

Today's Challenges; Today's Leaders:

REAL WORLD CONVERSATIONS FOR THE CLASSROOM

Lesson Number: **TCTL.1.3**

Malnutrition Effects

Quick Reference:

Time Required:

50 minutes

Objectives:

After completing this lesson, students should be able to:

1. Define malnutrition and hunger.
2. Explain statistics of global malnutrition.
3. Describe some of the deficiencies related to malnutrition and the effects on the body.

Materials:

- ✓ TCTL.1.3.AS.A (one copy per group)
- ✓ TCTL.1.3.AS.B (one copy per group)
- ✓ TCTL.1.3.AS.C (one copy per group)
- ✓ TCTL.1.3.AS.D (one copy per group)
- ✓ TCTL.1.3.AS.E (one copy per group)
- ✓ TCTL.1.3.AS.F (one copy per group)
- ✓ TCTL.1.3.AS.G (one copy per group)
- ✓ TCTL.1.3.AS.H (one copy per group)
- ✓ TCTL.1.3.AS.I (one copy per group)
- ✓ TCTL.1.3.AS.J (one copy per student)
- ✓ Nine different colors of construction paper
- ✓ Scissors
- ✓ Tape

Purpose:

This lesson will focus on examining the affects of malnutrition on the human body. By recognizing the varying degrees of hunger that exist locally and globally, students will develop an understanding of living a compassionate and selfless life.

Directions:

The bulleted information below is important to know as background information.

- Students will focus on the causes of malnutrition, the impact it is having and where it is located throughout the world.
- Students will be broken into groups to complete an activity and will present the results to the class. While each group is presenting, students in the audience will record the information they hear. Upon the completion of each group's presentation, students will display the body parst that they created and answer questions about them.

After reviewing the information above, begin with the lesson activities below.

1. Break students into nine groups as they enter the classroom. Each group should receive one of the nine different activity sheets (TCTL.1.3.AS.A- TCTL.1.3.AS.I), a pair of scissors and a colored sheet of construction paper to complete the activity. Each activity sheet lists a different body part that the group will need to draw on the construction paper then cut out. These sheets also contain information about hunger and malnutrition. The students will present their works to the class. Each member of each group should participate in the presentation of the material.



2. Students will have six minutes to cut out the body part, to review the material and to decide who presents the main points.
3. Have groups present in the same sequence of the assignment sheets.
4. Distribute TCTL.1.3.AS.J to each student. Instruct students to listen, then record in the blanks on this sheet the answers from each group's presentation.
5. Before each group presents, have a student tape the assigned body part on the wall eventually creating a human body. *(Will probably be out of proportion but that is OK. This will drive the questions at the end of the lesson.)*
6. As groups present their information, reinforce to the reader of the material to emphasize the underlined word, because that is the word that students need to fill in TCTL.1.3.AS.J.
7. Once all groups have presented, pose the following questions to direct conversations about healthy eating and teamwork.
 - a. Is the body we created in proportion? Why or why not?
 - b. If any part that we created was missing, would we have an effective body? What would happen to a team if one person were missing?
 - c. Let's look at that in our diet. What if we have a deficiency in our diet? What happens to our bodies? What were some of the deficiencies we covered? Are they easily fixable?

Connection Questions:

1. What happens in your life when you allow things to get out of proportion? Such as too much TV, too much junk food to eat or any other activity.
2. What are some ways that you as an individual or group could make a difference in the lives of millions of malnourished children across the globe?
3. What are some things that agriculturists are doing right now to help fight against malnutrition?

LifeKnowledge Connections

Precept(s) addressed:

Action

A1. Work independently and in group settings to get things done

Relationships

B5. Participate effectively as a team member

Physical Growth

G1. Practice healthy eating habits

LK Lesson Suggestion:



MS.16 – Understanding healthy eating habits

HS.58 – Demonstrating compassion for others

Resource:

Feeding America (2011). *Hunger in America*. Retrieved September 1, 2011, from <https://feedingamerica.org>

Hearts and Minds Network, Inc. (July 21, 2011). *Facts on World Hunger and Poverty*. Retrieved September 1, 2011, from <http://www.heartsandminds.org/poverty/hungerfacts.htm>

KidsHealth (2011). *Hunger and Malnutrition*. Retrieved September 1, 2011, from <http://www.kidshealth.org/parent/growth/feeding/hunger.html>

Plenty to Think About (2011). *World Hunger*. Retrieved September 1, 2011, from <http://www.plentytothinkabout.org>

WhyHunger (2011). *The Facts About Hunger and Poverty*. Retrieved September 1, 2011, from <http://www.whyhunger.org/about/justTheFacts>

World Food Programme (2011). *Hunger Stats*. Retrieved September 1, 2011, from <http://www.wfp.org/hunger/stats>

World Health Organization (2011). *Micronutrient Deficiencies*. Retrieved September 1, 2011, from <http://www.who.int/nutrition/topics/vad/en>

World Hunger Education Service (June 19, 2011). *World Child Hunger Facts*. Retrieved September 1, 2011, from http://www.worldhunger.org/articles/Learn/child_hunger_facts.htm

Take your given scissors and paper and create a head for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your head, read over the information about (1) Malnutrition Definition and (2) Hunger vs. Malnutrition. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(1) Malnutrition Definition

Malnutrition is a general term that indicates a lack of some or all nutritional elements necessary for human health.

(2) Hunger vs. Malnutrition

- Malnutrition is not the same thing as hunger, although they often go together. People who are chronically malnourished lack the nutrients needed for proper health and development. Someone can be malnourished for a long or short period of time, and the condition may be mild or severe. People who are malnourished are more likely to get sick and, in severe cases, might even die.
- According to the UN World Food Program, more than 1 billion people in the world do not have enough to eat. That's more than the entire populations of the United States, Canada, and the European Union. Every six seconds, a child dies from malnutrition and related causes.
- Chronic hunger and malnutrition can cause significant health problems. People who go hungry all the time are likely to be underweight, weighing significantly less than an average person of a particular size. Growth may also be stunted, making these people much shorter than average. (Of course, people can also be underweight or short because of an illness or genetic makeup.) Worldwide, as many as 27% of children younger than age 5 are underweight.

Take your given scissors and paper and create arms for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your arms, read over the information about (3) Malnutrition Statistics. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(3) Malnutrition Statistics

- In 2008, nearly 9 million children died before they reached their fifth birthday. One third of these deaths are due directly or indirectly to hunger and malnutrition. Malnutrition is not having enough nourishing food, with adequate amounts of protein, vitamins, minerals and calories to support physical and mental growth and development.
- Children who survive early childhood malnutrition suffer irreversible harm—including poor physical growth, compromised immune function and impaired cognitive ability.
- Around the world, 178 million children younger than 5 are stunted, with low height for the age. Of all stunted children, 90 percent live in just 36 countries, most of them in sub-Saharan Africa and South and Central Asia.

Take your given scissors and paper and create legs for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your legs, read over the information about (4) Causes of Hunger and Malnutrition. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(4) Causes of Hunger and Malnutrition

- People who don't get enough food often experience hunger, and hunger can lead to malnutrition over the long term. But someone can become malnourished for reasons that have nothing to do with hunger. Even people who have plenty to eat may be malnourished if they don't eat food that provides the right nutrients, vitamins, minerals and calories.
- Someone who doesn't get enough of one specific nutrient has a nutritional deficiency, a form of malnutrition (although it doesn't necessarily mean the person will become seriously ill). The most common form of malnutrition in the world is iron deficiency, which can lead to anemia. The World Health Organization (WHO) estimates that as many as 2 billion people worldwide don't have enough iron (which is found in foods like red meat, egg yolks, fortified flour, bread and cereals) in their diets.

Take your given scissors and paper and create chest/torso for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your chest/torso, read over the information about (5) Who is at Risk? Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(5) Who is at Risk?

- All over the world, people who are poor or who live in poverty-stricken areas are at the greatest risk for hunger and malnutrition. In poor countries, wars and natural disasters such as droughts and earthquakes also can contribute to hunger and malnutrition by disrupting normal food production and distribution.
- In the United States, food manufacturers fortify some common foods with vitamins and minerals to prevent certain nutritional deficiencies. For example, the addition of iodine to salt helps prevent some thyroid gland problems (such as goiter); folic acid added to foods can help prevent certain birth defects; and added iron can help prevent iron-deficiency anemia.
- Malnutrition affects people of every age, although infants, children and adolescents may suffer the most because many nutrients are critical for normal growth and development. Older people may develop malnutrition because aging, illness and other factors can lead to a poor appetite, so they may not eat enough.

Take your given scissors and paper and create feet for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your feet, read over the information about (6) Symptoms and Effects of Malnutrition. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(6) Symptoms and Effects of Malnutrition

- Malnutrition harms both the body and the mind. The more malnourished someone is — in other words, the more nutrients that are missing — the more likely the person is to have problems.
- The signs and symptoms of malnutrition depend on which nutritional deficiencies a person has, although they can include:
 - fatigue and low energy
 - dizziness
 - poor immune function (which can hamper the body's ability to fight off infections)
 - dry, scaly skin
 - swollen and bleeding gums
 - decaying teeth
 - slowed reaction times and trouble paying attention
 - underweight
 - poor growth
 - muscle weakness
 - bloated stomach
 - osteoporosis, or fragile bones that break easily
 - problems with organ function
 - problems learning

- If a pregnant woman is malnourished, her child may weigh less at birth and have a lower chance of survival. Vitamin A deficiency from malnutrition is the chief cause of preventable blindness in the developing world, and children with severe vitamin A deficiency have a greater chance of getting sick or dying from infections such as diarrhea or measles. Iodine deficiency, another form of malnutrition, can cause mental retardation and delayed development. Iron deficiency can make children less active and less able to concentrate.

Take your given scissors and paper and create hands for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your hands, read over the information about (7) Two Types of Malnutrition. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(7) Two Types of Malnutrition

- There are two basic types of malnutrition. The first and most important is protein-energy malnutrition--the lack of enough protein (from meat and other sources) and food that provides energy (measured in calories) that all of the basic food groups provide. This is the type of malnutrition that is referred to when world hunger is discussed.
- The second type of malnutrition, also very important, is micronutrient (vitamin and mineral) deficiency. This is not the type of malnutrition that is referred to when world hunger is discussed, though it is certainly very important.

Take your given scissors and paper and create a heart for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your heart, read over the information about (8) How is Malnutrition Measured? Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(8) How is Malnutrition Measured?

- According to the most recent estimate that Hunger Notes could find, malnutrition, as measured by stunting, affects 32.5 percent of children (1 of every 3) in developing countries.
- Geographically, more than 70 percent of malnourished children live in Asia, 26 percent in Africa and 4 percent in Latin America and the Caribbean. In many cases, their plights began even before birth with malnourished mothers.
- Undernutrition among pregnant women in developing countries leads to 1 out of 6 infants born with low birth weight. This is not only a risk factor for neonatal deaths, but also causes learning disabilities, mental retardation, poor health, blindness and premature death.

Take your given scissors and paper and create eyes and ears for the human body we are constructing. Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your eyes and ears, read over the information about (9) Symptoms and Effects of Malnutrition. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(9) Children in Poverty and Malnutrition

- Each year, more than 6.5 million children in developing countries die before the age of 5. More than half of these deaths are attributed to malnutrition, which claims a child's life every four seconds.
- Every year, more than 10 million children worldwide die of hunger and preventable disease —that's more than 30,000 per day, or 1 every 3 seconds.
- Approximately 146 million children in developing countries, about 1 out of 4, are underweight.
- An estimated 250 million preschool children worldwide are vitamin A deficient. An estimated 250,000 to 500,000 vitamin A-deficient children become blind every year. Half of them die within 12 months of losing their sight. This is easily corrected with an inexpensive vitamin supplement.
- It is estimated that 684,000 child deaths worldwide could be prevented by increasing access to vitamin A and zinc.

Take your given scissors and paper and create a nose and a mouth for the human body we are constructing.

Do not discuss your assignment with any other group. Work as quietly and efficiently as you can. You have three minutes to complete this task.

Upon creating your nose and mouth, read over the information about (10) Malnutrition Risk Factors. Between group members, decide who will read what section to the class to answer the questions on the worksheet. Remember to read slowly. Strongly articulate the underlined portions, because these are the answers to the worksheet. You have an additional three minutes to complete this task.

(10) Malnutrition Risk Factors

- There are a number of risk factors for malnutrition. First, people who are poor or living in poverty-stricken communities or countries are at the greatest risk. In many of these poor countries, there have been natural disasters as well as war that contribute to malnutrition.
- Malnutrition can affect people of any age. At greatest risk, however, are infants, children, and adolescents, because they need vitamins and nutrients in order to develop properly. Older people are also at risk because they are aging and may have illnesses that may also cause them to have poor appetites, which lead to them not eating enough.
- Alcohol consumption can disrupt nutrient absorption, so the vitamins and minerals that alcoholics are consuming may not be utilized by their bodies. People who abuse drugs or alcohol are at greater risk for malnutrition because they may be underweight if they don't eat properly.

Malnutrition Information Capture Worksheet

(1) Malnutrition Definition

Malnutrition is a general term that _____ nutritional elements _____ for human health.

(2) Hunger vs. Malnutrition

- Malnutrition is _____ the same thing as _____, although they often go together. People who are chronically malnourished _____ needed for proper health and development. Someone can be _____ for a long or short period of time, and the condition may be _____ or _____. People who are malnourished are more likely to get sick and, in severe cases, might _____.
- According to the UN World Food Program, more than _____ in the world do not have enough to eat. That's more than the entire populations of the United States, Canada, and the European Union. Every _____ a child dies from _____ and related causes.
- Chronic hunger and malnutrition can cause _____ health problems. People who go hungry all the time are likely to be _____, weighing significantly less than an average person of a particular size. Growth may also be _____, making these people much shorter than average. (Of course, people can also be underweight or short because of an illness or genetic makeup.) Worldwide, as many as _____ younger than _____ are underweight.

(3) Malnutrition Statistics

- In 2008, nearly _____ died before they reached their fifth birthday. _____ of these deaths are due directly or indirectly to hunger and _____. Malnutrition is not having enough nourishing food, with adequate amounts of _____, vitamins, minerals and _____ to support physical and mental growth and development.
- Children who survive _____ malnutrition suffer irreversible harm—including poor _____ growth, compromised immune function and impaired _____ ability.
- Around the world, _____ children younger than _____ are stunted, with low height for the age. Of all stunted children, _____ live in just 36 countries, most of them in sub-Saharan Africa and South and Central Asia.

(4) Causes of Hunger and Malnutrition

- People who don't get _____ often experience _____, and hunger can lead to _____ over the long term. But someone can become malnourished for reasons that have nothing to do with hunger. Even people who have _____ may be malnourished if they don't eat food that provides the _____, vitamins, _____ and calories.
- Someone who doesn't get enough of one specific nutrient has a nutritional _____, a form of malnutrition (although it doesn't necessarily mean the person will become seriously ill). The most common form of malnutrition in the world is _____, which can lead to anemia. The World Health Organization (WHO) estimates that as many as _____ worldwide don't have enough iron (which is found in foods like _____, _____, fortified flour, bread and _____) in their diets.

(5) Who is at Risk?

- All over the world, people who are _____ or who live in poverty-stricken areas are at the _____ for hunger and malnutrition. In poor countries, _____ and _____ such as droughts and earthquakes also can contribute to hunger and malnutrition by disrupting normal _____ and distribution.
- In the _____, food manufacturers fortify some common foods with vitamins and minerals to _____ certain nutritional deficiencies. For example, the addition of _____ to salt helps prevent some thyroid gland problems (such as goiter); _____ acid added to foods can help prevent certain _____; and added _____ can help prevent iron-deficiency anemia.
- Malnutrition affects people of every age, although _____, _____, and adolescents may suffer the most because many nutrients are critical for normal _____ and _____. Older people may develop malnutrition because aging, illness and other factors can lead to a poor appetite, so they may not eat enough.

(6) Symptoms and Effects of Malnutrition

- Malnutrition harms both the _____ and the _____.
The more malnourished someone is - in other words, the more _____ that are missing - the more likely the person is to have problems.
- The _____ and _____ of malnutrition depend on which nutritional deficiencies a person has, although they can include:
 - fatigue and low energy
 - _____
 - poor immune function (which can hamper the body's ability to fight off infections)
 - _____
 - swollen and bleeding gums
 - _____
 - slowed reaction times and trouble paying attention
- _____
- poor growth
- muscle weakness
- _____
- osteoporosis, or fragile bones that break easily
- problems with organ function
- _____

- If a _____ is malnourished, her child may weigh less at birth and have a lower chance of survival. _____ from malnutrition is the chief cause of preventable _____ in the developing world, and children with severe vitamin A deficiency have a greater chance of getting sick or dying from infections such as diarrhea or measles. _____, another form of malnutrition, can cause mental retardation and _____ development. Iron deficiency can make children less _____ and less able to _____.

(7) Two Types of Malnutrition

- There are _____ basic types of malnutrition. The first and most important is _____-energy malnutrition - the lack of enough protein (from _____ and other sources) and food that provides _____ (measured in calories) that all of the basic food groups provide. This is the type of malnutrition that is referred to when _____ is discussed.
- The second type of malnutrition, also very important, is _____ (vitamin and mineral) deficiency. This is not the type of malnutrition that is referred to when world hunger is discussed, though it is certainly very important.

(8) How is Malnutrition Measured?

- According to the most recent estimate that Hunger Notes could find, malnutrition, as measured by _____, affects _____ of children (_____) in developing countries.
- Geographically, more than _____ of malnourished children live in Asia, _____ in Africa and _____ in Latin America and the Caribbean. In many cases, their plights began even before birth with malnourished mothers.

- Undernutrition among pregnant women in developing countries leads to _____ out of _____ infants born with low birth weight. This is not only a risk factor for neonatal deaths, but also causes _____ disabilities, mental retardation, poor health, _____ and premature death.

(9) Children In Poverty and Malnutrition

- Each year, more than _____ children in developing countries die before the _____. More than half of these deaths are attributed to malnutrition, which claims a child's life every _____.
- Every year, more than 10 million children die of hunger and preventable diseases - that's more than _____ children per day, or 1 every 3 seconds.
- Approximately 146 million children in developing countries, about 1 out of 4, are underweight.
- An estimated 250 million preschool children worldwide are _____. An estimated 250,000 to 500,000 vitamin A-deficient children become _____. Half of them _____ within 12 months of losing their sight. This is _____ with an inexpensive vitamin supplement.
- It is estimated that 684,000 child deaths worldwide could be prevented by increasing access to _____.

(10) Malnutrition Risk Factors

- There are a number of risk factors for malnutrition. First, people who are _____ or living in poverty-stricken communities or countries are at the greatest _____. In many of these poor countries, there have been natural disasters as well as war that contribute to malnutrition.
- Malnutrition can affect people of _____. At greatest risk, however, are infants, children and adolescents, because they need vitamins and nutrients in order to develop properly. Older people are also at risk because they are aging and may have illnesses that may also cause them to have poor appetites, which leads to them not eating enough.
- _____ consumption can disrupt nutrient absorption, so the _____ and _____ that alcoholics are consuming may not be utilized by their bodies. People who abuse drugs or alcohol are at greater risk for malnutrition, because they may be _____ if they don't eat properly.