MODULE 3

GROW FOODS

LEARNING OBJECTIVES

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

- explain the importance of getting protein from different sources.
- describe various signs and symptoms of protein deficiencies.

MATERIALS

Lesson 1

- pad paper and pen
- video: **Module 3 Grow Foods**
- file: **GR05_M03_Lesson 1 Powerpoint**

Lesson 2

- bond paper (one sheet per group)
- coloring materials
- file: **GR05_M03_Lesson 2 Powerpoint**

Lesson 3

- Our Nutrient Chart (from previous module)

Lesson 4

- Pinggang Pinoy Cookbook (from previous module)
- bond paper (5-10 sheets per group)
- coloring materials

REMINDERS

Letters to the Parents

Each module comes with a letter to parents explaining the key points that our students are learning in class. The letter also encourages parents to model healthy nutrition habits at home. We hope that through these circulars, parents will become involved in their child's learning process. Please remember to photocopy and distribute the corresponding parent circular at the start of each module. These letters can be found in the folder marked 'Letters to Parents.'

Rubrics

Many of the activities in these modules serve as formative assessments for you to gauge each student's progress. You may use the PDF file named 'Rubrics' as a guide for grading major outputs and performance tasks.

MODULE OVERVIEW

Dear Teacher,

This Module Overview is a summary of the key learning points that we want our students to understand and master by the end of this module. These key learning points are presented in the video presentation and powerpoints that accompany this module. The supplementary activities further reinforce these key points.

KEY POINTS

1. Grow foods provide our bodies with protein. Protein is made of different building blocks called amino acids. Our body needs amino acids to grow big and strong. These amino acids also help wounds and injuries heal.

2. According to the Pinggang Pinoy® guide, approximately one-fourth of our plate should consist of proteins. There are many different sources of protein:

    a. meat – pork, beef, chicken
    b. seafood and fish
    c. eggs
    d. plant sources – *tokwa*, nuts, beans, legumes
    e. milk and dairy products (e.g. yoghurt and cheese)

3. It is important that we get our protein from all of these different sources, and not just one or two, because different sources have different kinds of amino acids and additional nutrients such as vitamins and minerals. Eating different sources of protein raises your chances of getting all the amino acids that your body needs.

    a. Complete proteins – contain all the amino acids needed by the body (e.g. egg, meat, fish, poultry, milk, cheese, yogurt). These promote growth and development, and maintains life.
    b. Partially complete proteins – contain some, but not all, amino acids needed by the body (e.g. legumes and nuts). These maintain life but not growth and development.
    c. Incomplete proteins – contains very little amino acids needed by the body (e.g. gelatin, bread, *suman*). These cannot support neither life nor growth.

4. Listed below are common health effects of inadequate intake of Grow foods among children and adolescents. Eating the right amount of Grow foods in each meal can help prevent these health concerns:

    a. stunted growth
    b. poor wound healing
    c. brittle hair and nails
    d. poor muscle development
    e. weak immunity

5. Other nutrient deficiencies associated with a lack of Grow foods are:

    a. Iron (iron deficiency anemia)
        i. Function: Iron is found in the blood which helps transport oxygen. Low iron results in low hemoglobin concentration in the blood. Hemoglobin is the component in blood that carries oxygen throughout the body for energy metabolism.
        ii. Signs and symptoms of deficiency: fatigue, weakness, pale skin, poor cognitive performance, impaired work performance and weak resistance to infectious diseases
        iii. Significant animal sources of iron: red meats, liver, fish, poultry, shellfish, eggs, legumes
    b. Zinc (zinc deficiency)
        i. Function: normal taste, wound healing, sperm production, strengthens immunity and secondary sexual maturation
        ii. Signs and symptoms: stunted growth, delayed maturation of sexual organs, weak resistance to infectious diseases, hair loss, eye and skin lesions, and poor appetite. Chronic zinc deficiency may cause damage to the central nervous system and brain, and may lead to poor motor development and cognitive performance.
        iii. Significant animal sources of zinc: seafood (oyster and crab), beef, milk and dairy products (yoghurt, cheese), whole grain
    c. Iodine (iodine deficiency disorder)
        i. Function: component in thyroid hormones which help regulate growth, development and metabolism
        ii. Signs and symptoms: enlargement of the thyroid gland (goiter), mental and physical retardation among infants and children
        iii. Significant sources of iodine: iodized salt, seafood, dairy products

d. Vitamin A
    i. Function: maintains clear vision, keeps skin smooth, helps in development of bones and teeth, strengthens immunity
    ii. Signs and symptoms of deficiency: night blindness (slow recovery of vision after flashes of bright light at night or inability to see in dim light), weak resistance to infectious diseases
    iii. Significant animal sources of vitamin A: fortified milk, cheese, eggs, liver
e. Vitamin B (B1, B2, B3, B6 and B12)
    i. Function: helps in energy metabolism
    ii. Signs and symptoms of deficiency: swollen tongue, irritated or inflamed corners of the mouth, fatigue, weakness, poor appetite
    iii. Significant sources of vitamin B: milk products (yogurt, cheese), liver, eggs, meat, poultry, fish
f. Vitamin E
    i. Function: antioxidant (a substance that prevents or delays some types of cell damage)
    ii. Signs and symptoms of deficiency: vitamin E deficiency is uncommon but deficiency can cause a type of anemia
    iii. Significant animal sources of vitamin E: liver, egg yolks
g. Vitamin K
    i. Function: aids in blood clotting
    ii. Signs and symptoms of deficiency: hemorrhage (excessive bleeding)
    iii. Significant animal sources of vitamin K: liver, milk

Lesson 1

LET'S GET STARTED

5 Mins.

Ask some groups to share some of the meal plans that they created in the previous lesson. Have them explain why they chose those recipes to include in the meals they designed.

LET'S TRY THIS

10 Mins.

1. Instruct them to write down at least five statements regarding Grow foods that they remember from their lessons in previous years. These statements can reflect any facts and key principles that they remember related to Grow foods.
2. After each student has written down at least seven statements, tell the students to exchange papers. They must go through their classmate's list of Grow food statements and identify whether they AGREE or DISAGREE with the statements written. Instruct them to write the words AGREE or DISAGREE after the statement.
3. Ask the students to exchange papers with a third person. The third person must also identify whether they agree or disagree with the first student's statements. They will also write AGREE or DISAGREE after each statement.
4. Instruct the students to return the papers to the original owner. Ask the students to give examples of statements where they did not agree unanimously (i.e. one person disagreed and another person agreed). Ask the rest of the class whether they agree or disagree with the statements, and allow some students to explain their answers

WATCH & LEARN

10 Mins.

1. Play the video for this lesson, **Module 3 Grow Foods**.
2. After watching the video, ask the students to go back to the statements that they wrote on their papers and add a few more statements that they were able to recall through the video. Call on some students to share their additional statements with the rest of the class.

LISTEN & LEARN

15 Mins.

1. You will use the file **GR05_M03_Lesson 1 Powerpoint** for the remainder of this lesson.
2. This presentation reminds the students of the different types of protein:
    a. Complete proteins - contain all the amino acids needed by the body (e.g. egg, meat, fish, poultry, milk). These promote growth and development, and maintain life.
    b. Partially complete proteins - contain some, but not all, amino acids needed by the body (e.g. legumes and nuts). These maintain life but not growth and development.
    c. Incomplete proteins - contains very little amino acids needed by the body (e.g. gelatin). These cannot support neither life nor growth.

3. Students will also learn about the common health effects of inadequate intake of Grow foods among children and adolescents. These are:

    a. stunted growth

    b. poor wound healing

    c. brittle hair and nails

    d. poor muscle development

    e. weak immunity

4. Instruct the students to listen carefully and take notes of all the information in the powerpoint presentation.

5. After going through all the slides, give students about 10 minutes to compare their notes with their seatmates' notes. While comparing notes, they should look for key points in their seatmates' notes that they were not able to include in their own notes. They can add the points that they missed to their own notes.

6. Call on some students to share some of the key points that they missed while listening to the lecture, which they were able to get from their seatmate.

NOTE TO TEACHER

Some students may struggle to identify all the important points in a lecture. By allowing them to compare notes, this will help struggling students to identify the key points they missed and ensure that their notes are complete.

Before dismissing the class, instruct the students to start collecting different recipes for meat, seafood, fish, eggs and plant sources of protein. They can keep these recipes in their Health Portfolio in the meantime.

Lesson 2

LET'S GET STARTED

10 Mins.

1. Instruct the students to join their groupmates from the previous sessions. Give them five minutes to review their notes from the previous class.

2. You will read out the food items below. After reading the item, the group must quickly send a representative to the board to write whether that food item represents complete, partially complete, or incomplete proteins.

3. Give every group one point for each correct answer, and the group with the most number of correct points wins.

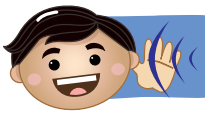
Descriptions:

- chicken (*answer: complete*)
- fish (*answer: complete*)
- peanuts (answer: partially complete)
- gelatin (*answer: incomplete*)
- pork *menudo* (*answer: complete*)
- *sinigang na hipon* (*answer: complete*)
- scrambled egg (*answer: complete*)
- peanut butter (*partially complete*)
- burger steak (*answer: complete*)
- *tokwa* (*answer: partially complete*)

THE PROTEIN POEM

20 Mins.

1. Instruct your students to stay with their groups. Distribute a sheet of bond paper and some coloring materials.
2. Tell your students to create a poem about the importance of eating a variety of protein sources. They will write out their poem on the sheet of bond paper, and decorate the page. This page will be included in their Pinggang Pinoy® Cookbook.
3. Make sure that each group member has a specific task and that all members are participating. Some students may be responsible for coming up with the stanzas, while the others decorate the page with colorful drawings.
4. Through this activity, you will be able to assess whether your students understand the importance of getting protein from a variety of sources. Collect each group's output at the end of the session and place each output in their respective clearbooks (Pinggang Pinoy® Cookbook).



LISTEN & LEARN

10 Mins.

1. You will need the file **GR05_M03_Lesson 2 Powerpoint** for this lesson.
2. In this presentation, students will learn more about common vitamin and micronutrient deficiencies among children and adolescents associated with Grow foods. Point out to the students that some of these were already discussed in the previous module.
3. Instruct the students to listen carefully and take notes of all the information in the powerpoint presentation.
4. After going through all the slides, give the students a few minutes to compare their notes with their seatmates' notes. While comparing notes, they should look for key points in their seatmates' notes that they were not able to include in their own notes. They can add the points that they missed to their own notes.

LET'S WRAP THIS UP

Call on some students to share two new things they learned from today's lesson.

Before dismissing the class, instruct the students to look at the signs and symptoms they copied from the presentation, and identify the ones they are not familiar with or have never heard of before. For their assignment, they must research what these terms mean and be able to discuss those terms in the following class session.

Also remind the students to continue collecting different recipes for meat, seafood, fish, eggs and plant sources of protein.

Lesson 3

LET'S GET STARTED

15 Mins.

1. On the board, write the signs and symptoms that the class researched on (i.e. their homework from the previous lesson).
2. Ask the students to share what they learned from researching these terms.
3. Through this discussion, help your students understand what some of the more complicated terms mean before proceeding to the next activity.

OUR NUTRIENT CHART

1. Instruct the students to go to their usual groupings from previous sessions, and return each group's manila paper from the previous module.
2. Remind your students that this manila paper is just a draft of the table that they will finalize at the end of the program, so it is alright if their tables are not entirely neat as they add new information.
3. Instruct the students to go through their notes from the last lecture, and add any new information about nutrients, signs, symptoms and sources to the chart.
4. As the students work in groups, go around the class to ensure that they are filling up the table properly. Collect their manila papers at the end of the session, as these will be used again in Lesson 3 of the next module.

LET'S WRAP THIS UP

Call on some students to share one thing that they will remember from today's lesson.

Before dismissing the class, instruct them to bring the recipes they have been collecting. These will be used in the following class.

Lesson 4

PINGGANG PINOY® COOKBOOK

25 Mins.

1. Distribute each group's Pinggang Pinoy® Cookbook.
2. Instruct the students to choose TWO of the symptoms in their table related to protein deficiencies, preferably different from the symptoms they chose in the previous module.
3. Using the recipes they collected over the past weeks, challenge the students to come up with two meals that are appropriate for someone exhibiting those signs or symptoms. In other words, their meals should include Grow foods containing the nutrients that address the deficiencies associated with those signs and symptoms.
4. On sheets of bond paper, have the students write down and illustrate the recipes included in the meals they create.
5. Along with the recipe and illustrations, they must also include a brief explanation of why they selected those recipes for their chosen symptoms.
6. Once finished, they can add the new pages to their Pinggang Pinoy® Cookbook.

LET'S WRAP THIS UP

Call on some students to explain their reasons for including the recipes they chose for their Pinggang Pinoy® Cookbook.