

**Alabama Department of Public Health
Mother's Milk Education Package for Grades K-12**

Level: 6

Adapted from New York Department of Health

PASSING IT ON

LEARNING OBJECTIVE FOR LEVEL 6

Students will recognize how choices regarding nutrition, drugs, alcohol, tobacco and environmental factors can affect pregnancy and lactation

SCIENCE CONTENT STANDARDS

All content standards that relate to the impact of environment on health and ways to protect the environment.

HEALTH CONTENT STANDARDS:

1. Identify health advocacy strategies.
2. Identify services provided by local, state, and national health agencies and organizations.
3. Identify the influence of positive and negative cultural messages on health behaviors.
4. Recognize criteria to be used in determining reliability of health information, products and services.

FAMILY AND CONSUMER SCIENCE CONTENT STANDARDS:

TEEN CHALLENGES

1. Describe basic human needs
9. Explain the functions of the family.
10. Recognize the significance of traditions on family life.

Passing It On is a unit that blends well with nutrition, health, and a tobacco, alcohol, and drug curriculum. Lesson 1 examines the nutritional differences between a pregnant and lactating woman. Lesson 2 studies the effects of substances such as drugs, alcohol, tobacco, and medicines on a pregnant woman, fetus, and newborn baby. Lesson 3 examines the issue of whether or not breastmilk is better for a baby as well as identifying diseases that can be contracted or prevented through breastmilk. Lesson 4 examines some environmental hazards to a fetus or newborn as well as some hereditary factors that can cause birth defects.

Resources for PASSING IT ON

Usborne Facts of Life Series, Babies: Understanding Conception, Birth and First Years. Robyn Gee. Usborne Publishing, Ltd. London, 1991.

Healthy You, Healthy Baby. CD-ROM, March of Dimes, Atlanta, GA. 800-367-6630,
www.marchofdimes.com.

Before You Start:

These lessons are designed to help students become aware of the fact that what they do now can have a lasting effect on their future from a health and nutritional point of view. It is through a realization that choices made today could produce lasting positive or negative effects on self or one's offspring that helps students value abstinence from negative behaviors.

Students at this age are beginning to grow rapidly and they may have little concern for their nutritional health. Their primary focus for eating may revolve around what tastes good or what will fill me up rather than being concerned about whether or not something is nutritious.

This unit probably will not change most students' eating behavior permanently. Perhaps it will, however, provide another glimpse at why we need to make healthy choices. When a person understands why something is positive or negative, the value that is being taught is more likely to be adopted. We can provide opportunities to reinforce health and well being until at some point a child cherishes a value so much that actions are congruent with beliefs.

In addition to nutrition education, this unit examines environmental dangers that also can affect us now or in the future. Prevention education related to drugs, alcohol, tobacco, and sexual activity can help students resist pressures to engage in unhealthy behaviors. In doing so, we promote the health of this generation of students as well as the next.

Education regarding mother's milk becomes an important element in practicing nutritious eating habits and abstaining from harmful substances especially for females but also for males.

Some might question why males need to learn about mother's milk. Though males do not nurse babies, they can have an important influence on their partner's decisions about breastfeeding and success in doing it. They will be in settings where breastfeeding takes place (education, home, employment) and, thus, can play a supportive role.

By learning the benefits of mother's milk, as well as learning about other factors that can affect human health, students can better grasp the importance of practicing healthy behaviors now and in the future.

Lesson 1 EATING FOR TWO

Concept: It is important for all people to eat nutritious meals.

Advance Preparation

- Photocopy or make an overhead of the Recommended Daily Allowance Chart.
- Gather magazines (especially ones that contain pictures of people of all ages and food).
- Photocopy the worksheet "Increasing the Nutritional Value of Meals."

Vocabulary Words

Lactation: process of producing milk, breastfeeding.

Lactating: refers to lactation

Nutrient: something that helps an organism grow

ACTIVITIES

- Using the Recommended Daily Allowance Chart provided, compare the amounts of nutrients needed for an adult female compared to a pregnant and lactating female. What are the similarities? the differences? Why do pregnant and lactating females need more nutrients? What might happen if these nutritional needs were not met? (Research suggests that little harm is done to a fetus if the mother does not eat correctly. However, there may be serious problems for the mother as the nutrients may be "robbed" from her body to provide for the nutritional needs of a child. A nursing mother needs to follow nutritional recommendations so her milk will be nutritious for the baby.)
- Using the Food Guide Pyramid, compare and contrast nutritional needs of various age groups. What do all groups need (well-balanced meals low in sugar, salt and

fat)? What kinds of foods should people eat most? (foods on the base of the food pyramid -- grains, breads, cereals, pasta, fruits and vegetables.)

- Prepare a collage showing the nutritional needs of one of the following age groups:
 - baby(from birth to 1 year)
 - toddler
 - preschooler
 - school-age child
 - teenager
 - adult male
 - pregnant female
 - lactating female
 - senior citizen
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Evaluation

- Complete worksheet on Increasing the Nutritional Value of Meals. Foods may be added or deleted to improve a nursing mother's diet. Note to teacher: Generally a nursing mom should increase her calorie intake by 500 calories per day. She should drink plenty of fluids. Most health professionals recommend continuing vitamins and minerals supplements from pregnancy through the nursing period. Foods rich in iron are especially important because infants need iron and is found in breastmilk. The nursing mother needs to maintain her energy level during breastfeeding and not become anemic.
- Vitamins B and C are water-soluble which means that excess amounts are excreted through urine. It is important to eat foods containing vitamins B and C each day.
- Vitamins A, E, D and K are fat-soluble and excess amounts are stored in the fat cells of the body. Foods rich in these vitamins should be eaten at least every other day
- Discuss some reasons why nutritious eating habits are important for people of all ages. Is there any merit in developing nutritious eating habits now versus waiting until later in life? Why or why not?

Lesson 2 I'LL NEVER GIVE MY BABY DRUGS

Concept: There are harmful substances that harm babies during pregnancy and/or breastfeeding.

Vocabulary Words

Embryo: a developing baby from conception to the end of the third month.

Fetus: a developing baby between the 12th week to the end of pregnancy.

Placenta: an organ that carries food and oxygen to the baby and waste products from the baby back to mother.

Hormones: chemical substances produced by the body which control certain processes.

Glands: group of cells that produces chemical substances, which affects other body parts.

Withdrawal: term used for symptoms that appear when a person stops using a drug.

Advance Preparation

- Find an illustration of an embryo/fetus or purchase Usborne's *Facts of Life Series Babies*: by Royin Gee.
- Photocopy crossword puzzle.
- Arrange a visit from a nurse who works in a nursery with newborns.
- Gather art materials to make posters for WIC agencies.

ACTIVITIES

- Hold up a diagram in a book or pass out a worksheet illustrating a fetus in the uterus. Explain where the following body parts are located: uterus, fetus, umbilical cord, placenta, and amniotic sac. (Usborne's Facts of Life Series BABIES:)
- Explain how food and oxygen are passed on to the fetus through the placenta. Briefly describe the functions of each of the body parts above. Also describe how waste products from the baby are transferred
- Explain the functions of various organs listed above:

Information to Provide for Students

The human body needs food and oxygen to stay alive and healthy. In addition, it needs to be able to get rid of waste products. Similarly, a fetus needs food and oxygen to grow and develop and also needs to be able to eliminate waste products.

While a baby is inside its mother's uterus, it does not eat or breathe. Rather, food and oxygen is passed on through an organ called the placenta. It is through the placenta that waste products are passed from the blood of the fetus back to the mother's blood.

Early in the development of the embryo the placenta is formed. A group of blood vessels are formed and they mix with some blood vessels of the mother. These blood vessels are separated by a layer of cells that acts as a barrier to prevent many harmful substances from entering the baby's body. However, not all substances are blocked.

The umbilical cord is attached to the baby's navel and it connects to the placenta. Blood travels from the placenta through the umbilical cord and into the baby's body. Waste products are moved from the baby's body through the umbilical cord, back to the placenta and then passed into the mother's blood.

Therefore, it is important for the mother to eat properly and be careful about what substances are taken into her body. She should avoid tobacco, alcohol, illegal drugs and even many medicines. It is important for a woman to check with her doctor before taking any medicine.

- Read aloud pages 9 and 15 of Usborne's Facts of Life BABIES by Robin Gee. After reading, have students complete the crossword puzzle activity to practice vocabulary in this lesson.
- Have students do a research project and prepare a brief oral report on the possible side effects of certain substances on a fetus or infant. They may use resource books, experts, magazine articles or pamphlets from organizations like The March of Dimes. Some possible topics include:
 1. Tobacco - reduces the flow of blood and oxygen to unborn baby. Possible effects include low birth weight, premature babies, stillborn babies, and miscarriages. Also more at risk for catching infections. Some experts believe babies of fathers who smoke are more likely to experience problems as well.
 2. Crack/Cocaine - possible chance of AIDS if you share needles. The baby may become addicted to drugs and experience withdrawal. This may cause him/her to be shaky and hard to care for. The baby could also be born too early, too small, or too weak.
 3. Caffeine - a stimulant. Passes into breastmilk and can interfere with baby's sleep.
 4. Alcohol - Fetal Alcohol Syndrome can result in low birthweight, physical deformities, mental retardation, behavior problems, and stunted growth that are not reversible. This damage is permanent and does not get better with age or special education programs. Fetal Alcohol Effect is when some of these problems occur because of lesser amounts of alcohol consumed by the mother. This damage is permanent also.

5. Other substances could include marijuana, heroin, stimulants, depressants, aspirin, over the counter drugs, prescription drugs, etc.

- Interview a nurse who works with newborns. What kinds of health problems are seen among newborns? How could these problems be reduced? What kind of special care do they need? Why is low birthweight a problem?

Evaluation

Prepare posters and deliver to a local WIC agency to inform people about the dangers of harmful substances on unborn children and infants.

Mother's milk is the best food for babies.

Lesson 3 IS MOTHER'S MILK BETTER?

Concept: Mother's milk cannot be duplicated by formulas made by man in chemistry laboratories.

Vocabulary words

Oxytocin: a hormone that makes muscles contract to send milk down ducts and out the nipples.

Letdown reflex: process of milk being released due to oxytocin.

Prolactin: a hormone that is produced when a baby sucks causing more milk to be produced.

Advance Preparation

Read the section on lactation ahead of time in Usborne's Facts of Life BABIES.

ACTIVITIES

- Students brainstorm benefits of mother's milk. Benefits include: best nutritionally in most cases; provides immunities to some illnesses; changes to meet baby's needs as while growing; inexpensive; convenient; no bottles to sterilize and it is always the right temperature; provides bonding between mother and child; helps mom relax; helps mom's uterus to get back down to normal size; helps mom lose weight gained during pregnancy.
- Read pages on lactation in Usborne's *Facts of Life BABIES* by Robin Gee to class. It shows a cross-section of a breast and explains how breastfeeding works. Be sure to show the illustrations for better understanding.

Discussion Questions:

- (a) When does a woman become able to produce milk?
 - (b) Why is she able to produce milk?
 - (c) What is oxytocin? How does it produce the "let-down reflex"?
 - (d) What is prolactin? How does prolactin influence the milk supply?
 - (e) What are some reasons a woman might not breastfeed her baby?
 - (f) What are some reasons why she should?
 - (g) What should a mother do in order to produce good quality milk?
 - (h) Can any diseases be prevented through mother's milk?
 - (i) Can any diseases be passed along through mother's milk? (HIV can be transmitted through breastmilk if mother is HIV positive.)
- Review ways that HIV/AIDS can be transmitted (blood, mucus membranes, semen and vaginal secretions.).
 - Ask: Are there times when mother's milk is not recommended? List answers on board.
 - mother uses drugs or alcohol (including some prescription drugs)

- mother is HIV positive, has AIDS or some other communicable disease (tuberculosis) that can be passed through breastmilk

Evaluation

Have students pretend to write a letter to an older brother or sister who is expecting a baby. The young couple has not decided whether to breastfeed. The intent of the letter is to promote breastfeeding.

Lesson 4 WATCH OUT!

Concept: Teratogens can have harmful effects on an embryo and/or fetus. Some birth defects can be prevented.

Advance Preparation

- Order *Into Adolescence: Learning About Reproduction and Birth Network Publications*
- Photocopy materials for Lessons 5 and 6 mentioned above.
- Invite a nurse (works in maternity, for an obstetrician or public health) to visit the class. Prepare questions with students.
- Invite a guest speaker from the March of Dimes to discuss prevention of birth defects.
- Prepare essay directions and scoring criteria.

ACTIVITIES

- Use a resource that describes conception and birth and define the following: embryo, birth disorder, developmental disabilities, genetic disorders, congenital disorders, teratogens (diseases, physical agents, or chemicals).
- Use a resource that birth disorders, developmental disabilities and their causes, including teratogens. Secure the steps to FDA drug approval to share with students.
- Obtain infant mortality information from a local public health office or from Center for Health Statistics, Alabama Department of Public Health. Obtain national data regarding infant mortality from the March of Dimes. Have students develop graphs to compare infant mortality rates among various states.
- Review harmful substances that can affect a baby while being breastfed, i.e. aspirin, medications, tobacco, alcoholic beverages, etc.
- Invite a nurse to speak to the class about healthful practices a mother- and father-to-be should practice. Ask the nurse to speak about possible consequences of unhealthy behaviors (smoking, drinking, improper diet, etc.). Also include information on the affects of certain illnesses and diseases on an unborn child or infant like rubella, flu, chicken pox, etc.
- Invite a guest speaker from the March of Dimes to speak to the class on birth defects. Have students prepare questions ahead of time. Focus on what contributes to birth defects. How can they be prevented? How does a child with a birth defect cope? What special needs might this child have? (Note: It is important for students to realize that not all birth defects can be prevented. However, when possible, we should do all we can to contribute to our own well-being and good health as it can affect us now and/or in the future.) Can a child with birth defects be breastfed?

Evaluation

Students write an essay on one of the following topics: (1) why teens should avoid drugs, alcohol, and tobacco; (2) why a couple planning to have children should avoid the misuse and abuse of drugs, alcohol, and tobacco; or (3) preventing birth defects; (4) the importance of abstinence from sexual activity prior to marriage/monogamous relationship.

Food Guide Pyramid

	Many women and older adults	Children, teen girls, active women and most men	Teen boys and active men
Calories	1,600	2,200	2,800
Bread, grains, cereal, rice and pasta	6	9	11
Vegetables	3	4	5
Fruit	2	3	4
Milk, yogurt and cheese	2-3*	2-3*	2-3*
Meat, poultry, fish, dry beans, eggs and nuts	2 total 5 oz. per day	2 total 6 oz. per day	3 total 7 oz. per day

*Teenagers, pregnant women, lactating women and young adults up to age 24 should have three

"The Food Guide Pyramid" Booklet, Cornell Cooperative Extension, Ithaca, New York, 1992.

Increasing the Nutritional Value of Meals

Name: _____

Directions: Using the following menus, add or delete certain food items to make the meal more nutritious for a nursing mom. When something is deleted, you may substitute something in its place.

Menu 1

turkey sandwich
potato chips
apple
cola
2 candy bars

How could I change this meal?

Menu 2

steak
french fries
applesauce
milk
blueberry pie

Menu 3

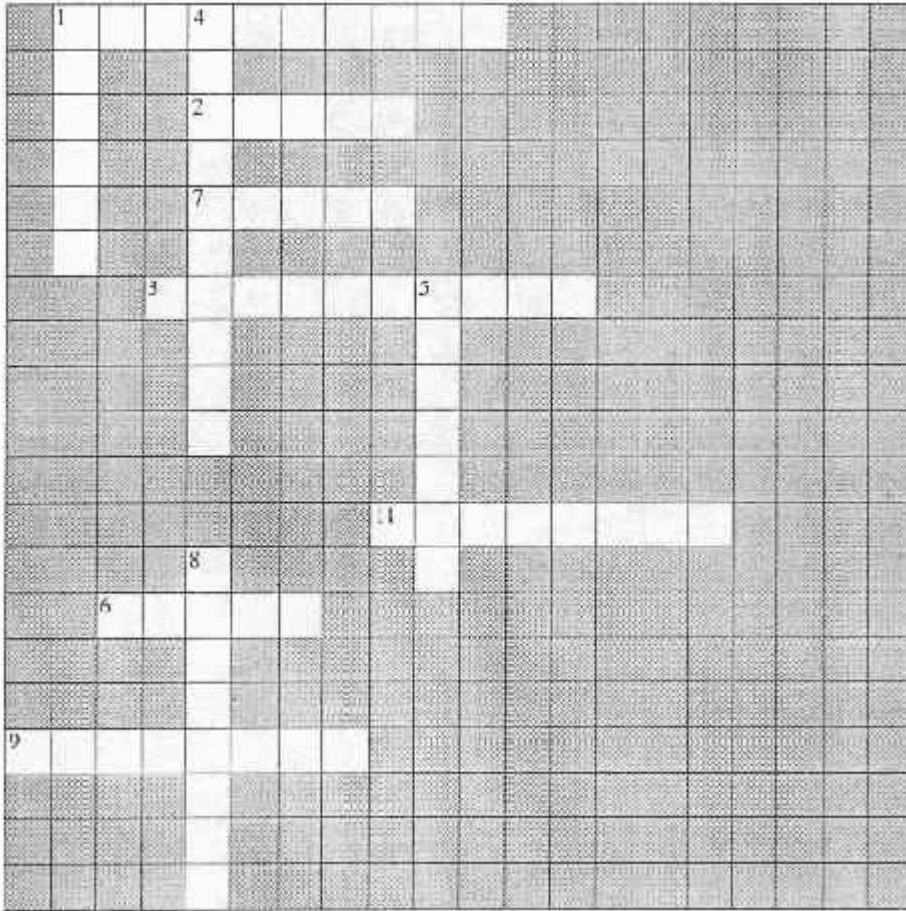
chicken breast
rice
corn
green beans
brownie

Snacks

cola
chocolate cake

Crossword Puzzle

Name: _____



Clues

Across

1. germ fighting proteins in breastmilk.
2. a developing baby between the 12th week to the end of pregnancy.
3. term used for symptoms that appear when a person stops using a drug.
6. group of cells that produces chemical substances which effects other body parts.
7. type of cocaine.
9. an organ that carries food and oxygen from mother to baby and waste products from the baby back to mother.
10. chemical substances produced by the body which control certain processes.
11. nicotine is found in this.

Down

1. area around nipple of breast.
4. contagious; can be passed from one person to another.
5. causes Fetal Alcohol Syndrome. It can be passed from mother to baby in breastmilk.
8. found in coffee, tea, chocolate; may cause wakefulness and irritability in a baby.