

TEACHER PREPARATION

KEY CONCEPTS

1. The life of the unborn child is amazing in his or her complexity and development.
2. There are many similarities between the behavior and capabilities of unborn and newborn children.

OBJECTIVES

By the end of this lesson, students should be able to:

1. Identify the stages of prenatal development.
2. Compare the development and abilities of the unborn with those of the born.
3. Appreciate the individuality and value of an unborn child.

BACKGROUND INFORMATION

Although the *DreamMakers-DreamBreakers* curriculum emphasizes sexual abstinence outside of marriage, some girls will undoubtedly become pregnant. Knowledge of the facts about the early days of life is crucial. Not only is it important for a pregnant woman to consider her own health, but it is also important for her to consider the life of her child. Many women (particularly young women) think of the baby, especially in the early stages of prenatal development, as a mass of cells. But technological advances in recent decades have made it much easier to observe life in the uterus. As soon as the ovum is fertilized, the baby has its own genetic structure separate from its mother's. It is supported by its mother's body; it is not a part of it. It is a unique human being with its own blood type, its own DNA, its own special combination of hair, eyes, skin, and nose – everything that goes into making a person different from anyone else in the world.

MATERIALS / PREPARATION

For this lesson, you will need the following materials:

- A prenatal development timeline. (An interactive chart is available at: <http://www.ehd.org>, then Prenatal Timeline.)
- Prenatal development chart blanks.
- Student journals.
- For “Going Deeper” section: four posters, one for each station.

LESSON

BEGINNING THE LESSON

PRENATAL DEVELOPMENT OVERVIEW

20 MINUTES

It is important for students to have the information found on the **Prenatal Development Chart**. Have students copy the grid into their notebooks.

Read the various stages aloud to them or write them on the board as you share them with the class, or do both.

Zygote: A fertilized human egg cell.

Embryo: A human baby in the first eight weeks after conception.

PRIMARY FOCUS: Physiological Characteristics

It was only a few decades ago that technologies were developed that allow us to see the life processes of the unborn. Let's take a look at what some of those processes are. As I go over each of them with you, fill in the appropriate blanks on your charts.

The Early Days of Life: Prenatal Development Timeline

Day 6 after conception:

- The fertilized egg, called a **zygote**, implants itself in the uterine wall. The baby in this early stage is called an **embryo**.

Week 3:

- The brain, spinal cord, heart, and digestive tract begin to develop.

Week 5:

- The heart beats with a regular rhythm, and there is a primitive circulatory system in place.
- The eyes and ears begin to form, as do the arms and legs.

Week 6:

- The lungs, fingers, and toes begin to form.
- Reflexes are present.
- At 43 days, electrical brain-wave patterns show up, evidence that "thinking" has begun.

Week 7:

- All essential organs have begun to form.
- Elbows and toes are visible.
- The baby looks like a tiny doll.

Week 8:

- Facial features become more distinct.
- The baby's gender is established.

This is the end of the embryonic period.

Fetus: A human baby after the eighth week after conception.

Amniotic Fluid: The fluid surrounding the baby in the mother's womb.

Weeks 9-12:

- The baby's face is well-formed.
- Tooth buds appear.
- The baby can make a fist with its fingers.
- The baby can swallow, squint, and retract the tongue.
- The baby begins to exhale and inhale *amniotic fluid*.

Weeks 13-16:

- The baby is 15.24 centimeters long.
- The baby is able to make active movements.
- Bones and muscles continue to form, and the bones become harder and show up on an X-ray.
- The baby can grasp with the hands, swim, kick, and turn somersaults.

Weeks 17-19:

- The baby is about 20.32 centimeters long.
- Eyebrows and eyelashes appear.
- Nails grow on its fingers and toes.
- The baby begins to hiccup, suck its thumb, and kick.
- From this point until the 30th week of pregnancy, the baby will be more sensitive to pain than it will ever be again in its life. This is because it has more nerve endings per square inch and there is less skin to insulate it from physical stimuli. The vocal chords are complete and working.

Week 20:

- The baby weighs around 0.7 kilograms and is almost 30.5 centimeters long.
- The eyes are developed.
- The unique fingerprints and footprints form.
- Hair appears on the head.

Week 24:

- The baby's brain begins to control several of the body functions.
- The baby is able to blink its eyes.
- The lungs develop to the point that gas exchange is possible.

Gas Exchange: Actual breathing in which carbon dioxide is exchanged for oxygen in the lungs. The baby doesn't actually do this in the womb, but if it were born prematurely, its lungs would be able to breathe gases.

- The baby could survive on its own at this point, but only with a great deal of life support, and the likelihood of complications and death would still be high.

Week 28:

- Rhythmic-breathing movements begin.
- The bones are still soft, but fully developed, and the baby begins to store iron, calcium, and phosphorus.
- By this time, most babies are about 38 to 43 centimeters long and weigh about 2 kilograms.

Week 32:

- The baby has gained body fat and has a high chance of survival outside of the womb.
- Weight has increased to about 2.5 or 3 kilograms.

Week 36:

- All of the body organs are functioning on their own.
- The baby shifts its position in the womb to be in the proper, head-down position for birth.
- Length and weight are getting closer to final birth size.

Weeks 37-40:

- The baby is considered to be full-term and can survive outside the womb with normal support.
- The baby may be between 48 to 53 centimeters long. It is ready to meet the outside world.

The Early Days of Life: Prenatal Development Chart

No. of Days/Weeks	Developmental Characteristics
Day 6 after conception	
Week 3	
Week 5	
Week 6	
Week 7	
Week 8	
Weeks 9-12	
Weeks 13-16	
Weeks 17-19	
Week 20	
Week 24	
Week 28	
Week 32	
Week 36	
Weeks 37-40	

 = 20 minutes

EXPLORING THE LESSON

PRENATAL ANALYSIS ACTIVITY 1

7-8 MINUTES

List on the board:

“Unique Physical Characteristics”

Answers might include (Weeks 1 - 12):

1. eye color
2. fingerprints
3. skin color
4. facial features, etc.

PRIMARY FOCUS: Individual Characteristics

Each baby possesses a set of individual characteristics determined by its unique genetic code. These determine one’s appearance as well as less apparent characteristics.

Form a small group with one or two other students and review the Prenatal Development Chart and put a star by each unique physical characteristic such as facial features, voice, etc. How many do you find that are unique to each individual child?

[As students complete these exercises, list their choices on the board under the heading, “Unique Physical Characteristics”, and emphasize how these characteristics differentiate each person from another, even before birth.]

Everything is there genetically from the very first, but there are some distinct developmental points at which characteristics like these manifest themselves. For instance, facial features are fully formed by 12 weeks. Skin color is something that would be evident as soon as skin cells form. Vocal chords are complete at Week 19, so you could say that one’s voice is audible then. Eyes are fully formed, hair appears, and fingerprints and footprints are formed at Week 20.]

What is most surprising to you about these characteristics? How did this change your thoughts about unborn babies and their individuality?

[Let students share their ideas freely, but try to guide the discussion to the key concept that a fetus is a unique life of its own, just as newborns and other children are.]

PRENATAL ANALYSIS ACTIVITY 2

7-8 MINUTES

List on the board:

“Unborn/Newborn”

PRIMARY FOCUS: Behavioral Characteristics

Now that you have finished that portion of the activity, go back over the chart again. This time, look for similarities between unborn and newborn babies in their abilities and activities. For example, unborn babies can suck their thumbs and will move away from a needle inserted into the womb because they can feel pain, just like newborns and older children. Place a heart beside each of these characteristics.

[Make another heading on the board – “Unborn/Newborn” – and list the students’ observations.]

Weeks 13 – 16:

- Kicking
- Swimming
- Somersaults

Week 24:

- Breathing movements
- Control of several body functions

Week 28:

- Blinking the eyes

Answers might include kicking, swimming, somersaults, pain avoidance, etc. for Weeks 13-16; breathing movements and control of several other body functions by Week 24; blinking the eyes by Week 28; all body functions controlled by baby by Week 32.]

What similarities did you find between the behavior and capabilities of unborn and newborn children? What surprised you most about the life of an unborn baby? According to this information, when did you first begin to engage in some of your infant behaviors? For example: thumb-sucking (weeks 17 -19).

What can we conclude from studying this information about unborn babies?

[Help students find their way to the conclusion that the differences between the unborn and the born are really more a matter of age and opportunity to develop than of identity and value.]

ENDING THE LESSON

PERSONAL JOURNAL ACTIVITY 10 MINUTES

Biography of life before birth

[Have students take out their Personal Journals.]

Look over the Prenatal Development Chart and all of your analyses. As you can see, your unique life was unfolding even before you were born.

Write a letter of appreciation to your mother who carried you through your early prenatal development to birth. It should be at least one paragraph long. You may choose to include information about your physiological, individual, and behavioral milestones.

[If you have time and opportunity, allow a couple of students to read their biographies aloud to the class.]

 = 45 minutes

RESOURCES

GOING DEEPER

For this lesson, you will need to make a poster for each learning station. The questions for each station should be written on the poster, and the Scriptures can be written out on the poster as well, or they can be available on a piece of paper at each station. Make sure that there is a place for the members of each group to sit and write their answers.

Keep an eye on the groups and have them shift when they seem to be ready to move on.

Station 1

Station 2

The creation of a new life is truly a miraculous process, from conception to birth and beyond. Despite all the technology we can use to examine the development of an unborn baby, there are some questions that science cannot answer. But, these questions are answered in part in the Bible. The Bible tells us who created us and how precious each new life is in the eyes of the Creator. It tells us why we are created and about the true nature of our identities.

Gather into four groups. As a group, you will rotate among four learning stations in the classroom. At each station, there will be a set of questions and some passages copied from the Bible dealing with the creation of human life. Read through the passages of Scripture and then use them to answer the questions at each station. Record your answers in your notebooks and be prepared to share them with the class when every group has had time to visit each learning station.

Station 1: The Bible tells us who created us.

Scriptures: Psalm 139:13
Job 10:10-12
Isaiah 42:5; 44:2 and 24

Questions:

1. What do these Scriptures tell you about how, when, and where human life begins?
2. What relationship do we have toward God, no matter how new our lives are or what we believe about Him?

Station 2: The Bible tells us how precious each human life is.

Scriptures: Psalm 139:14
Mark 9:37

Questions:

1. How does the Bible describe the creation of each human being?

Station 3

2. What attitude did Jesus teach about the value of human life, especially that of children?

Station 3: The Bible tells us that only God knows HOW and WHY we were formed as we were. Technology can only tell us WHAT happened.

Scriptures: Psalm 139:15
Ecclesiastes 11:5

Questions:

1. Who is the ONLY One who knows how and why we were created as we were?
2. Will we ever be able to truly appreciate the wonder of new life?

Station 4

Station 4: The Bible tells us who we human beings are, even when we have not yet been born.

Scriptures: Psalm 139:16
Jeremiah 1:5
Psalm 127:3

Questions:

1. When did God know us and the lives we would have?
2. Why does God give children to parents?

Personal Journal questions:

1. When did God first know you?
2. When did your life begin and who began it for you?
3. How valuable are you to God?
4. What can you think of about yourself that is fearfully and wonderfully made?
5. Why did God create you?
6. What if your life had been cut off before you had had a chance to be born?

After students have completed their work at each station, bring them back together.

Go over their answers and summarize their ideas, helping them draw connections between the sanctity of human life and the Scriptures they have read.

When you are finished, have them take out their Personal Journals and write answers to one or more of the questions to the right.

If you have the supplies, have each student make a fingerprint of his or her own finger on the Personal Journal pages used to write the answers. This will emphasize how unique each of them is.

PARENT-TEACHER CONNECTION

Today in the lesson, we learned about the earliest days of human life, those months when a child grows and develops in the womb.

1. Have your adolescent share with you the biography of his or her prenatal life and some of the surprising facts he or she discovered about prenatal development.

Most of us think of parenting as something that begins after a child is born, but in fact, most, if not all, parents actually start taking care of their child BEFORE he or she is born. Parents (mothers and fathers) expecting the birth of a child, make changes in their perspectives, choices, and behavior. They realize they are already caring for a new human being, a new family member, and use the time of pregnancy to prepare for the arrival of their child.

2. Take time to share with your adolescent some of your experiences during this preparatory period of pregnancy and childbirth. Tell about how your thinking changed, how your actions changed, and what surprised you about your child and about yourself during the early days of life in the womb and outside the womb.

If you are not a biological parent, your adolescent may seek out another relative or trusted adult who has experienced parenthood in the pre- and post-natal periods.