



## **Lesson 6 – Nutrients of Concern**



# Background Information

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We all need the same basic set of nutrients: vitamins, minerals, protein, carbohydrates, fats, and water. However, individual requirements for these nutrients differ based on several factors. When it comes to children, some of those differences are their stage of **growth**, gender, and level of physical activity. By weight, children tend to need more of most nutrients compared to adults.

In general, we are able to meet our nutrient needs through consuming a variety of nutrient dense foods. **Nutrient-dense foods** are foods that contain more essential nutrients compared to the amount of calories they provide. Some examples of nutrient dense foods include vegetables, fruits, low-fat or non-fat dairy, whole grains, beans, nuts, seeds, seafood, and lean cuts of meat. In contrast, **empty calorie foods** contain very little to no essential nutrients compared to the amount of calories they provide. Some examples of empty calorie foods include sugar-sweetened beverages, fried chips, cookies, candy, cake, and other processed foods. While consuming empty calorie foods in moderation is perfectly fine, it is not encouraged to replace nutrient-dense foods with empty calorie ones.

Unfortunately, many Americans consume diets high in empty calorie foods and low in nutrient dense foods. Consequently, Americans consume less than the recommended amounts of a variety of essential nutrients. As identified in the 2015 – 2020 Dietary Guidelines for Americans, some **nutrients of concern** include: **calcium, vitamin D, dietary fiber, and potassium**. In addition to these, **iron** is a nutrient of concern for women and adolescent girls that are capable of becoming pregnant, because of iron losses due to menstruation. **Folate** is a nutrient of concern for women of child-bearing age as it is essential in preventing certain kinds of birth defects, called neural tube defects.



# Concepts and Vocabulary

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**Calcium:** A mineral important for bone health and muscle function.

**Dietary fiber:** A type of carbohydrate that can't be digested, but is important for digestive health. It may help reduce blood cholesterol and lower risk of heart disease.

**Empty calorie food:** A food that contains very little to no essential nutrients relative to the amount of calories it provides.

**Iron:** A mineral that is important in red blood cells, and is used to move oxygen around in the blood.

**Folate:** A B-vitamin needed for growth and repair. It is also important in pregnancy to help prevent certain kinds of birth defects called neural tube defects.

**Growth:** The process of increasing in physical size and maturity.

**Nutrients of concern:** Nutrients that a large proportion of Americans are routinely consuming less of than the recommended amounts.

**Nutrient-dense foods:** Foods that contain many essential nutrients relative to the amount of calories they provide.

**Nutrient recommendations:** The amounts of different nutrients that individuals should consume. These are evidence-based for healthy individuals and vary due to age, gender, and physical activity.

**Potassium:** A mineral that is important for muscle and nerve function. Eating a diet rich in potassium is also helpful in preventing high blood pressure.

**Vitamin D:** A vitamin that is needed for bone health and immune function. Sunlight helps us make this vitamin in our skin.

# 6.1: Learning Activity

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## Overview

This lesson builds on Lesson 4 by exploring nutrient requirements in more depth with a focus on nutrients of concern. In this activity, participants first identify nutrients using clues. Once participants have completed that step, they identify the nutrient requirements of a character by examining their food choices. Using a set of food cards, the small groups make suggestions for changes to their character's diet to help the character meet their nutrient needs. The activity closes with a discussion in which each group shares their character's food choices and the changes they've decided to make.

## Getting Ready

### Time Required

45 minutes

### Materials Needed

*(Materials provided in the curriculum)*

<b>For Each Group of 2-4 Participants</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Flip chart paper</li><li><input type="checkbox"/> Markers, pens, or pencils</li><li><input type="checkbox"/> Calculator</li><li><input type="checkbox"/> <b><i>Nutrient Recommendations (Handout 6-B)</i></b></li><li><input type="checkbox"/> <b><i>Food Choices Worksheet (Activity Sheet 6-D)</i></b></li><li><input type="checkbox"/> <b><i>Food Sources Cards (Lesson Material 6-E)</i></b></li></ul>	<b>For the Facilitator</b> <p>Optional:</p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b><i>Lesson 6 (PowerPoint)</i></b></li><li><input type="checkbox"/> Computer</li><li><input type="checkbox"/> PowerPoint Projector</li></ul>
<b>For the Class</b> <ul style="list-style-type: none"><li><input type="checkbox"/> <b><i>Nutrient Mystery (Activity Sheet 6-A)</i></b></li><li><input type="checkbox"/> <b><i>One Day of Food Choices (Activity Sheet 6-C)</i></b></li></ul>	<b>For Each Participant</b> <ul style="list-style-type: none"><li><input type="checkbox"/> None</li></ul>

# Preparation

## Handouts

1. Make copies of the following:
  - **Nutrient Mystery (Activity Sheet 6-A)**, one or more copies as needed. (Each group will receive one page.)
  - **One Day of Food Choices (Activity Sheet 6-C)**, one or more copies as needed. (Each group will receive one page, matched to their *Nutrient Mystery*.)  
**Facilitator Tip: Printing the above handouts in color simplifies matching these during the activity.**
  - **Nutrient Recommendations (Handout 6-B)**, one copy per group.
  - **Food Choices Worksheet (Activity Sheet 6-D)**, one copy per group.

## Other Materials

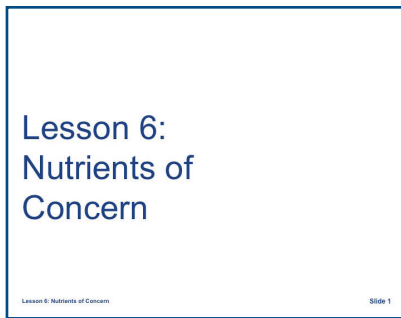
2. Print and cut out copies of the **Food Sources Cards (Lesson Material 6-E)**, one set per group.  
**Facilitator Tip: Printing each of the different nutrients on different colored cardstock will help with organization.**

## Classroom Set-up

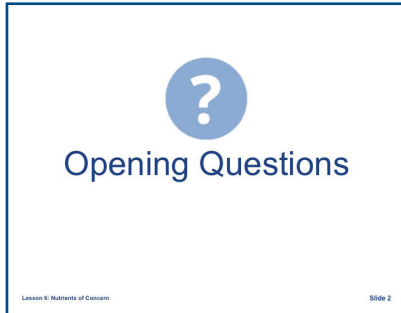
3. Organize the class into small groups of 2 to 4 participants.  
**Facilitator Tip: These groups can also be used in future lessons.**
4. Provide each group with a sheet of flip chart paper and markers, pens, or pencils to answer opening questions/prompts.

## Optional

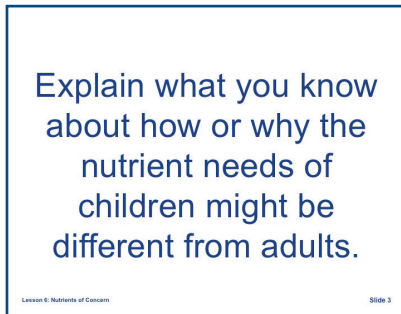
5. Before participants arrive, connect laptop to projector. Load **Focus on Food Lesson 6** (PowerPoint).



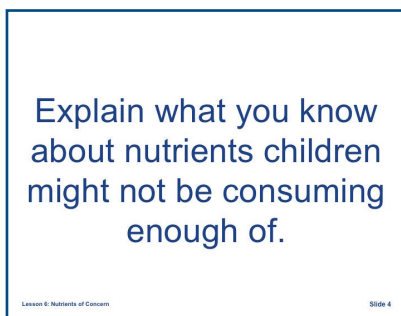
Slide 1



Slide 2



Slide 3



Slide 4

# Opening Questions/Prompts

## Small Group Discussion

1. **Say:** Let's get started with Lesson 6 – Nutrients of Concern! **(Slide 1)** To begin, I'd like everyone to discuss some opening questions within your group. **(Slide 2)** Once you've discussed the prompts within your groups, we will come back together as a class and discuss your thoughts and responses as a whole.

The first prompt I'd like you to discuss within your groups is:

- Explain what you know about how or why the nutrient needs of children might be different from adults. **(Slide 3)**

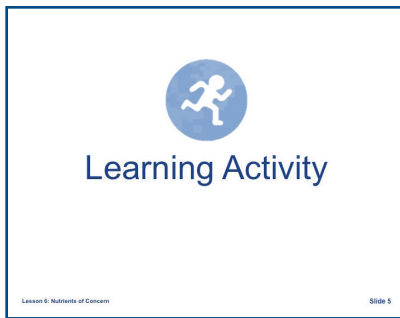
**Facilitator Tip: Explain to participants that they may write their answers independently or assign one person in their group to write down everyone's thoughts. It may be helpful to explain to the class that they will learn more about these topics throughout the lesson.**

2. **Do:** Allow 2 to 3 minutes for groups to discuss the prompt. Repeat with the remaining prompt:
  - Explain what you know about nutrients children might not be getting enough of **(Slide 4)**

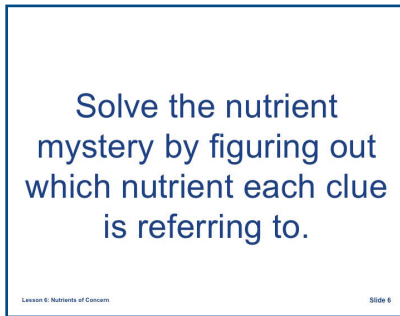
## Class Discussion

3. **Say:** As a class, let's discuss what you talked about in your groups. What were some of your thoughts on the first prompt, "Explain what you know about how or why the nutrient needs of children might be different from adults?"
4. **Do:** Allow about a minute for participants to share their thoughts on this topic with the class. Repeat with the remaining prompt:
  - Explain what you know about nutrients children might not be getting enough of. **(Slide 4)**

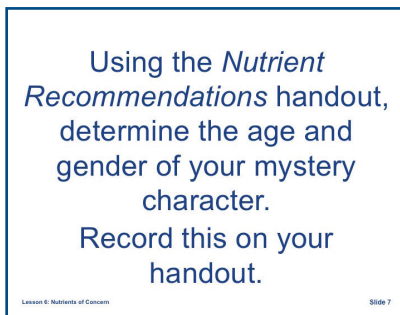




Slide 5



Slide 6



Slide 7

## Procedure (Experiencing)

### Solving the Nutrient Mystery

5. **Say:** Now that we've completed our opening discussion, we'll start on the activity for this lesson, which will involve solving a nutrient mystery. I will distribute a handout that will be used in this activity. **(Slide 5)**

- First, you will figure out which nutrient is being described by each clue or to "solve the nutrient mystery". You should record this information on the ***Nutrient Mystery*** activity sheet. **(Slide 6)**
- Then you will use the ***Nutrient Recommendations*** handout to figure out the age and gender of a mystery character. **(Slide 7)**

6. **Do:** Provide each group with:

- One copy of ***Nutrient Mystery (Activity Sheet 6-A)***.
- One copy of ***Nutrient Recommendations (Handout 6-B)***

***Facilitator Tip: There are five different Nutrient Mysteries; each group should be provided with a different version. If there are more than five groups, it is acceptable for some groups to receive duplicates.***

- **Do:** Allow several minutes for participants to complete the activity sheet.

***Facilitator Tip: Use prompts when visiting each group, such as:***

- ***Explain how you're figuring out the nutrient that each clue is referring to.***

***Facilitator Tip: If groups are struggling with deciphering the clues, try to use prompts or questions to help guide them toward the nutrient. For example, if participants are struggling with the clue for dietary fiber, some prompts or questions might be:***

- ***This clue mentions carbohydrates. Explain what you know about different kinds of carbohydrates.***



- **Describe what you've heard or know about nutrients that help with digestion.**

Look over the *One Day of Food Choices* Handout. Focus on the total amounts of nutrients that the meal and snack choices provide.

Lesson 6: Nutrients of Concern

Slide 8

Slide 8

On the *One Day of Food Choices* handout, answer the first two questions.

Lesson 6: Nutrients of Concern

Slide 9

Slide 9

Record some different choices your character could make to meet his or her nutrient recommendations.

Lesson 6: Nutrients of Concern

Slide 10

Slide 10

## Identifying Nutrient Shortfalls

7. **Say:** Now we're going to take a look at a typical day of meal and snack choices for your character, which is on the handout I'll distribute next. Look over the handout and use the information from the third column of your nutrient mystery to answer the two questions on the bottom. **(Slide 8)**

- Which nutrients did your character consume enough of based on his or her nutrient recommendations?
- Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations? **(Slide 9)**

8. **Do:** Distribute to each group:

- One copy of ***One Day of Food Choices (Activity Sheet 6-C)*** matched to each group's ***Nutrient Mystery (Activity Sheet 6-A)***.

9. **Do:** Allow a few minutes for participants to complete this step.

## Recommending Different Choices

10. **Say:** The next step is to recommend some different choices your character could make in order to help them meet their nutrient recommendations. **(Slide 10)**

- This might mean adding some new foods, or swapping out foods for a nutrient-dense alternative.
- Each group will receive a set of ***Food Sources Cards*** to give you some ideas of different food choices your character could make.

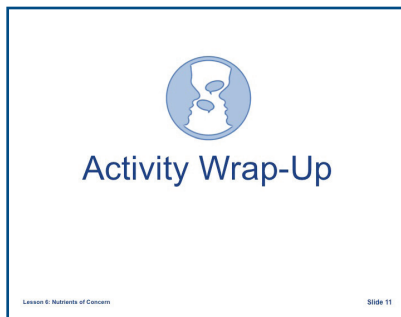
11. **Do:** Hand out one copy of ***Food Choices Worksheet (Activity Sheet 6-D)***, one set of ***Food Sources Cards (Lesson Material 6-E)*** and a calculator to each group.

12. **Do:** Allow several minutes for the groups to complete this step.

***Facilitator Tip: When visiting with each group, use targeted questions to guide them towards the concept of "nutrients of concern." They should be able to infer from their cards that***

*some nutrient needs may not be met with a typical Western diet. Some suggested prompts:*

- *What can you tell me about your character?*
- *What can you tell me about the foods your character chose?*
- *Explain how you decided which foods to add or swap out.*
- *Explain some of the differences and similarities between what you chose and what you think a student at your school might eat.*
- *What does this suggest to you about some of the nutrients we're looking at today?*



Slide 10

## Activity Wrap-Up (Sharing, Processing, and Generalizing)

13. **Say:** As a class, let's discuss your observations about your character and the meals and snacks you planned for him or her. **(Slide 11)**

14. **Do:** Follow the group's line of thinking, and if necessary, ask more targeted questions.

- Describe how you decided which foods to add or swap.
- Compare the nutrient needs of the different characters.
- What did you notice about the food sources of different nutrients?
- Describe what it might mean if they are missing a nutrient.
- If not mentioned, guide participants to verbalize:
- The teenaged boy and teenaged girl have very different iron needs.
- Teenaged girls and women have much higher iron needs due to menstruation.

***Facilitator Tip: If there are any misconceptions remaining in this phase of the lesson, you should address these now.***

## Concept and Term Discovery/Introduction

Over the course of the activity, participants should be able to identify the following concepts:

- Several nutrients are identified as nutrients of concern: calcium, vitamin D, fiber, and potassium; iron and folate for certain age groups (while folate was not one of the nutrients they investigated in the activity, it will be discussed in 6.2: *Expanding Knowledge*).
- Nutrient recommendations are different for males versus females and change as children grow.
- Growth and puberty are related to changes in nutrient needs.
- Some foods are nutrient-dense, while others are not.
- School lunch personnel play a role in helping children reach their nutrient needs.

The following key vocabulary terms should be discovered by participants or introduced to them: nutrients of concern, well-balanced diet, growth, puberty, and nutrient recommendations.



# 6.2: Expanding Knowledge

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## Overview

In this mini-lecture, participants will learn more about the nutrient recommendations for children and adults and the different nutrients of concern.

## Getting Ready

### Time Required

5 minutes

### Materials Needed

*(Materials provided in the curriculum)*

<b>For the Facilitator</b> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Lesson 6</b> (PowerPoint)</li><li><input type="checkbox"/> Computer</li><li><input type="checkbox"/> PowerPoint Projector</li></ul>	<b>For Each Group of 2-4 Participants</b> <ul style="list-style-type: none"><li><input type="checkbox"/> None</li></ul>
<b>For the Class</b> <ul style="list-style-type: none"><li><input type="checkbox"/> None</li></ul>	<b>For Each Participant</b> <ul style="list-style-type: none"><li><input type="checkbox"/> None</li></ul>

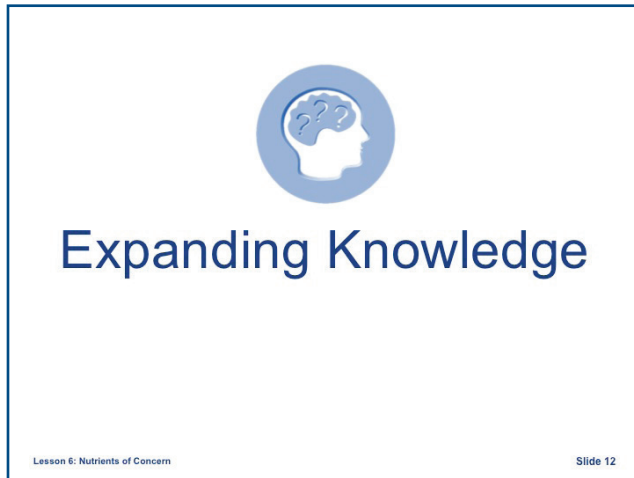
## Preparation

### Projector Set-up

1. Connect laptop to projector. Load **Focus on Food Lesson 6** (PowerPoint).
2. Queue the PowerPoint presentation to Slide 12.

# Procedure

1. **Do:** Go through the Expanding Knowledge presentation slide by slide. The following script is available for use if you so choose.



Slide 12

## Slide 12

Let's recap some main concepts that we learned in Lesson 6, Nutrients of Concern



Slide 13

## Slide 13

First, we learned that, for each of the essential nutrients, there are nutrient recommendations for how much should be consumed each day. We also learned that these nutrient recommendations may vary by age and gender.



Slide 14

## Slide 14

Let's go over the nutrient needs of Children and Adolescents. Children have higher nutrient needs than adults. Why might that be the case?

[Pause to allow responses from the class.]

Children are growing, which is why they need more nutrients by weight than adults.

This is why children that do not get proper nutrition may experience stunted growth and development.



## Nutrient Recommendations



Prevent disease and support health.

Higher nutrient needs for men, except iron and folate.

Increased calcium and vitamin B6 needs for older adults (50+).

Lesson 6: Nutrients of Concern

Slide 15

Slide 15

## Slide 15

For adults, the main goal of nutrient recommendations is to prevent disease and support health. There are some differences in nutrient needs due to age and gender. For example, men tend to have higher nutrient needs because they often have greater weight and muscle mass compared to women.

This isn't the case for every nutrient. Women need more iron and folate compared to men. We'll talk about why that is in just a minute.

Older adults (50+) have increased needs for calcium and vitamin B6.

## Nutrients of Concern

Americans are consuming less than recommended:



Lesson 6: Nutrients of Concern

Slide 16

Slide 16

## Slide 16

These are nutrients that a large proportion of Americans are consuming less than recommended. These nutrients of concern include: Potassium; Fiber; Calcium; and Vitamin D.

What are some reasons Americans might not be consuming enough of these?

[Pause to allow responses from the class.]

## Nutrients of Concern

Pre-menopausal women and adolescent girls:

**Folate or folic acid** – important for preventing neural tube (brain) defects in growing fetuses.

**Iron** – replacing iron loss due to menstruation.

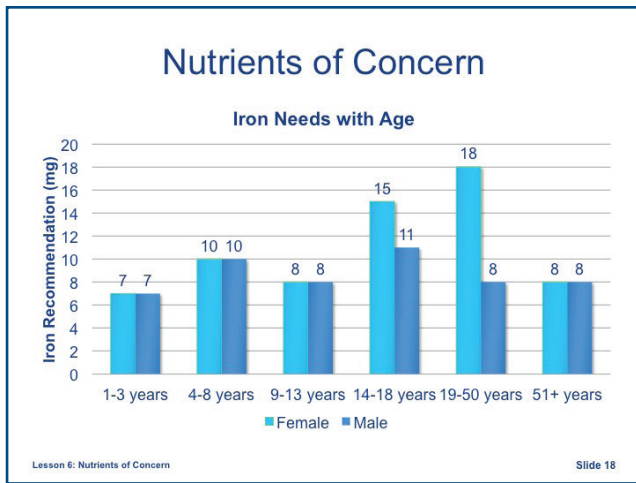
Lesson 6: Nutrients of Concern

Slide 17

Slide 17

## Slide 17

Pre-menopausal women and adolescent girls have additional nutrients of concern, including folate or folic acid and Iron. Folate or folic acid are important in pregnancy for preventing certain birth defects called neural tube defects. These are a type of brain and spinal cord defect. Women who are menstruating experience iron losses every month, which needs to be replaced. This contributes to the higher iron needs of pre-menopausal women and adolescent girls.



Slide 18


### Slide 18

Here is a graph that shows the changing needs of iron with age. The light blue bars represent iron recommendations for females, while the dark blue bars represent iron recommendations for males. As you can see, the iron recommendations for males stay relatively the same through the years, with slight increases in needs at ages 4-8 and 14-18. But, you can see that in the case of females, the iron recommendations greatly increase between the ages of 14 and 50. What happens around 50 year of age?


[Pause to allow responses from the class.]

### Nutrients of Concern


Different food groups provide different nutrients of concern.



Eating enough fruits and vegetables helps with potassium and fiber intake.



Eating enough dairy helps with potassium, calcium, and vitamin D intake.



Enriched grains are fortified with folic acid.

Lesson 6: Nutrients of Concern Slide 19

Slide 19

### Slide 19

Let's review some food sources for the nutrients of concern. First, it is important to note that different food groups provide different nutrients of concern. For example, eating enough fruits and vegetables helps with potassium and fiber intake. Eating enough dairy helps with potassium, calcium, and vitamin D intake. Also, enriched grains are fortified with folic acid.

What are some other food sources?

[Pause to allow responses from the class.]

### Nutrients of Concern

What are some ways the breakfast and lunch meal patterns help children consume nutrients of concern?

Lesson 6: Nutrients of Concern Slide 20

Slide 20

### Slide 20

Now, let's brainstorm the ways in which school meals can contribute to student health. What are some ways the breakfast and lunch meal patterns help children consume nutrients of concern?

[Pause to allow responses from the class.]

# 6.3: Goal Setting Activity

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## Overview

In this activity, participants will use what they've learned to set a goal to encourage students to choose and consume foods that are good sources of a nutrient of concern.

## Getting Ready

### Time Required

5 minutes

### Materials Needed

*(Materials provided in the curriculum)*

<b>For the Facilitator</b>  Optional: <input type="checkbox"/> <b>Lesson 6</b> (PowerPoint) <input type="checkbox"/> Computer <input type="checkbox"/> PowerPoint Projector	<b>For Each Group of 2-4 Participants</b>  <input type="checkbox"/> <b>Food Sources Cards</b> <i>(Lesson Material 6-E)</i>
<b>For the Class</b>  <input type="checkbox"/> None	<b>For Each Participant</b>  <input type="checkbox"/> <b>Goal Setting – Nutrients of Concern</b> <i>(Activity Sheet 6-G)</i>  Optional: <input type="checkbox"/> <b>Focus on Food Lesson 6 Newsletter</b> <i>(Handout 6-H)</i>

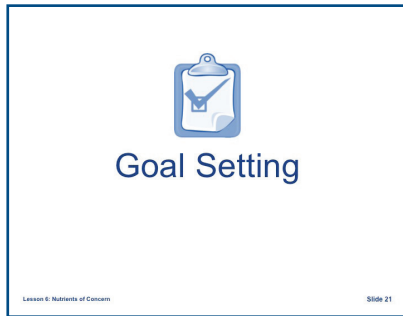
## Preparation

### Handouts

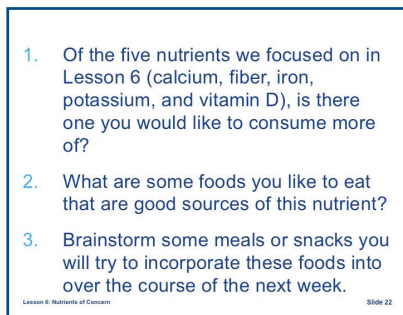
1. Make copies of the following handouts:
  - **Goal Setting – Nutrients of Concern** *(Activity Sheet 6-G)*, one for each participant.
  - Optional: **Focus on Food Lesson 6 Newsletter** *(Handout 6-H)*, one for each participant.

## Projector Set-up

2. Connect laptop to projector. Load Focus on Food Lesson 6 (PowerPoint).
3. Queue the PowerPoint presentation to Slide 21.



Slide 21



Slide 22



Slide 23

## Procedure

1. **Say:** Now let's move on to Goal Setting! **(Slide 21)**

We've talked about nutrients of concern and how nutrient recommendations differ. The next step is to set some goals and make a plan. I am going to distribute a Goal Setting handout that has the following questions: **(Slide 22)**

- Of the five nutrients we focused on today (calcium, fiber, iron, potassium, and vitamin D), is there one that you think students in your program should be consuming more of?
  - Take a look through the **Food Sources Cards**. Which of these are good sources of the nutrient you selected above? Do you serve any of these in your program?
  - Brainstorm some ways you can encourage students to choose these foods.
2. **Do:** Provide a copy of **Goal Setting – Nutrients of Concern (Activity Sheet 6-G)** to each participant. Allow participants a few minutes to complete the handout.
  3. **Say:** Would anyone like to share the goals they set for themselves?

### Optional:

4. **Say:** I'm going to distribute one last handout, which is a newsletter with some extra information you might be interested in. Thank you all for participating in Lesson 6! **(Slide 23)**
5. **Do:** Provide a copy of the **Focus on Food Lesson 6 Newsletter (Handout 6-H)** to each participant.

## Nutrient Mystery – Group 1

Use the clue to figure out the nutrients. Your choices are: **Iron, Calcium, Potassium, Vitamin D,** and **Dietary Fiber.**

		Nutrient	Amount Recommended for Your Character
Clue 1	<p>I help our bodies absorb and use calcium. You need me for strong bones and a healthy immune system.</p> <p>You can find me in fortified dairy products and certain kinds of fatty fish. The sun helps you make me in your skin.</p>		15 µg
Clue 2	<p>I am important for bone health and muscle function.</p> <p>You can find me in dairy foods, dark green leafy vegetables, and fish with bones (Sardines, canned salmon).</p>		1300 mg
Clue 3	<p>I am important in red blood cells to move oxygen around in the blood.</p> <p>You can find me in meat, poultry and seafood, beans and peas (except green peas), spinach and broccoli, baked potatoes with skin, whole grains, fortified grain products, and dried fruit.</p>		11 mg
Clue 4	<p>I am important for muscle and nerve function. Eating a diet rich in me is also helpful in preventing high blood pressure.</p> <p>You can find me in fruits and vegetables (especially bananas, oranges, avocados, potatoes, melons, spinach, sweet potato, tomatoes, winter squash, and dried fruit).</p>		4700 mg
Clue 5	<p>I am a type of carbohydrate that can't be digested, but I am important for digestive health.</p> <p>You can find me in whole grains, fruits, vegetables, legumes, nuts, and seeds.</p>		31 g

The nutrient recommendations listed above are for a mystery character. Using the *Nutrient Recommendations Handout*, what do you think is the age and gender of your mystery character?

**Age:** \_\_\_\_\_ **Gender:** \_\_\_\_\_

## Nutrient Mystery – Group 2

Use the clue to figure out the nutrients. Your choices are: **Iron, Calcium, Potassium, Vitamin D, and Dietary Fiber.**

		Nutrient	Amount Recommended For Your Character
Clue 1	<p>I am a type of carbohydrate that can't be digested, but I am important for digestive health.</p> <p>You can find me in whole grains, fruits, vegetables, legumes, nuts, and seeds.</p>		25 g
Clue 2	<p>I help our bodies absorb and use calcium. You need me for strong bones and a healthy immune system.</p> <p>You can find me in fortified dairy products and certain kinds of fatty fish. The sun helps you make me in your skin.</p>		15 $\mu$ g
Clue 3	<p>I am important for muscle and nerve function. Eating a diet rich in me is also helpful in preventing high blood pressure.</p> <p>You can find me in fruits and vegetables (especially bananas, oranges, avocados, potatoes, melons, spinach, sweet potato, tomatoes, winter squash, and dried fruit).</p>		4700 mg
Clue 4	<p>I am important in red blood cells to move oxygen around in the blood.</p> <p>You can find me in meat, poultry and seafood, beans and peas (except green peas), spinach and broccoli, baked potatoes with skin, whole grains, fortified grain products, and dried fruit.</p>		15 mg
Clue 5	<p>I am important for bone health and muscle function.</p> <p>You can find me in dairy foods, dark green leafy vegetables, and fish with bones (Sardines, canned salmon).</p>		1300 mg

The nutrient recommendations listed above are for a mystery character. Using the Nutrient Recommendations Handout, what do you think is the age and gender of your mystery character?

**Age:** \_\_\_\_\_ **Gender:** \_\_\_\_\_

On the back of the sheet, invent a name and a back story for your character.



## Nutrient Mystery – Group 3

Use the clue to figure out the nutrients. Your choices are: **Iron, Calcium, Potassium, Vitamin D,** and **Dietary Fiber.**

		Nutrient	Amount Recommended For Your Character
Clue 1	<p>I am important for muscle and nerve function. Eating a diet rich in me is also helpful in preventing high blood pressure.</p> <p>You can find me in fruits and vegetables (especially bananas, oranges, avocados, potatoes, melons, spinach, sweet potato, tomatoes, winter squash, and dried fruit).</p>		3000 mg
Clue 2	<p>I am important in red blood cells to move oxygen around in the blood.</p> <p>You can find me in meat, poultry and seafood, beans and peas (except green peas), spinach and broccoli, baked potatoes with skin, whole grains, fortified grain products, and dried fruit.</p>		7 mg
Clue 3	<p>I am a type of carbohydrate that can't be digested, but am important for digestive health.</p> <p>You can find me in whole grains, fruits, vegetables, legumes, nuts, and seeds.</p>		14 g
Clue 4	<p>I am important for bone health and muscle function.</p> <p>You can find me in dairy foods, dark green leafy vegetables, and fish with bones (Sardines, canned salmon).</p>		700 mg
Clue 5	<p>I help our bodies absorb and use calcium. You need me for strong bones and a healthy immune system.</p> <p>You can find me in fortified dairy products and certain kinds of fatty fish. The sun helps you make me in your skin.</p>		15 µg

The nutrient recommendations listed above are for a mystery character. Using the *Nutrient Recommendations Handout*, what do you think is the age and gender of your mystery character?

**Age:** \_\_\_\_\_ **Gender:** \_\_\_\_\_

On the back of the sheet, invent a name and a back story for your character.

## Nutrient Mystery – Group 4

Use the clue to figure out the nutrients. Your choices are: **Iron, Calcium, Potassium, Vitamin D, and Dietary Fiber.**

		Nutrient	Amount Recommended For Your Character
Clue 1	<p>I am important in red blood cells to move oxygen around in the blood.</p> <p>You can find me in meat, poultry and seafood, beans and peas (except green peas), spinach and broccoli, baked potatoes with skin, whole grains, fortified grain products, and dried fruit.</p>		8 mg
Clue 2	<p>I am a type of carbohydrate that can't be digested, but am important for digestive health.</p> <p>You can find me in whole grains, fruits, vegetables, legumes, nuts, and seeds.</p>		22 g
Clue 3	<p>I am important for bone health and muscle function.</p> <p>You can find me in dairy foods, dark green leafy vegetables, and fish with bones (Sardines, canned salmon).</p>		1300 mg
Clue 4	<p>I help our bodies absorb and use calcium. You need me for strong bones and a healthy immune system.</p> <p>You can find me in fortified dairy products and certain kinds of fatty fish. The sun helps you make me in your skin.</p>		15 µg
Clue 5	<p>I am important for muscle and nerve function. Eating a diet rich in me is also helpful in preventing high blood pressure.</p> <p>You can find me in fruits and vegetables (especially bananas, oranges, avocados, potatoes, melons, spinach, sweet potato, tomatoes, winter squash, and dried fruit).</p>		4500 mg

The nutrient recommendations listed above are for a mystery character. Using the *Nutrient Recommendations Handout*, what do you think is the age and gender of your mystery character?

Age: \_\_\_\_\_ Gender: \_\_\_\_\_

On the back of the sheet, invent a name and a back story for your character.

## Nutrient Mystery – Group 5

Use the clue to figure out the nutrients. Your choices are: **Iron, Calcium, Potassium, Vitamin D,** and **Dietary Fiber.**

		Nutrient	Amount Recommended For Your Character
Clue 1	<p>I am important for bone health and muscle function.</p> <p>You can find me in dairy foods, dark green leafy vegetables, and fish with bones (Sardines, canned salmon).</p>		1300 mg
Clue 2	<p>I am important for muscle and nerve function. Eating a diet rich in me is also helpful in preventing high blood pressure.</p> <p>You can find me in fruits and vegetables (especially bananas, oranges, avocados, potatoes, melons, spinach, sweet potato, tomatoes, winter squash, and dried fruit).</p>		4500 mg
Clue 3	<p>I help our bodies absorb and use calcium. You need me for strong bones and a healthy immune system.</p> <p>You can find me in fortified dairy products and certain kinds of fatty fish. The sun helps you make me in your skin.</p>		15 µg
Clue 4	<p>I am a type of carbohydrate that can't be digested, but am important for digestive health.</p> <p>You can find me in whole grains, fruits, vegetables, legumes, nuts, and seeds.</p>		25 g
Clue 5	<p>I am important in red blood cells to move oxygen around in the blood.</p> <p>You can find me in meat, poultry and seafood, beans and peas (except green peas), spinach and broccoli, baked potatoes with skin, whole grains, fortified grain products, and dried fruit.</p>		8 mg

The nutrient recommendations listed above are for a mystery character. Using the *Nutrient Recommendations Handout*, what do you think is the age and gender of your mystery character?

**Age:** \_\_\_\_\_ **Gender:** \_\_\_\_\_

On the back of the sheet, invent a name and a back story for your character.

# Nutrient Recommendations

Nutrient	Child 1-3	Female 4-8	Male 4-8	Female 9-13	Male 9-13	Female 14-18	Male 14-18
<b>Macronutrients</b>							
<b>Calories</b> (moderately active)	1000 - 1400	1400 - 1600	1400 - 1600	1600 - 2000	1800 - 2200	2000	2400 - 2800
<b>Protein (g)</b>	13	19	19	34	34	46	52
<b>Carbohydrates (g)</b>	130	130	130	130	130	130	130
<b>Total fiber (g)</b>	14	17	20	22	25	25	31
<b>Total fat (% of calories)</b>	30-40	25-35	25-35	25-35	25-35	25-35	25-35
<b>Minerals</b>							
<b>Calcium (mg)</b>	700	1000	1000	1300	1300	1300	1300
<b>Iron (mg)</b>	7	10	10	8	8	15	11
<b>Magnesium (mg)</b>	80	130	130	240	240	360	410
<b>Potassium (mg)</b>	3000	3800	3800	4500	4500	4700	4700
<b>Zinc (mg)</b>	3	5	5	8	8	9	11
<b>Copper (mcg)</b>	340	440	440	700	700	890	890
<b>Selenium (mcg)</b>	20	30	30	40	40	55	55
<b>Vitamins</b>							
<b>Vitamin A</b> (mcg RAE)	300	400	400	600	600	700	900
<b>Vitamin D (mcg)</b>	15	15	15	15	15	15	15
<b>Vitamin E (mg AT)</b>	6	7	7	11	11	15	15
<b>Vitamin C (mg)</b>	15	25	25	45	45	65	75
<b>Thiamin (mg)</b>	0.5	0.6	0.6	0.9	0.9	1.0	1.2
<b>Riboflavin (mg)</b>	0.5	0.6	0.6	0.9	0.9	1.0	1.3
<b>Niacin (mg)</b>	6	8	8	12	12	14	16
<b>Folate (mcg)</b>	150	200	200	300	300	400	400
<b>Vitamin B<sub>6</sub> (mcg)</b>	0.5	0.6	0.6	1.0	1.0	1.2	1.3
<b>Vitamin B<sub>12</sub> (mcg)</b>	0.9	1.2	1.2	1.8	1.8	2.4	2.4
<b>Choline (mg)</b>	200	250	250	375	375	400	550
<b>Vitamin K (mcg)</b>	30	55	55	60	60	75	75

## One Day of Food Choices – Group 1

	Fiber (g)	Calcium (mg)	Iron (mg)	Potassium (mg)	Vitamin D (µg)
<b>Breakfast</b>					
2 eggs, scrambled	0 g	54 mg	2 mg	133 mg	1 µg
1 cup orange juice	1 g	27 mg	0 mg	443 mg	0 µg
2 slices toast, white bread	1 g	79 mg	2 mg	52 mg	0 µg
<b>Lunch</b>					
Teriyaki chicken rice bowl					
Brown rice	4 g	20 mg	1 mg	84 mg	0 µg
Chicken	0 g	14 mg	1 mg	229 mg	0 µg
Broccoli	1 g	10 mg	0 mg	39 mg	0 µg
Carrots	1 g	13 mg	0 mg	70 mg	0 µg
Teriyaki sauce	0 g	4 mg	0 mg	36 mg	0 µg
1 cup chocolate milk (fat-free)	1 g	288 mg	1 mg	463 mg	3 µg
1 medium orange	3 g	52 mg	0 mg	237 mg	0 µg
½ cup baby carrots	2 g	27 mg	1 mg	201 mg	0 µg
1 oz multigrain chips	1 g	1 mg	0 mg	36 mg	0 µg
<b>Dinner</b>					
3 slices pepperoni pizza	6 g	576 mg	8 mg	635 mg	0 µg
20 ounces sports drink	0 g	2 mg	0 mg	37 mg	0 µg
<b>Snacks</b>					
Cheese puffs	3 g	86 mg	0 mg	69 mg	0 µg
<b>Totals</b>	<b>24 g</b>	<b>1253 mg</b>	<b>16 mg</b>	<b>2764 mg</b>	<b>4 µg</b>

Which nutrients did your character consume enough of based on his or her nutrient recommendations?

Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations?

## One Day of Food Choices – Group 2

	Fiber (g)	Calcium (mg)	Iron (mg)	Potassium (mg)	Vitamin D (µg)
<b>Breakfast</b>					
1 cup orange juice	1 g	27 mg	0 mg	443 mg	0 µg
<b>Lunch</b>					
Salad Bar					
1 cup romaine lettuce	1 g	25 mg	0 mg	131 mg	0 µg
¼ cup cucumber	0 g	4 mg	0 mg	40 mg	0 µg
2 tbsp grated cheese	0 g	132 mg	0 mg	18 mg	0 µg
½ cup croutons	1 g	19 mg	1 mg	36 mg	0 µg
1 tbsp Caesar dressing	0 g	7 mg	0 mg	4 mg	0 µg
1 mini pizza	1 g	134 mg	2 mg	189 mg	0 µg
1 cup milk (low-fat)	0 g	305 mg	0 mg	366 mg	3 µg
1 clementine orange	1 g	28 mg	0 mg	125 mg	0 µg
<b>Dinner</b>					
2 tacos (with beans, cheese, meat, lettuce, tomato, and salsa)	4 g	156 mg	2 mg	417 mg	0 µg
¼ cup black beans	2 g	16 mg	1 mg	152 mg	0 µg
1 oz tortilla chips	1 g	38 mg	1 mg	61 mg	0 µg
½ cup salsa	2 g	34 mg	1 mg	370 mg	0 µg
<b>Snacks</b>					
15 gummy worms	0 g	3 mg	0 mg	6 mg	0 µg
<b>Totals</b>	<b>14 g</b>	<b>928 mg</b>	<b>8 mg</b>	<b>2358 mg</b>	<b>3 µg</b>

Which nutrients did your character consume enough of based on his or her nutrient recommendations?

Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations?



## One Day of Food Choices – Group 3

	Fiber (g)	Calcium (mg)	Iron (mg)	Potassium (mg)	Vitamin D (µg)
<b>Breakfast</b>					
½ cup milk (low-fat)	0 g	153 mg	0 mg	183 mg	1 µg
½ cup banana, sliced	2 g	4 mg	0 mg	269 mg	0 µg
½ slice white bread	0 g	20 mg	0 mg	13 mg	0 µg
½ tbsp peanut butter	0 g	4 mg	0 mg	62 mg	0 µg
<b>Lunch</b>					
Grilled cheese sandwich					
1 slice white bread	1 g	39 mg	1 mg	26 mg	0 µg
1 slice American cheese	0 g	113 mg	0 mg	58 mg	0 µg
¼ cup baby carrots	1 g	10 mg	0 mg	71 mg	0 µg
½ cup milk (low-fat)	0 g	153 mg	0 mg	183 mg	1 µg
1 small oatmeal cookie	0 g	4 mg	0 mg	6 mg	0 µg
<b>Dinner</b>					
Spaghetti with meat sauce					
½ cup pasta	1 g	5 mg	1 mg	31 mg	0 µg
2 tbsp tomato sauce	1 g	8 mg	0 mg	98 mg	0 µg
2 oz ground turkey	0 g	14 mg	1 mg	150 mg	0 µg
½ cup milk (low-fat)	0 g	153 mg	0 mg	183 mg	1 µg
<b>Snacks</b>					
½ cup goldfish crackers	1 g	40 mg	1 mg	38 mg	0 µg
1 clementine orange	1 g	28 mg	0 mg	125 mg	0 µg
<b>Totals</b>	<b>8 g</b>	<b>748 mg</b>	<b>4 mg</b>	<b>1496 mg</b>	<b>3 µg</b>

Which nutrients did your character consume enough of based on his or her nutrient recommendations?

Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations?

## One Day of Food Choices – Group 4

	Fiber (g)	Calcium (mg)	Iron (mg)	Potassium (mg)	Vitamin D (µg)
<b>Breakfast</b>					
1 cup milk (low-fat)	0 g	305 mg	0 mg	366 mg	3 µg
1 cup Cheerios	3 g	122 mg	10 mg	183 mg	1 µg
<b>Lunch</b>					
Turkey sandwich					
2 slices whole wheat bread	4 g	60 mg	1 mg	139 mg	0 µg
1 slice Swiss cheese	0 g	224 mg	0 mg	22 mg	0 µg
1 oz turkey lunchmeat	0 g	2 mg	0 mg	60 mg	0 µg
1 cup chocolate milk (fat-free)	1 g	288 mg	1 mg	463 mg	3 µg
¼ cup raisins	1 g	18 mg	1 mg	272 mg	0 µg
<b>Dinner</b>					
Lasagna with meat sauce					
12 oz lemon-lime soda	0 g	7 mg	0 mg	4 mg	0 µg
Salad					
1 cup iceberg lettuce	1 g	10 mg	0 mg	78 mg	0 µg
¼ cup grated carrots	1 g	9 mg	0 mg	88 mg	0 µg
1 tbsp Ranch dressing	0 g	2 mg	0 mg	4 mg	0 µg
<b>Snacks</b>					
Corn puffs					
1 medium chocolate cupcake	1 g	46 mg	1 mg	70 mg	0 µg
<b>Totals</b>	<b>16 g</b>	<b>1356 g</b>	<b>17 mg</b>	<b>2266 mg</b>	<b>7 µg</b>

Which nutrients did your character consume enough of based on his or her nutrient recommendations?

Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations?

## One Day of Food Choices – Group 5

	Fiber (g)	Calcium (mg)	Iron (mg)	Potassium (mg)	Vitamin D (µg)
<b>Breakfast</b>					
1 cup chocolate milk (fat-free)	1 g	288 mg	1 mg	463 mg	3 µg
½ cup yogurt, low-fat	0 g	209 mg	0 mg	268 mg	1 µg
¼ cup granola	2 g	11 mg	1 mg	68 mg	1 µg
½ cup strawberries, sliced	2 g	18 mg	1 mg	164 mg	0 µg
<b>Lunch</b>					
1 small bean and cheese burrito	7 g	224 mg	3 mg	381 mg	0 µg
1 cup chocolate milk (fat-free)	1 g	288 mg	1 mg	463 mg	3 µg
¼ cup salsa	1 g	17 mg	0 mg	185 mg	0 µg
¾ cup sliced apples	2 g	5 mg	0 mg	88 mg	0 µg
<b>Dinner</b>					
1 small chicken breast, baked	0 g	11 mg	1 mg	191 mg	0 µg
1 cup mixed vegetables (corn, lima beans, peas, green beans, carrots)	8 g	46 mg	1 mg	306 mg	0 µg
½ cup mashed potatoes (no skin)	2 g	22 mg	0 mg	309 mg	0 µg
1 cup apple juice	0 g	20 mg	0 mg	250 mg	0 µg
½ cup chocolate ice cream	1 g	72 mg	1 mg	166 mg	0 µg
<b>Snacks</b>					
1 oz multigrain chips	1 g	1 mg	0 mg	36 mg	0 µg
<b>Totals</b>	<b>28 g</b>	<b>1232 mg</b>	<b>10 mg</b>	<b>3338 mg</b>	<b>8 µg</b>

Which nutrients did your character consume enough of based on his or her nutrient recommendations?

Which nutrients did your character NOT consume enough of based on his or her nutrient recommendations?

# Food Choices Worksheet

What are some different choices your character could make to meet his or her daily recommendations?

<b>Breakfast</b>	
<b>Lunch</b>	
<b>Dinner</b>	
<b>Snacks</b>	
<b>Totals</b>	

## Appendix 5E – Food Sources Cards

## Protein Foods

<p><b>Hard-Boiled Egg</b> 1 large</p> <p>Calcium – 25 milligrams Vitamin D – 1.1 micrograms Potassium – 63 milligrams Iron – 0.6 grams Fiber – 0 grams</p>	<p><b>Tuna (Canned in Water)</b> 3 ounces</p> <p>Calcium – 12 milligrams Vitamin D – 1.7 micrograms Potassium – 201 milligrams Iron – 0.8 grams Fiber – 0 grams</p>
<p><b>Smoked Salmon</b> 3 ounces</p> <p>Calcium – 9 milligrams Vitamin D – 14.5 micrograms Potassium – 149 milligrams Iron – 0.7 grams Fiber – 0 grams</p>	<p><b>Salami</b> 5 slices</p> <p>Calcium – 9 milligrams Vitamin D – 0.6 micrograms Potassium – 194 milligrams Iron – 1 grams Fiber – 0 grams</p>
<p><b>Chicken Breast (Grilled)</b> 3 ounces</p> <p>Calcium – 4 milligrams Vitamin D – 0 micrograms Potassium – 332 milligrams Iron – 0 grams Fiber – 0 grams</p>	<p><b>Canadian Bacon</b> 2 slices</p> <p>Calcium – 4 milligrams Vitamin D – 0.1 micrograms Potassium – 551 milligrams Iron – 0 grams Fiber – 0 grams</p>

**Sardines (Canned)**  
3 ounces

Calcium – 325 milligrams  
Vitamin D – 4.1 micrograms  
Potassium – 338 milligrams  
Iron – 2.5 grams  
Fiber – 0 grams

**Beef Liver**  
3 ounces

Calcium – 5 milligrams  
Vitamin D – 1.0 micrograms  
Potassium – 287 milligrams  
Iron – 5.3 grams  
Fiber – 0 grams

**Tofu (Firm)**  
¼ block

Calcium – 553 milligrams  
Vitamin D – 0 micrograms  
Potassium – 192 milligrams  
Iron – 2.15 grams  
Fiber – 1.9 grams

**Pork Sausage**  
1 link

Calcium – 2 milligrams  
Vitamin D – 0.3 micrograms  
Potassium – 79 milligrams  
Iron – 0 grams  
Fiber – 0 grams

**Sunflower Seed Butter**  
1 ounce

Calcium – 18 milligrams  
Vitamin D – 0 micrograms  
Potassium – 163 milligrams  
Iron – 1.2 grams  
Fiber – 1.6 grams

**Beef Patty (80/20)**  
3 ounces

Calcium – 22 milligrams  
Vitamin D – 0 micrograms  
Potassium – 285 milligrams  
Iron – 2.2 grams  
Fiber – 0 grams

<p><b>Almonds</b> 1 ounce</p> <p>Calcium – 76 milligrams Vitamin D – 0 micrograms Potassium – 208 milligrams Iron – 1 gram Fiber – 3.5 grams</p>	<p><b>Oysters</b> 6 medium</p> <p>Calcium – 37 milligrams Vitamin D – 0 micrograms Potassium – 104 milligrams Iron – 4.86 grams Fiber – 0 grams</p>
<p><b>Turkey Deli Meat</b> 2 ounces</p> <p>Calcium – 5 milligrams Vitamin D – 0.1 micrograms Potassium – 120 milligrams Iron – 0 grams Fiber – 0 grams</p>	<p><b>Tri-Tip Roast</b> 3 ounces</p> <p>Calcium – 17 milligrams Vitamin D – 0 micrograms Potassium – 305 milligrams Iron – 1.43 grams Fiber – 0 grams</p>



## Grains Foods

**Saltine Crackers**

5 crackers

Calcium – 3 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 23 milligrams  
 Iron – 0.83 grams  
 Fiber – 0.4 grams

**Corn Tortilla**

1 ounce

Calcium – 50 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 44 milligrams  
 Iron – 0.4 grams  
 Fiber – 1.5 grams

**Wild Rice** $\frac{1}{2}$  cup

Calcium – 2 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 83 milligrams  
 Iron – 0.5 grams  
 Fiber – 1.5 grams

**Raisin Bran Cereal  
(Fortified)**

1 cup

Calcium – 25 milligrams  
 Vitamin D – 2.3 micrograms  
 Potassium – 385 milligrams  
 Iron – 7.3 grams  
 Fiber – 6.7 grams

**Whole-Wheat Bread**

1 slice

Calcium – 52 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 81 milligrams  
 Iron – 0.79 grams  
 Fiber – 1.7 grams

**Whole-Wheat English  
Muffin**

1 muffin

Calcium – 175 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 139 milligrams  
 Iron – 1.62 grams  
 Fiber – 4.4 grams

<p><b>Brown Rice (Cooked)</b> 1 cup</p> <p>Calcium – 10 milligrams Vitamin D – 0 micrograms Potassium – 77 milligrams Iron – 0.5 grams Fiber – 1.8 grams</p>	<p><b>Instant Oatmeal (Cooked)</b> 1 packet</p> <p>Calcium – 21 milligrams Vitamin D – 0 micrograms Potassium – 144 milligrams Iron – 1.7 grams Fiber – 4.0 grams</p>
<p><b>Low-Fat Microwave Popcorn (Popped)</b> 3 cups</p> <p>Calcium – 0 milligrams Vitamin D – 0 micrograms Potassium – 100 milligrams Iron – 0 grams Fiber – 2 grams</p>	<p><b>Whole-Wheat Pita</b> 1 small pita</p> <p>Calcium – 4 milligrams Vitamin D – 0 micrograms Potassium – 48 milligrams Iron – 0.9 grams Fiber – 1.7 grams</p>

## Dairy Foods

**Fat-Free Milk**

1 cup

Calcium – 299 milligrams  
 Vitamin D – 2.9 micrograms  
 Potassium – 383 milligrams  
 Iron – 0 grams  
 Fiber – 0 grams

**Fat-Free Fruit Yogurt  
(Fortified)**

8 ounces

Calcium - 345 milligrams  
 Vitamin D - 3 micrograms  
 Potassium - 440 milligrams  
 Iron - 0 milligrams  
 Fiber – 0 grams

**Cheddar Cheese**

1½ ounces

Calcium – 307 milligrams  
 Vitamin D – 0.3 micrograms  
 Potassium – 32 milligrams  
 Iron – 0 grams  
 Fiber – 0 grams

**Low-Fat Vanilla Yogurt  
(Fortified)**

8 ounces

Calcium – 388 milligrams  
 Vitamin D – 2.7 micrograms  
 Potassium – 497 milligrams  
 Iron – 0 grams  
 Fiber – 0 grams

**Soymilk (Fortified)**

1 cup

Calcium – 299 milligrams  
 Vitamin D – 2.7 micrograms  
 Potassium – 296 milligrams  
 Iron – 1 grams  
 Fiber – 0.5 grams

**Mozzarella Cheese**

1½ ounces

Calcium – 300 milligrams  
 Vitamin D – 0.2 micrograms  
 Potassium – 80 milligrams  
 Iron – 0 grams  
 Fiber – 0 grams

## Vegetables

**Green Peas (Raw)** $\frac{1}{2}$  cup

Calcium – 18 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 177 milligrams  
 Iron – 1.07 grams  
 Fiber – 4.1 grams

**Corn (Yellow)** $\frac{1}{2}$  cup

Calcium – 2 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 162 milligrams  
 Iron – 0.34 grams  
 Fiber – 1.8 grams

**Broccoli (Cooked)** $\frac{1}{2}$  cup

Calcium – 31 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 229 milligrams  
 Iron – 0.52 grams  
 Fiber – 2.6 grams

**Green Beans (Cooked)** $\frac{1}{2}$  cup

Calcium – 28 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 91 milligrams  
 Iron – 0.41 grams  
 Fiber – 2 grams

**Asparagus (Cooked)** $\frac{1}{2}$  cup

Calcium – 21 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 202 milligrams  
 Iron – 0.82 grams  
 Fiber – 1.8 grams

**Acorn Squash (Cooked)** $\frac{1}{2}$  cup, cubes

Calcium – 45 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 448 milligrams  
 Iron – 0.95 grams  
 Fiber – 4.5 grams

**Baked Potato (With skin)**

1 medium

Calcium – 26 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 926 milligrams  
 Iron – 1.9 grams  
 Fiber – 3.8 grams

**White Mushrooms (Raw)** $\frac{1}{2}$  cup

Calcium – 44 milligrams  
 Vitamin D – 0.1 micrograms  
 Potassium – 111 milligrams  
 Iron – 0.18 grams  
 Fiber – 0.4 grams

**Cherry Tomatoes** $\frac{1}{4}$  cup

Calcium – 4 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 88 milligrams  
 Iron – 0 grams  
 Fiber – 0.1 grams

**Carrots (Raw)** $\frac{1}{4}$  cup

Calcium – 11 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 102 milligrams  
 Iron – 0.1 grams  
 Fiber – 0.9 grams

**Romaine Lettuce (Raw)**

1 cup

Calcium – 44 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 116 milligrams  
 Iron – 0.46 grams  
 Fiber – 1.0 grams

**Spinach (Raw)**

1 cup

Calcium – 30 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 167 milligrams  
 Iron – 0.8 grams  
 Fiber – 0.7 grams

**Broccoli (Cooked)****½ cup**

Calcium – 31 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 229 milligrams  
 Iron – 0.52 grams  
 Fiber – 2.6 grams

**White Beans (Canned)****½ cup**

Calcium – 97 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 595 milligrams  
 Iron – 3.9 grams  
 Fiber – 6.3 grams

**Soybeans****½ cup**

Calcium – 130 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 485 milligrams  
 Iron – 2.3 grams  
 Fiber – 3.8 grams

**Pinto Beans (Canned)****½ cup**

Calcium – 44 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 190 milligrams  
 Iron – 0.9 grams  
 Fiber – 3.8 grams

**Mixed Vegetables  
(Cooked)****1 cup**

Calcium – 23 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 154 milligrams  
 Iron – 0.75 grams  
 Fiber – 4.0 grams

**Zucchini Squash (Raw)****1 cup sliced**

Calcium – 18 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 295 milligrams  
 Iron – 0 grams  
 Fiber – 1.1 grams

## Fruit

**Dates****1/4 cup**

Calcium – 14 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 241 milligrams  
 Iron – 0.37 grams  
 Fiber – 2.9 grams

**Pear****1 medium**

Calcium – 16 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 206 milligrams  
 Iron – 0.32 grams  
 Fiber – 5.5 grams

**Raisins****1/4 cup**

Calcium – 10 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 299 milligrams  
 Iron – 0.94 grams  
 Fiber – 2.5 grams

**Apple****1 medium**

Calcium – 11 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 195 milligrams  
 Iron – 0.22 grams  
 Fiber – 4.4 grams

**Strawberries (Raw)****1/2 cup**

Calcium – 44 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 116 milligrams  
 Iron – 0.3 grams  
 Fiber – 1.5 grams

**Banana****1 medium**

Calcium – 44 milligrams  
 Vitamin D – 0 micrograms  
 Potassium – 422 milligrams  
 Iron – 0.3 grams  
 Fiber – 3.1 grams



<b>Orange Juice (Fortified)</b> 1/2 cup	<b>Orange</b> 1 medium
Calcium – 250 milligrams	Calcium – 60 milligrams
Vitamin D – 1.7 micrograms	Vitamin D – 0 micrograms
Potassium – 221 milligrams	Potassium – 271 milligrams
Iron – 0.25 grams	Iron – 0.14 grams
Fiber – 0.2 grams	Fiber – 3.8 grams



## Focus on Food Lesson 6 Newsletter

The optional newsletter on the following pages is designed to help reinforce the concepts learned. If offering this course in a single workshop, you may wish to distribute the lesson newsletters weekly in order to help refresh participants' memory and solidify the concepts.



# Nutrients of Concern

## In this issue...

Weigh it Out	Page 2
Age is Not Just a Number	Page 2
Why Are We Concerned about Nutrients?	Page 3
Try This Recipe for Veg-Out Chilean Stew!	Page 4
Snack Attack!	Page 4
Test Your Knowledge With the Nutrients of Concern Word Search!	Page 5



## Growing Strong and Healthy

### Different Bodies, Different Needs

Nutrient needs not only change as people age, but some can also vary depending on gender. This is because males and females have different nutrient needs to keep their bodies healthy.

#### Teenage Boys vs. Teenage Girls

Boys tend to need more calories than girls because they generally are larger and thus need more energy.

Girls tend to need more iron than boys because they need to help replace what is lost monthly during menstruation.

#### Men vs. Women

Men tend to need more protein than women because they generally have more muscle mass.

Women capable of becoming pregnant tend to need more folate than men because it helps prevent birth defects.

All humans need the same basic set of nutrients: vitamins, minerals, protein, carbohydrates, fats, and water. However, individual requirements for these nutrients differ based on several factors. When it comes to children, some of those differences are based on stage of growth, gender, and physical activity level.

Because of these differences, there are some nutrients that certain groups need more of. For some nutrients, a large number of people aren't meeting their nutrient needs. We call these "nutrients of concern."

Turn the page to learn more about nutrient needs and nutrients of concern!

### Did you know?

There are plenty of delicious dishes that can help you consume the nutrients of concern. Try our recipe for Veg-Out Chilean Stew on page 4!

## Weigh it Out

Even though nutrient needs by unit of measure (milligrams, micrograms, etc.) may be the same for a child and an adult, actual needs by weight for children tend to be higher.

Sonia is 10 years old and weighs 75 pounds.



She needs 4,500 mg of potassium and 1,300 mg of calcium a day.

Andre is 35 years old and weighs 200 pounds.



He needs 4,700 mg of potassium and 1,000 mg of calcium each day.

If we do the math per pound, Sonia needs more than twice as much potassium and three times as much calcium per pound as Andre!

This means it's extra important for children to eat foods that are packed with nutrients to meet their nutrient needs and grow strong and healthy.

## Age is Not Just a Number

Nutrient needs change as we age due to different factors throughout our stages of life.



### A toddler needs...

the highest percentage of calories from fat.

#### Why?

Toddlers are growing at a very fast rate and need plenty of fat to support the growth.

### A child needs...

more protein by weight than the average adult.

#### Why?

Proteins are broken down into amino acids which are used for a variety of functions that are important for a child's development.

### A teenager needs...

to consume more calcium than any other age group.

#### Why?

Calcium helps support bone growth which is important for teenagers who typically grow several inches during puberty.

### An adult needs...

to intake a lower amount of total fat than younger age groups.

#### Why?

High fat diets have been associated with several chronic diseases which adults tend to be more susceptible to.

### An older adult needs...

more vitamin D than any other age group.

#### Why?

Vitamin D is naturally produced in our skin when exposed to sunlight. Older adults tend to not expose their skin to sunlight often and thus must seek dietary sources for vitamin D.

# Why are we concerned about nutrients?



In general, humans are able to meet their nutrient needs through a well-balanced diet. Unfortunately, many Americans consume a diet that is light on fruits, veggies, low-fat dairy, and whole grains. This is sometimes referred to as the Western diet. As a result, there are several nutrients that have been identified as being “nutrients of concern”. These are nutrients that many Americans consume less than is recommended.

## Calcium

### Why do children need it?

Bone growth and health;  
muscle function

### Why do adults need it?

Bone health and muscle  
function

### Food sources:

Dark green leafy vegetables,  
foods fortified with calcium,  
fish with bones

## Vitamin D

### Why do children need it?

Helps absorb calcium; bone  
health; immune function

### Why do adults need it?

Helps absorb calcium; bone  
health; immune function

### Food sources:

Fortified dairy products,  
certain kinds of fatty fish, sun  
exposure

## Fiber

### Why do children need it?

Digestive health

### Why do adults need it?

Digestive health; may help  
reduce blood cholesterol

### Food sources:

Whole grains, fruit,  
vegetables, legumes, nuts  
and seeds

## Potassium

### Why do children need it?

Muscle and nerve function

### Why do adults need it?

Muscle and nerve function;  
helpful in preventing high  
blood pressure

### Food sources:

Fruits and vegetables, some  
dairy foods



## Women and Teenaged Girls

In addition to calcium, vitamin D, fiber, and potassium, there are two more nutrients of concern for teenage girls and women capable of becoming pregnant.

## Iron

### Why do we need it?

Helps move oxygen around in  
the blood

### Why do women and teenaged girls need more of it?

To replace iron lost through  
menstruation.

### Food sources:

Meat, poultry, seafood, beans  
and peas, nuts, whole grains  
and fortified grains

## Folate

### Why do we need it?

Growth and repair

### Why do women capable of becoming pregnant need more of it?

Helps prevent certain kinds of  
birth defects in pregnancy

### Food sources:

Dark green leafy vegetables,  
fortified and enriched grains,  
beans and peas





## Try this recipe for Veg-Out Chilean Stew

This recipe is a delicious and healthy way to eat three nutrients of concern all at once! (Not to mention lots of other fantastic nutrients!)

**Recipe serves 4-6 people**

### Ingredients:

3 tablespoons olive oil  
 1 medium red onion, medium chopped  
 1 small butternut squash, diced, or 10 ounces frozen pre-cut butternut squash  
 15-oz can diced tomatoes, not drained  
 1 cup water or vegetable broth  
 3 purple (or red) potatoes, medium chopped  
 4 cloves garlic, finely chopped  
 Salt and pepper  
 1 cup collard greens or Swiss chard, center rib removed, medium chopped  
 1 cup mushrooms, medium chopped  
 1 cup baby spinach  
 1 bunch fresh basil, roughly chopped  
 1/2 cup shaved or grated parmesan cheese (optional)

### Directions:

1. Heat 3 tablespoons olive oil in large wok or saucepan over medium heat.
2. Add red onion and pre-cubed butternut squash and sauté about 4 minutes.
3. Add can of diced tomatoes and the juice, water or vegetable broth, purple potatoes, and garlic.
4. Continue cooking, stirring occasionally, for about 10 minutes. Season with salt and pepper.
5. Add collard greens/Swiss chard, mushrooms, and spinach. Cook for about 4 minutes, stirring occasionally. Add chopped fresh basil.
6. Top stew with shaved parmesan cheese separately.

Recipe courtesy of Cooking Up Healthy Choices. For more information about this curriculum, please visit: <http://cns.ucdavis.edu/programs/shcp/cooking.html>

## Snack Attack!

Try these healthy and delicious snacks to get more calcium, vitamin D, fiber, and potassium in your diet!



Yogurt is a great source of calcium, vitamin D, and potassium! Add a handful of low-fat whole grain granola for some added fiber and a fun crunch!



White bean hummus is a tasty companion to fresh veggies, and contains potassium, fiber, and even a little calcium!



Make a simple caprese salad by layering tomato slices, basil, and fresh mozzarella! Vitamin D, calcium, and potassium, all in one bite! Top it off with a teaspoon of olive oil.

# Can you find all the words in this Nutrients of Concern word search puzzle?

See the bottom of the page for a list of words you can find!

I am a class of micronutrients that are either fat-soluble or water-soluble and primarily perform regulatory roles in the body.

I am a macronutrient that serves as the main fuel source for our brains.

I am what our bodies use to power everything we do.

I am a vitamin important in preventing certain birth defects.

Eating a diet rich in me may help prevent high blood pressure. Bananas are a good source of me.

I am a class of micronutrient that comes from water and soil and is absorbed by plants or eaten by animals.

J B L E Z M V U Z J J M U I C L A C H N  
 H H X V X D E C N A L A B - L L E W I F  
 X E T R A V X P J J N L D V M Y K E U V  
 J A M L Q I Y V H T O F F U B Y T E U O  
 W L I W R M K S Y P K J I T B O F E H A  
 E T N A Y M S D N F O S R K R T Q T M I  
 E H E T G N Q A O D S R R P O P R P Q L  
 S Y R E R F Z L M A J K S R A M E D Y F  
 H W A R E F A U T O M J E X D R B A O Y  
 I V L X N T E O F T Z Z T E Z W I K T Y  
 S P S X E Z P V G L U Y A A F E F F Y U  
 W Q C R U L Y S X N U V R Y M W J P E D  
 J K V Z S A J G K V I R D O O L U V L S  
 G A Z I B V T J X T S F Y Z Z K R M E P  
 T E J D V Q K U A X M F H E I G Q I U E  
 K Y Z W W O A M W O X E O P V I R O Q C  
 H F H J C F I S Y B C X B I R O N K M H  
 J F M Z O N T V S G J H R L L Y V B U J  
 R D E D S A C E R S F F A A F C F C T U  
 O O I L F M H U K P X O C E J M L H Z I

Created with TheTeachersCorner.net word search maker

I am the amount of energy in food. \_\_\_\_\_

I am an adjective describing 'in good health' \_\_\_\_\_

I am a macronutrient with 9 calories per gram and can be solid or liquid at room temperature. \_\_\_\_\_

I am a mineral important for bone health and muscle function. \_\_\_\_\_

I am an adjective describing 'in good health'. \_\_\_\_\_

I am a macronutrient that provides structure in the form of muscles, tendons, and collagen. \_\_\_\_\_

I am a macronutrient that does not provide calories and makes up 60% of our body weight. \_\_\_\_\_

I am a mineral important in red blood cells for moving oxygen around our bodies. \_\_\_\_\_

I am a type of carbohydrate that our bodies cannot digest, but is important for digestive health. \_\_\_\_\_

I am a type of diet that includes eating a variety of nutrient-dense foods. \_\_\_\_\_

Vitamins Carbohydrates Energy Folate Potassium Minerals Fats Calories Calcium Healthy Protein Water Iron Fiber Well-Balanced

