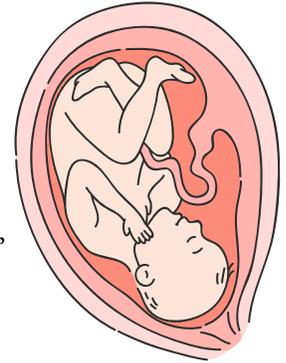
(32 weeks 0 days through 35 weeks 6 days)

- Approximately 18.25 in. (46.3 cm) from crown to heel (week 35)
- Brain growth and lung maturation
- Improved ability to recognize familiar songs and stories



(36 weeks 0 days to full-term 40 weeks)

- Approximately 19.75 in. (50.1 cm) from crown to heel (week 39) (info taken from *babycenter.com*)
- Baby is very active in the womb, preparing for life after birth
- A newborn can recognize its mother by her smell, voice or face





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