

Good Health

Prior Knowledge

The student has

1. constructed sets of objects lesser than or equal to 100
2. added and subtracted with single-digit addends
3. estimated and measured length.

Mathematics, Science and Language Objectives

Mathematics

The student will

1. measure length, temperature and/or time
2. give examples of ordinal numbers and, given a set, find a given ordinal position
3. show equivalent volumes in several ways, using given containers
4. compare single- and double-digit numbers
5. give examples of other names for a number, to show what "equals" means
6. collect data by counting
7. write and solve original addition and subtraction problems with single- and double-digit addends
8. make and read graphs and charts summarizing collected data
9. examine repeated addition in preparation for multiplication
10. group by a given number in preparation for division
11. make inferences from observations
12. use rates to describe events
13. name geometric shapes.

Science

The student will

1. say that good health means that a person feels well, has energy and is free of illness
2. list at least four things that help us have good health
3. list at least one consequence of lack of good nutrition
4. name the five food groups and give examples of each
5. describe health care practices that promote good health by
 - a. describing practices that promote cleanliness
 - b. listing exercise and rest as important to good health
 - c. listing at least three ways to prevent disease
6. practice safety by
 - a. describing the danger of substance misuse
 - b. practicing school and household safety
7. mass objects in a pan balance
8. name at least three health care professionals.

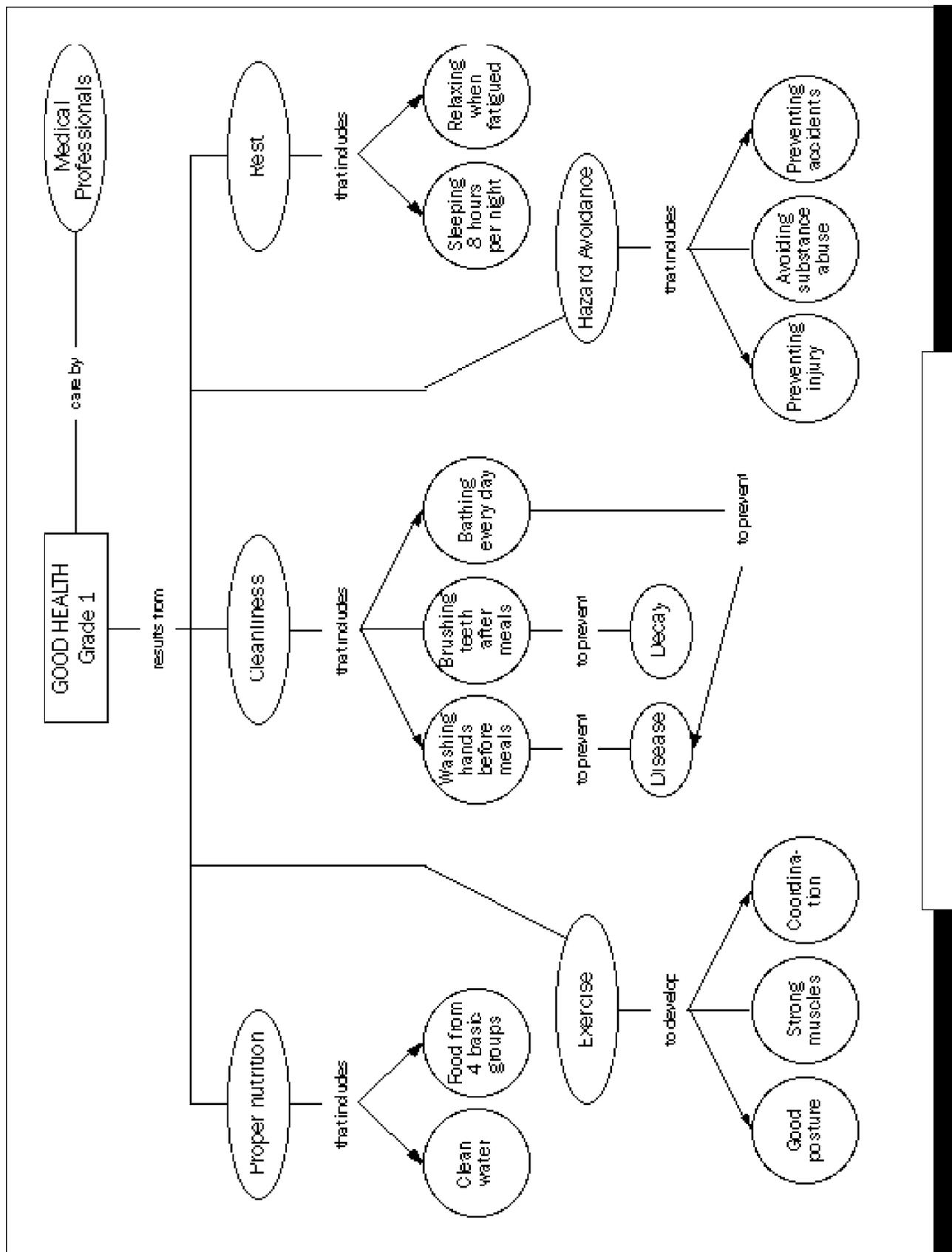
Language

The student will

1. discuss a story or book used in this unit
2. retell a favorite story or personal event that relates to good health and safety
3. write or ask a question regarding good health and safety
4. use formal and informal pronouns
5. write a paragraph, a poem, skit, story, etc., about good health and safety
6. use reasons to persuade (verbally) a peer or an adult.

V O C A B U L A R Y

drugs drogas	medicine medicina	prescription receta	poison veneno
hazardous peligroso	health salud	regular regular	safety seguridad, protección
energy energía	balance balance	growth desarrollo	balanced meals comidas balanceadas
breakfast desayuno	lunch comida	dinner cena	food groups grupos de nutrición
bread pan	cereal cereal	milk leche	snacks bocadillo, merienda
fruit fruta	vegetables legumbres	bacteria bacteria	chemicals sustancias químicas
habit hábitos	exercise ejercicio	preventive preventivo(a)	disease enfermedad(es)
milk group grupo lacteo	rest descanso	windmill molino	bread/cereal group grupo de cereales
mold moho	comb peine	brush cepillo	fruit/vegetable group grupo de frutas y legumbres
towel toalla	rinse enjuagar	washcloth trapo de lavar	lather espuma, jabonadura
scrub fregar	shampoo champú	hygiene higiene	toothpaste pasta dentrífica
soap jabón	mold spores esporas de moho	toothbrush cepillo de dientes	suds espuma



Teacher Background Information ● ● ●

Children need to develop habits early in life that lead to good health and safety. As they learn about the body's systems and related functions, the students associate these functions with the need for maintaining their good health through appropriate nutrition, cleanliness and hygiene habits, and through proper exercise and rest. Children can also develop an awareness of the great dangers of using inappropriate substances such as cigarettes, inhalants and other drugs.

Since students' understanding of appropriate health habits can be enhanced when they are aware of the body's capabilities, functions and limitations (e.g., it cannot utilize cigarette smoke as a nutrient) it is recommended that this unit on health and safety follow the unit on the human body. The latter unit will provide the information needed for students to understand the necessity of developing and maintaining good health habits.

L E S S O N F O C U S

■ LESSON 1

*BIG IDEAS****Good Health Equals Good Living***

Good health helps us enjoy life. What does "equals" mean?

■ LESSON 2

*BIG IDEAS****You Are What You Eat***

Proper nutrition is the first principle of good health. "First" is an ordinal number.

■ LESSON 3

*BIG IDEAS****Popeye Is Right!***

Water and minerals (like spinach) are necessary for growth and strength. Counting can help us have good health.

■ LESSON 4

*BIG IDEAS****R - S - R for Good Health***

During periods of rest, sleep and relaxation, body functions slow down for the body to regain energy and remove body wastes; we can measure these changes.

■ LESSON 5

*BIG IDEAS****Our Friends — the Suds***

Frequent washing and bathing remove bacteria that cause illness. Numbers, like bacteria, can grow very fast using multiplication.

■ LESSON 6

*BIG IDEAS****Exercise Is for Life***

Proper exercise helps the body maintain its good health and good looks. Keeping a chart helps us develop good exercise habits.

■ LESSON 7

*BIG IDEAS****Practicing Safety Helps Our Health***

Avoiding illness and preventing injury are important for our health. Charts summarize information so that we can use it.

■ LESSON 8

*BIG IDEAS****The Health Professions***

Some of the most important professionals in our community are the people who help us maintain our health. Each of these professions requires knowledge of science and mathematics.

O B J E C T I V E S G R I D

Lessons	1	2	3	4	5	6	7	8
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Mathematics Objectives

1. measure length, temperature and/or time	•	•	•					•
2. give examples of ordinal numbers and, given a set, find a given ordinal position		•						
3. show equivalent volumes in several ways, using given containers			•					
4. compare single- and double-digit numbers	•	•	•					
5. give examples of other names for a number, to show what “equals” means	•				•			•
6. collect data by counting		•			•	•		•
7. write and solve original addition and subtraction problems with single- and double-digit addends			•		•			
8. make and read graphs and charts summarizing collected data		•	•			•		•
9. examine repeated addition in preparation for multiplication					•			
10. group by a given number in preparation for division	•							•
11. make inferences from observations	•	•	•	•	•	•	•	•
12. use rates to describe events				•				
13. name geometric shapes.					•			•

Science Objectives

1. say that good health means that a person feels well, has energy and is free of illness	•	•	•	•			•	
2. list at least 4 things that help us have good health	•	•	•	•	•		•	
3. list at least one consequence of lack of good nutrition	•	•	•				•	
4. name the 5 food groups and give examples of each		•	•				•	

LESSON
1

Good Health Equals Good Living

BIG IDEAS Good health helps us enjoy life. What does "equals" mean?

Whole Group Work

Materials

Book: **I Want to Be Big** by G. Iverson

Frame sentence: I don't want to be big enough to ..., but I want to be big enough to ...

Magazine pictures of persons enjoying various activities

Pamphlets from a local health services center showing appropriate health practices

Word tags: nutrition, diet, water, exercise, balance

Encountering the Idea

Ask students what they think people mean when they say: **An apple a day keeps the doctor away.** At the end of the lesson you will ask them what they think it means now that they have studied about good health.

Ask children if they have ever wished they were bigger or older. Is it important to just be big? We also have to be in good health to enjoy life. As you read the story **I Want to Be Big**, tell students to think of what good health is and why it is important. As they discuss the book, point out the structure of the frame sentence they will be completing later.

Tell students that now that they know what the human body is and can do and what it looks like, they know also that the body needs energy to do its work. What gives the body the energy it needs and what keeps it healthy? What are the body's most important needs? Air, food, water, other. As the students respond, write their suggestions on a poster to use later.

The first body need we will discuss is that for food. Why does the body need food? (For energy, to stay warm, etc.) But you know that the body also needs many other things to be healthy.

We are going to investigate some of the answers to our questions in the learning centers. Are there other questions you have about food? If so, let's write them down to think about as we do our explorations.

Exploring the Idea

Ask students to jump up and down in place for a few minutes. After they have started to breathe heavily, ask them to stop. Ask: Where did you get the energy to do that? (Food.)

Why? How does food give you energy? Students discuss the various roles of the body organs and cells in producing energy to function. Have you grown out of your clothes this past year? Why? (Have grown bigger and gained weight, etc.) Where do you get the building materials to grow bigger and gain weight? What

foods will help you get a lot of energy and keep you growing at the same time? Remember, your bones need calcium to grow; where does the calcium come from?

Who feels like drinking water now? Why? After you exercise or work hard, you want to drink water. How do you feel after a lot of exercise? Yes, you feel hot. How does your body cool you off? (You perspire and that means you lose water that you must replace.) Does your body need water? How much water does your body need?

At the **Science Center**, each student walks on the balance beam and describes to a partner what she/he has to do to keep balance and to walk all the way across the beam.

At the **Mathematics Center**, the students complete **Activity** — What Does “Equals” Mean? and **Activity** — Almond Cookie Factory.

At the **Writing Center**, the students illustrate and complete the frame sentence: “I don’t want to be big enough to ..., but I want to be big enough to”

Getting the Idea

Show students the pictures of the people enjoying various activities. Describe how the people look. Where are they? Indoors or outdoors? Is it cold or hot? Does the weather matter to people who are healthy? Are they active? Smiling? Do they look energetic? Are their eyes shining? List other descriptors that indicate that healthy people have a good time and can enjoy life.

Discuss what the students had to do to stay in balance on the balance beam. What does the word “balance” mean? What do you think the idea of balance has to do with good health? (You can’t just play, or just sleep, or just eat, or just work or just do one thing for good health. You have to have a balance.)

How does perspiration, which is moisture, or water, help your body to cool down after you exercise, play or work hard? (We know that for perspiration to evaporate, it needs to absorb heat; when perspiration evaporates, it takes heat from the body and cools it off.) This means that we have to drink water to replace the water we lose in perspiration.

What did we learn that “equals” means? “Equals” is another way of saying “is the same as,” or “is another name for.” We use “equals” to say numbers in different ways, as we learned in our mathematics activity, but we use “equals” in other ways, and it still means the same thing. When we say that “good health equals good living,” how are we using the word “equals”? (Good health is another name for good living; good health is the same as good living.)

You also worked in the Almond Cookie Factory grouping the cookies by fives. Almond cookies are not only fun to eat, but they have many ingredients that give your body energy and materials to help you grow. What are some other names for five? (Pause for responses.) Yes, five has other names such as two plus three, and three plus two, and four plus one, and one plus four. We will study more about this in our next lesson.

Organizing the Idea

We have talked about needing food for energy for the body so that it can move, grow and do all the things it needs to do. We have also said that the body has other needs besides food for its health. Student groups write and illustrate five reasons why good health is important.

Applying the Idea

Students select, write and illustrate in their journals three things they **personally** do to be in good health.

Students describe and/or illustrate in comic book style: An apple a day keeps the doctor away.

Closure and Assessment

Problem Solving

1. Roberto has been absent from school for three days because he has been sick. What could have made him sick? What can he do to get well?
2. At the beginning of the lesson, we said that Good Health Equals Good Living. What does that mean to you? What are some other words for “equals”? (“Is the same as” and “is another name for.”) So, Good Health is another name for Good Living.
3. Suppose you are the owner of a cookie factory, but your factory wraps the cookies in a different way. Your factory wraps the cookies by sevens. Go through the activity with a partner or with your group and play the cookie game again, but this time group cookies by sevens.

List of Activities for this Lesson

- ▲ What Does “Equals” Mean?
- ▲ Almond Cookie Factory

ACTIVITY *What Does “Equals” Mean?*

Objective

The student uses the phrases “is another name for” and “is the same as” interchangeably with the word “equals”.

Materials

Unifix cubes, different colors; Cuisenaire rods, different colors

Procedures

Students work in pairs.

Tell students that they will work in pairs to learn other ways of saying “equals”.

1. Students use cubes or rods to make chains of different lengths, such as five, six, seven, 10, etc.
2. One student makes a chain of length five using two or three colors, for example, two red and three brown or one red, two brown and two yellow.
3. Then the partner uses another color to make a chain of five of the same color and says any one of the following: two red plus three brown equals five; two red plus three brown is another name for five; two red plus three brown is the same as five.
4. After they have done this a few times, the students make chains but reverse the order of the statements of equality: five equals one red plus one white, plus three blue.
5. The students take turns making the chains and describing them using number words.

Tell students that this time they will roll dice and add the two numbers.

1. Students roll the dice and then make an addition number sentence using any one of the three phrases.
2. After the students have done this for several turns, they roll the dice and subtract the smaller number from the larger, again using “equals”, “is another name for” and “is the same as” to describe the operation.

▲ **ACTIVITY**

Almond Cookie Factory

Objective

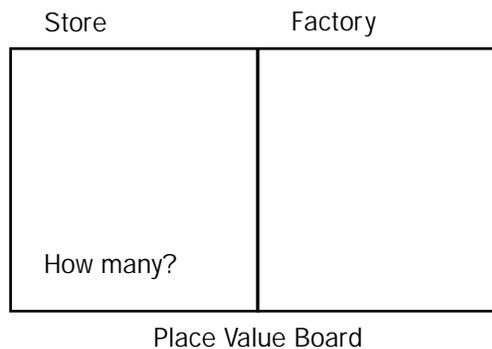
Students group numbers by fives.

Materials

For each team of four children: Place Value Board (PVB)*; 25 Unifix cubes

Introduction to Activity

1. In this activity you will make almond cookies like this in a cookie factory. (Puts five cubes together to make a stack.)
2. You will work in teams of two. Two members of the team manufacture the cookies and the other two are the customers.
3. After we make five cookies we put them in a stack, and then we put them in the store.



4. As soon we have five almond cookie stacks in the store, we can open it for business.
5. The customers say how many cookies they want. You can break the stacks to give customers the number of cookies they have asked for.

Clarification before students play the game:

What is the most number of cookies a customer can buy? (25.) What is the least number a customer can buy? (One.)

Procedures

1. Each team of four takes a PVB and the Unifix cubes separated into ones.
2. Two of the children “manufacture” the stacks that are five cubes long.
3. Once students make a stack, they move it to the store.
4. As soon as the store is full with five cookie stacks, the store opens.
5. The other two children on the team come to the store to buy the cookies.

¹A large square made of heavy laminated cardboard divided into halves. Each half has a different color and the labels **Store** and **Factory**.

LESSON

2

You Are What You Eat

BIG IDEAS Proper nutrition is the first principle of good health. “First” is an ordinal number.

Whole Group Work**Materials**

Book: **Is This My Dinner?** by I.S. Black or **No Peas for Nellie** by C.L. Demarest
 Laminated, assorted pictures of various foods familiar to students from the five food groups
 Pitcher of water filled and marked with eight glasses of water
 Picture of a person riding a bicycle
 Balance beam
 Word tags: diet, starch, calories, nutrition, guide, pyramid

Encountering the Idea

Show students the cover of **Is This My Dinner?** Let the students predict what the story is about. Tell them that the story is told in rhymes. (Review what a rhyme is, in case someone has forgotten.) Read the story, letting the students predict whose dinner it is.

At the end of the story ask the students what made these dinners better for each of the animals. Would any of these dinners be good for you? If not, then what kind of dinner would be good for you? Remember, **one of the most important body needs is food**, not only for the animals, but for us too.

How do we know what kinds of foods we need to eat? How will you, your parents or the cafeteria workers who prepare your food know what food is good for you? Is all the food you eat good for you? Are some foods better than others? How much food should you eat? Do we need water? Is water a food? Bones, flesh, skin and hair all have to be made by the body from food. What foods do we need to help the body do these things?

We are going to investigate some of the answers to these questions in the learning centers. Are there other questions you have about food? If so, let's write these down to think about as we do our explorations. Write the questions on a chart for later use.

Exploring the Idea

At the **Science Center**, the students practice on the balance beam, and then complete

1. **Activity** — Food Energy
2. **Activity** — Food Building Blocks
3. **Activity** — Let's Make a Meal.

At the **Mathematics Center**, the students complete **Activity** — “First” Is an Ordinal Number.

Getting the Idea

What does the body need in order to do its work? (Food.) We also say that the body needs **proper nutrition**. What does the food provide? (Energy.) What foods provide energy? (Fruits, vegetables and grains because they give us sugar and starch for energy.) We say that proper nutrition is the **first** principle of good health. What does that mean? (Pause for student comments.)

Now let's talk about what we did in the **Mathematics Center**. We worked with **ordinal numbers**. Ordinal numbers tell us the position of an object. Look at the word "order". Can you find part of that word in "ordinal"? Yes, "ord" is in "order" and in "ordinal". That's what ordinal numbers tell you — the order or the position of objects. The ordinal numbers relate to the **cardinal numbers**. The cardinal numbers are the numbers we are familiar with — they tell us how many things are in a set or a group.

Now, why do you think that we say that nutrition is the first principle of good health? Yes, proper nutrition is the first principle of good health because without nutrition the body cannot continue to live for a long time in good health. What happens when we are sick or do not have energy? Are we happy? Can we do the things we want to do? No, nutrition is important, and so we say that it is the first principle of good health.

When we studied about foods that give us energy, what experiments did you complete? What did we learn in our experiment using iodine? Yes, many foods that we eat contain starch, which is one food that gives us energy.

Nutritionists, people who study the kind and amount of food that people need to be in good health, measure the amount of food energy living organisms need by using the unit of heat called a **calorie**. We use this unit to tell us how much food we need each day. If we know how much food we need each day, we will be able to balance our meals and to avoid the weight we would gain if we ate too much fat and too much starch.

But starch in our diet is not enough. What else do we need? What do fish, chicken, turkey and beef provide? (Those foods give us proteins that we need to build muscles and renew all the cells.)

As we saw from the activities on proper nutrition, all foods give us energy and help us build our bodies, but all foods give us more of one thing and less of another than the body needs. Very few foods give us **everything the body needs** all at the same time. That is why we need to eat **balanced meals**. The students consider: Is **fat** necessary for the body? Is it an important food? How much fat should we have in our daily diet?

You worked on an activity that required you to balance your body in order to walk from one end of the beam to the other. What did you have to do to stay in balance? Yes, you couldn't lean over too much on either side — you had to stay in the middle. What do you have to do in riding a bicycle? You can ride a bicycle only if you balance on it. The same happens with your body and balanced meals. You get energy and "building blocks" when you eat "balanced meals." What do you suppose "balanced" meals are? (Pause for student responses.) Yes, balanced meals are meals that include foods from each of the five food groups. We don't want to have too much of one thing and very little of another. (Display pictures of food from the **Food Guide Pyramid**.)

The **Food Guide Pyramid** is a guide, a suggestion, of the types and amounts of food that a person needs to be healthy. The Guide tells us that the group we

should select the most from is the **Bread** group, which includes oatmeal, Cream of Wheat, rice, spaghetti, for six to 11 servings **every day**. The next groups are the **Vegetable** group, which should include three to five servings every day, and the **Fruit** group, which should include two to four servings each day. The **Milk** group includes cheese and yogurt, and should include two to three servings every day. We should have the same number of servings per day from the **Meat** group, which includes beef, chicken, pinto beans, eggs and nuts. At the top of the pyramid and having the smallest triangle, are the fats, oils and sweets. This is not considered a food group because all foods contain fat and sugar. To be healthy, however, we should use fats, oils, and sugar barely, or with care. Fats and sugar are important, but they do not give energy and building blocks as do other foods in a balanced diet.

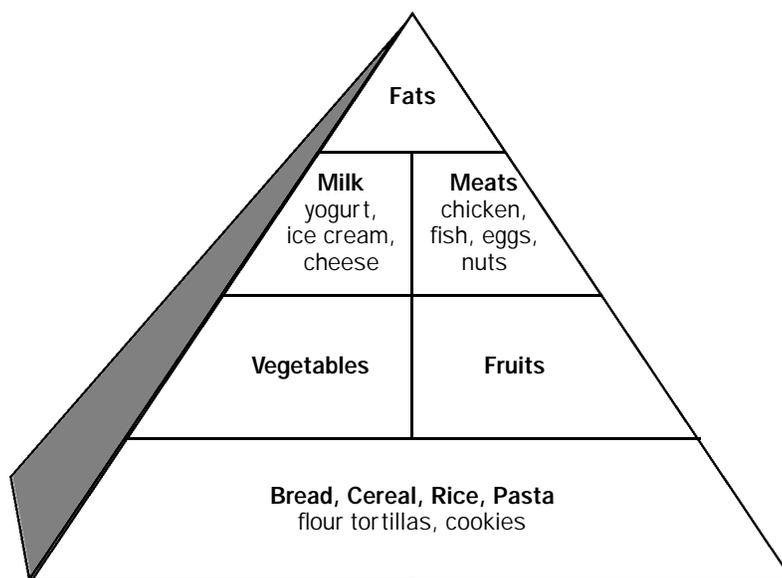
We also said that one of the body needs is water. Do all living things need water to live? We are going to look at the amount of water that living organisms need.

Teacher Demonstration

To demonstrate the amount of water contained in different plants and animals, fill various jars with different amounts of water. Ask students to pretend that each jar is a person, a plant or animal (a picture could be drawn on the glass). Fill the glasses to illustrate the approximate percent of the organism that is water. A person is 65% — others: mouse 65%, elephant 70%, potato 80%, tomato 95%. A balanced diet will always include plenty of water. The food alone is not enough to make a healthy body.

Organizing the Idea

We have talked about needing food for energy for the body so that we can move, grow and do all the things we need to do. These pictures of healthy foods are grouped into five groups so we can be sure to eat some from each group each day to have a balanced diet. We have to eat different kinds of food for the body to grow and change. (Display pictures of the five food groups.)



At the **Art Center**, students make a collage of good nutrition. Using magazine cutouts of healthy food, students write the names of the food on the pictures and glue them on an outline of a human body. The students also write ordinal numbers on the foods labeling them as first, second, and so on.

Applying the Idea

Each student chooses three or four pictures of different foods.

- Students place the pictures under the titles: breakfast, lunch, and dinner.
- Students respond to the following questions:
 - a. Are there some foods you can eat at any of the meals and still have a balanced diet?
 - b. Is it a good idea to eat a lot of the same type of good food in one meal until you are completely full? Why?

Breakfast	Lunch	Dinner
Chocolate	Hamburger	

Closure and Assessment

1. Reread the book **Is This My Dinner?** or read **No Peas for Nellie**. Discuss what students learned from these two books.
2. Children select a food from the each of the food groups that people eat for breakfast and paste a picture of it on the correct poster board. They repeat for lunch and dinner, if appropriate. Be sure you look at your selections. Do they make a balanced meal?
3. The students justify the way they made a balanced meal. They write about it and draw it in their journals.
4. What is the first, most important part of good health? Discuss your selection.
5. Is soda pop a good substitute for water during your meals? Why not?
6. When someone asks you the question, “How many people are at your desk?” and you answer, “Four”, what kind of number is four? (It is a cardinal number because it answers the question: How Many?)
7. When you say “Every fourth person in the row gets to go to the Library Center tomorrow,” how are you using the word “fourth”? (It is an ordinal number because it says which ones are selected.)

List of Activities for this Lesson

- ▲ Food Energy
- ▲ Food Building Blocks
- ▲ “First” Is an Ordinal Number
- ▲ Let’s Make a Meal

▲ ACTIVITY *Food Energy*

Objective

The student says that the human body needs heat energy every day to do its work and to stay warm. We measure energy for the body in calories.

Materials

Burner to heat water; test tube with 10 ml. distilled water; pan with water for a water bath; several thermometers; alcohol and cotton swabs to clean the thermometers before every use

Procedures

1. Students, working in pairs, take turns taking each other's temperature every half hour for at least two hours. They record their temperature in degrees Celsius.
2. Heat a test tube containing 10 ml. of distilled water to 37° C in a hot water bath. Record its temperature.
3. Remove the water from the water bath and record its temperature every half hour for at least two hours.
4. As you are heating the water, ask the students what is making the temperature of the water rise. (The heat energy from the burner making the water hot and making the temperature on the thermometer rise.)
5. Ask the students what their body temperature has been for the last two hours. What keeps their body temperature at 37°C?
6. What is the temperature of the water in the pan? Why didn't it stay at 37° like their body temperature? (Energy is needed to keep the water hot.)
7. What keeps their temperature from going down? (The energy the cells are using to keep the body warm.)

Discussion

We measure energy from food in units of heat we call **calories**. Humans need to eat enough food every day to give the body energy to do all its work. Students find the weight that is closest to their own weight in kilograms and pounds and find the number of calories they need each day.

**Recommended Daily Calorie Intake
for Children**

<i>Weight</i>		<i>Calories</i>
Kilograms	Pounds	
25	50	990
29	58	1080
33	66	1165
37	74	1245
41	82	1300

▲ **ACTIVITY**

Food Building Blocks

Objective

The student says that fish, chicken, beef and other meats provide proteins we need to make new body cells.

Materials

Pieces of fruit such as apples, oranges; vegetables such as potatoes; crackers, bread, corn tortillas, beans, candy, other foods

Pieces of cooked meat like bacon, pork, beef, chicken

Tincture of iodine

Procedures

1. Students test each of the items to see if they contain starch by using a few drops of tincture of iodine, or Lugol's solution. (Please refer to **Unit 1: Plants and Seeds.**)
2. After they have completed testing the foods they separate them into two groups — those that have starch and those that do not.
3. The students make a chart showing the foods that mainly give the body fast energy, such as sugar and starch, and those that give us building blocks — proteins — to help us grow and renew our bodies.
4. The students show foods like beans, milk and other dairy products and grains like wheat and oats in the Proteins column since some vegetables also provide proteins.

Healthy Foods	
Give Us Fast Energy	Have Proteins to Build

¹**Warn students** that tincture of iodine is a very harmful ingredient if it is eaten. Ask them not to taste any of the food that they test for starch.

▲ **ACTIVITY** **“First” Is an Ordinal Number**

Objective

The student gives the ordinal number of an object in a sequence and places a given object in a given ordinal position.

Materials

Set of objects (10 pieces of fruits, vegetables or food models, or as many as the students are able to work with) that students can distinguish by size or color

Word tags: First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Last

Procedures

Students work in pairs.

1. Tell students that they are going to play a game of finding foods that have been placed in a sequence. To do this, each student tells a partner the position of the food, and the partner hands it to the student.
2. Place the number of foods that will be used, six for example, in a row. With the students, say the ordinal number of each food: Beginning on the left, this is first, second, third, fourth, fifth, sixth (and/or last).
3. The students take turns giving each other a position and finding the food in the given position.
4. Then the students take turns pointing to a food in the sequence and saying the position of the food. For example, one student points and the other students says: The red apple is fourth from the left.
5. The students practice putting the word tags in order according to their ordinal numbers.

Tell students that sometimes we use ordinal numbers to find several objects in a sequence — that you may not want all of them, only some. But you may want to select them without choosing any in particular, only every other one, or every fourth one, every fifth one, and so on. Students, if I only want a few foods, but I don't want to have to select, I'm going to choose every fourth one. First, second, third, and I pick the fourth. Then I start over again. First, second, third, and I pick the fourth. Students practice finding every second, or every third, food in the sequence.

6. One student gives an ordinal number, and the partner finds those foods, if there are more than one.
7. Repeat the above procedures with other objects.

▲ **ACTIVITY**

Let's Make a Meal!

Objective

The students prepare 3 menus that contain the recommended servings of the 5 food groups and the recommended number of calories required for a nutritious daily diet.

Materials

Calorie guide given below; calorie guide for different ages
List of the food groups recommended for daily consumption

Procedures

1. Using the calorie guide given below, the student prepares a menu for breakfast, lunch and dinner, each, appropriate for the student's age.
2. The student presents the menus to the class and discusses the calorie needs and the food groups represented in the menus.

Daily Calorie Requirement Guide

Calories are important for the body! How many do you need?

1200 to 2000 calories per adult each day
up to 2500 calories per day for active children

The total number of calories consumed each day is the total number of calories of the 3 meals of the day
plus any snacks you may have along the way.

Remember—be calorie wise!!!

Food Guide Recommended Servings¹

Breads, Cereals, Grains	6 to 11 servings
Fruits	2 to 4 servings
Vegetables	3 to 5 servings
Meat, Poultry, Fish	2 to 3 servings
Milk, Cheese, Yogurt	2 servings
Fats, sweets	only in moderation

¹The U.S. government has revised the food groups and the number of daily recommended servings.

Calorie Counter

Food	Calories	Unit
Cinnamon rolls	130	roll
Mixed fruit	120	cup
Fresh orange	90	orange
Muffin	80	muffin
Flour tortilla	80	tortilla
Corn on cob (small)	90	ear
Angel food cake	110	serving
Corn and peas	220	cup
Roast beef	400	6 ounces
Pasta and lettuce	150	cup
Sugar cookie	120	cookie
Pepper chicken	320	6 ounces
Lamb chops	180	chop
Dinner roll	120	roll
Chicken nuggets	180	6 nuggets
Veggies	50	cup
Rice pudding/peaches	130	½ cup
Milk (low fat)	140	cup
Cereal (low sugar)	120	serving
Pizza (low fat)	230	5-inch square
Bean salad	130	½ cup
Corn tortilla	30	tortilla
Scrambled egg	150	egg
Jello squares	25	5-inch square

LESSON

3

Popeye Is Right!

BIG IDEAS Water and minerals (like spinach) are necessary for growth and strength. Counting can help us keep our good health.

Whole Group Work*Materials*

Book: **Let's Go Swimming with Mr. Sillypants** by M.K. Brown

A picture of **Popeye**; matches; several cereal boxes that have the contents (minerals, vitamins) and their daily recommended amounts listed on the side package

Word tags: vitamin, mineral, iron, calcium, calorie

Encountering the Idea

Let's talk about our friend **Popeye**, the sailor, to see what ideas he has about good health. What do you know about Popeye? He **knows** what he needs to make him strong. Why does Popeye need to be strong? To stop the bully Bluto! What does Popeye use to make him strong? Yes, spinach. What is spinach? Yes, it's a vegetable. But, what is so important about spinach; why can't some other vegetable do the job? Why **must he have spinach**? Let's think about that for a minute, and then let's ask some other questions about health.

What happens if we don't drink water for a few days? We get sick. When we studied the kidneys in the human body, we learned that the kidneys use a lot of water to get rid of wastes. We have to urinate several times a day. We need to replace that water. But, do we need to drink water **every day**? Who knows how much water people need to drink every day? Yes, we will review some of these ideas in this lesson, and in the following activities we will discover answers to why the body needs fruits, vegetables and water.

Exploring the Idea

At the **Science Center**, the students complete

1. **Activity** — Let's Eat Our Spinach!
2. **Activity** — Water Is Important
3. **Activity** — Water for Health.

At the **Mathematics Center**, the students

1. begin **Activity** — Health Food Store
2. complete **Activity** — Chewing Gum Math.

Getting the Idea

Students discuss the importance of drinking the appropriate amount of water each day. After discussing the importance of drinking water, the students discuss ways to ensure they drink the appropriate amounts. The teacher asks: Will you

drink eight glasses of water in one day if you drink from a small cup? What did our activity with the different-size glasses help us understand?

1. Why did it take more of these small glasses (point to the pictures of the glasses on the chart) than of these bigger glasses to meet the daily water intake requirement?
2. Show in at least three **different ways** how you can meet your daily water requirement for health.
3. If you exercise very hard every day, will you need more, less or the same amount of water for your daily water requirement? What makes you think that?

Students discuss the gum chewing experiment speculating about how and why the gum changed.

1. Why was there a difference in the two weights?
2. What did the gum lose that has weight?
3. What happened to the sugar, or the sweeteners?
4. What will the sugar do in your body?
5. How does sugar affect your body?
6. Is sugar necessary for your body to function properly? What happens if your body gets too much sugar?

Students discuss the notion of a balanced diet that includes taking a sufficient number of calories to give the body energy. It is also important that humans not eat more food than the body can use. If we overeat, the body stores the extra energy as fat in the body. Too much fat can cause health problems. Pediatricians have recommended that certain amounts of calories be consumed by children every day to give them the calories they need and to maintain a balanced diet.

Organizing the Idea

The teacher reads the book **Let's Go Swimming with Mr. Sillypants**. The class discusses the ideas in the book about the importance of water.

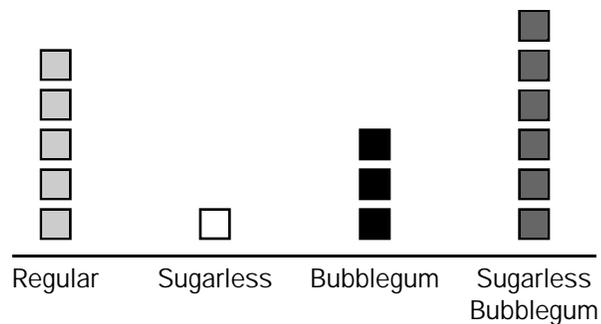
Students take a survey of all the class members about their favorite gum: sugarless, with sugar, bubble gum, etc. Working in groups, they graph the information and then report to the class what the graphs tells about the class's favorite chewing gum.

Students discuss the vitamins and minerals listed on the side panels of the cereal boxes, noting that the vitamins have letter names, such as **A, B, C**, etc. Students working in groups of three to four select a vitamin (Vitamin A, D or C, which are the more familiar ones) or a mineral (iron, the one **Popeye** gets from spinach, needed to make red blood cells, and calcium needed for teeth and bones) from the list on the cereal box and report to the class or write a class Big Book on vitamins and minerals.

At the **Language Center**, the students study the words **vitamin** and **mineral** to learn not only what the words mean, but how they are constructed, for example **vita** — means **vida**, or **life**. In other words, vitamins are necessary for life, for good health, for good living. What about **mineral**? Write a story about **Popeye** (or a favorite character) and the minerals and vitamins he eats.

Applying and Assessing the Idea

1. Students write at least three rules for healthy nutrition that tell about the appropriate daily use of water, about sugar, about fat, and about vitamins and minerals that we should include.
2. Show different kinds of fruit to the class. Brainstorm. Do fruits have vitamins? Do they give us energy? Keep us healthy? Etc. Which fruits give us Vitamin C? Which ones give us energy? (Most fruits have sugar and starch that give energy.)
3. Students either write and illustrate a cinquain or write and illustrate a story about the importance of water for the human body.
4. The students use the chart in **Activity** — Food Energy from **Lesson 2** to find the recommended number of calories they need to have energy for their bodies. They discuss why it is important to have a balanced diet that includes the required amount of calories.
5. This graph shows a first grade class's chewing gum preferences. Each student put a sticker above his/her choice of favorite gum. By looking at the graph, what can you tell about the class's preferences?



List of Activities for this Lesson

- ▲ Let's Eat Our Spinach!
- ▲ Water Is Important
- ▲ Water for Health
- ▲ Health Food Store
- ▲ Chewing Gum Math

▲ **ACTIVITY**

Let's Eat Our Spinach

Objective

Student gives examples of at least two vitamins and two minerals that the body needs for proper nutrition.

Materials

For each student pair or student group:

Glue one **Popeye, Bluto** or **Olive Oyl** picture on construction paper and cut into puzzle parts;

- place all the puzzle parts **except one** in an envelope to keep from getting lost;
- color the remaining piece green;
- place the missing part from the puzzle into some other group's envelope.

Each group has a complete puzzle, except for one part that does not belong to that envelope.

Empty cereal box listing the daily recommended mineral and vitamin requirements

Small portion of colored but **unsweetened jello** for each student

Procedures

1. Each student group solves the **Popeye** puzzle, except for the missing piece.
2. The students have to look for the missing piece among the other student groups' extra pieces.
3. When all the groups have completed their assigned puzzles, they signal that they are ready to continue.
4. The students describe their completed puzzle. What color is the missing part? Green.

Getting the Idea

Tell the students that each puzzle represents some food that the body needs to work, play or to stay healthy. The missing piece is what we might call a **mineral** or a **vitamin**. Minerals and vitamins are not food like meat, bread or fruit, but they are substances that the body needs to make the cells their best.

1. What do you suppose a body cell has to do if it needs a mineral or a vitamin to do its job? Yes, it has to look for it. But if it can't find it, then what do you suppose happens? It doesn't do it; it takes it from some other part of the body; or it **does without it**.
2. Let's take a rest, now, and eat our jello snack. What? You don't like it? Why? Yes, sometimes substitutes will not work. We really don't need the sugar in the jello, but it just didn't do the job as a snack.
3. That's what happens to food when it is missing vitamins and minerals. It can't do the job just right.
4. How will you know when you are getting all the vitamins and minerals you need? Yes, when you get a balanced diet.
5. Let's look at this list of vitamins and minerals written on this box of cereal.
6. One of the minerals we need is **IRON**. That is why **Popeye** likes spinach. That's how he gets his iron to fight against Bluto.

▲ ACTIVITY *Water Is Important*

Objective

The student says that water is important and that people need to drink at least eight glasses of water daily to maintain good health.

Materials

Chart; magazines; scissors; celery stalks or carnations; jar with lid that seals the jar; several jars of same size

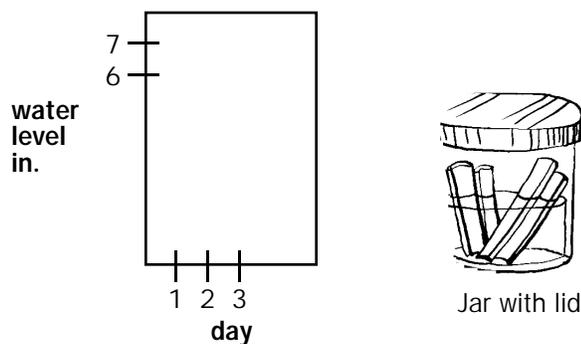
Water - Use Chart

Procedures

1. Students find magazine pictures of water in daily use.
2. They divide the pictures into three groups: water used for work, for food and for play.
3. They glue the pictures on the chart.
4. The students make a list and count the number of different ways they used water on the previous day.
5. They graph their responses on a chart or in their journals. From the chart they determine the most frequent use of water.

Celery Stalks (or carnations) in Water

1. Place several stalks of celery in a jar of colored water and observe for a couple of days.
2. Place the celery stalks **completely** inside the jar and seal the jar with a lid; mark with tape the water level at the time the celery is placed in the jar.
3. The students measure and record how much water the celery absorbed on a daily basis.



Teacher Demonstration

To demonstrate the amount of water contained in different plants and animals, fill various jars with different amounts of water. Ask students to pretend that each jar is a person, a plant or animal (a picture could be drawn on the glass.) Fill the glasses to illustrate the approximate percent of the organism that is water. A person is 65% — others: mouse 65%, elephant 70%, potato 80%, tomato 95%.

▲ ACTIVITY
Water for Health

Objective

The student says that eight glasses of water are a daily health requirement and can give equivalent amounts in containers of different sizes.

Materials

A pitcher, for easy pouring, filled with eight glasses of water; mark the water level
Cups and glasses of various sizes and shapes
Poster board

Procedure

1. Fill a pitcher with the recommended daily intake of water, eight glasses, and place in the center.
2. Then fill different size glasses or cups from the original, large, marked container.
3. Students count how many of each size glass of water they would have to drink in order to meet the recommended daily intake of water.
4. Make a chart matching a particular glass with the number of glassfuls it takes to meet the daily requirement.

If you use:	How many?
	9
	2
	3
	5

ACTIVITY *Health Food Store*

Objective

The students play store; they buy and sell priced items, give and count change; they sell liquids and measure them as cups, pints and quarts.

Materials

Washed and dried food containers of items: margarine, yogurt, milk; box containers of salt, oatmeal, fruit, vegetables; bread, tortillas, crackers; empty and clean containers of soap, toothpaste, toothbrushes; combs and other hygiene items

Large cardboard boxes to make the store; other smaller boxes to serve as a cash register

Procedures

The children, playing in pairs

1. construct a store with large cardboard boxes and place items (may be plastic models of fruit, bread, health products, liquids to represent milk or juice, etc.) to buy and sell in the store
2. price and label the items with numbers within their range of skills
3. make a cash box to keep the money in (paper or plastic models) that belongs to the store
4. take turns being the storekeeper or customer
5. buy several (two to four) items at a time
6. calculate the sum and give change
7. check the transaction
8. measure out requested amounts of liquid, such as pints, quarts, etc.

This center remains up for several days (weeks) until all students have an opportunity to play both roles several times.

ACTIVITY *Chewing Gum Math*

Objective

Student say that some foods have more sugar than is necessary for good health.

Materials

Piece of gum for each student
Sheet of paper to record observations
Poster board to graph results
Pan balance
Objects to balance the pan

Procedures

In each student group:

1. Students discuss the sight, smell and feel of the gum.
2. Students measure the length, width and thickness of the piece of gum.
3. Students place each piece of gum on the balance and mass it **while it is still in the wrapper**. Make the pan balance using various objects. The students record what they used to make the pan balance.
4. Each student chews his/her piece of gum for approximately 1½ minutes, and **saves the wrapper**.
5. Students discuss what is happening to the gum — it is getting soft; it is mixing with saliva; it's losing its sugar taste, etc.
6. Students put the gum back in its **original** wrapper and balance the pan again, recording what they used the second time.
7. Students discuss why they weighed the gum wrapper with the gum both times.
8. Students describe all the changes they see (using sight, smell and touch) and record them.
9. Students discuss reasons why the sum lost weight. (The sugar dissolved in their mouths and they swallowed it.)
10. Is all of the sugar we eat in candy, gum and other sweets necessary for the body to be healthy? Students discuss.

¹**Weighing the chewing gum:** Use a pan balance that students can practice balancing before massing the gum. They can use different materials to get the balance into balance, for example, the unit cubes, counters or any other like materials available in the classroom.

LESSON

4

R - S - R for Good Health

BIG IDEAS During periods of rest, sleep and relaxation, body functions slow down for the body to regain energy and remove body wastes; we can measure these changes.

Whole Group Work**Materials**

Book: **Tony's Hard Work Day** by A. Arkin.

Charts to make web

Matches

Unit 1: The Human Body to relate to concepts of good health

Encountering the Idea

Read the book, **Tony's Hard Work Day**. Was Tony tired after all that hard work? What did he do? What happens after you exercise a lot? (You get tired, you need to rest, etc.) Why do we get tired at the end of the day, or after we exercise? After you exercise a lot, do your muscles ache? What happens to the body as we do our daily chores?

Remember what we learned about the cells in our body in the unit on the Human Body? Each cell uses energy, and as it uses energy to perform its function, its job, what does it produce? (Wastes.) What does the body do with these wastes? (Removes them.) Look, as I burn this match, it produces what? (Heat, light.) Yes and what else? Yes, ashes. These ashes must be removed. In like ways, the body must get rid of its wastes. In our **Writing Center**, we will list the different wastes the body creates and then list the ways the body removes them. In the following activities, we will discover why we need to rest.

Exploring the Idea

Do **The Body Needs Rest** Activity.

To introduce the activity, students describe how they feel when they are tired. Ask: How do your eyes feel when you are tired? Do you have a lot of energy? Let's make a web about how we feel when we are tired.



At the **Mathematics Center**, students complete **Activity** — Heart and Lungs.

Getting the Idea

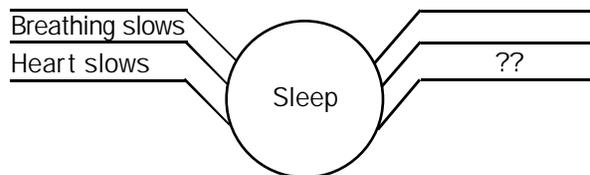
In the activities we completed, we learned that the body needs to rest in order to do some very important things. We learned that the body

1. makes new cells every day,
2. gets rid of body wastes, and
3. brings food to the cells.

That means that the body needs time to do all these things. It needs to slow down. Does the heart ever stop beating? Does your brain ever stop thinking? Does your blood ever stop flowing through your body? No, all of these things have to continue. Rest and sleep are very important for staying healthy. When the body sleeps, the heartbeat and breathing slow down.

Do **The Body Needs Sleep** Activity as shown below.

This slowing down of the body's activities allows the body to build up a new energy supply. Children need more energy than adults because children are growing. Everyone has different needs for sleep, but most children need about 11 hours of sleep each night. The body tells us if the amount of sleep is not enough by feeling tired. During a rest period, people slow down. They are awake but not active or moving. Rest helps the body gain new energy.

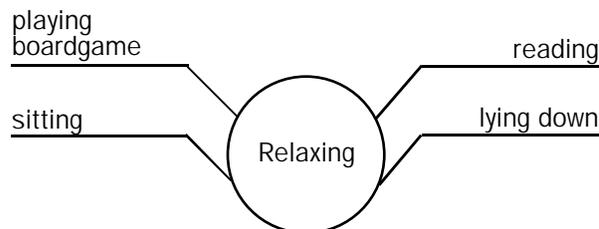


What Happens When We Sleep

Do **The Body Needs to Relax** Activity

Children pantomime relaxing, resting and sleeping and strenuous activities to notice the differences in how their bodies feel.

Students list relaxing activities.



Organizing the Idea

Students make a chart listing the differences in heartbeat and breathing rates when engaged in strenuous activity, during stages of rest and during sleep.

Discuss differences between rest, relaxation and sleep.

In the **Writing Center**, the students list the different ways the body removes waste. (This can be a review of **Unit 1: The Human Body**.)

1. Students list or make a chart of the different ways the body removes waste products: the lungs get rid of carbon dioxide; the skin gets rid of salts, acids

and oils; the intestines get rid of unused products of digestion; the kidneys get rid of waste in liquids, etc.

2. Students illustrate or dictate things related to: When I'm tired I, but when I'm rested, I

Applying the Idea

Students keep a diary for at least one week observing the time spent and types of activities done during the day when they rest, relax or sleep and the number of hours they sleep. How many hours of sleep do they get every night?

Closure and Assessment

Read **Tony's Hard Work Day** again. The students list all the things Tony did that used up his energy, and then all the things he did to regain his energy.

List of Activities for this Lesson

- ▲ Heart and Lungs

▲ ACTIVITY *Heart and Lungs*

Objective

The student describes the differences in heart and lung functions during periods of body activity and rest.

Materials

Watch with a second hand to count to one minute

Chart to record observations

Procedures

Students, working in pairs or small groups

1. run in place for one to two minutes
2. measure and record their heart rates and the number of breaths per minute
3. describe and record how they feel after running in place; for example, do their muscles ache? Do they run out of breath? Do they want to drink water? Are they hot?
4. after running in place, go to a quiet place to read or do some other quiet activity for at least five minutes
5. measure and record their heartbeat rates and their breathing rates again
6. compare the rates and describe and record how they feel after a period of rest
7. take a survey to see whose heartbeat was the fastest, and who breathed the fastest
8. survey the information to see which heart rate and which breathing rate were the most common.

Rest and Run Activity

Activity	Heartbeats per minute	Breaths per minute	How I Feel
Running			
Resting			

Organizing the Idea

The students use this table to write in their journals about the differences in body functions during rest and during heavy activity.

LESSON

5

Our Friends — the Suds

BIG IDEAS Frequent washing and bathing remove bacteria that cause illness. Numbers, like bacteria, can grow very fast using multiplication.

Whole Group Work**Materials**

Book: **I Hate to Take a Bath** by J. Barrett

White clean towel

Different, colored pictures of bacteria

Frame sentence: I hate to take a bath because ...

Large Band-aid for each student

Word tags: bacteria, wash, dirt, disease, illness, clean

Encountering the Idea

Read the book **I Hate to Take a Bath**. Point out the pattern of writing in the book to the students: I hate to take a bath because ... , but if I have to take a bath ... Let's keep these ideas in mind while we have this demonstration.

The teacher holds up her hands and asks students whether her hands are clean. The students identify classroom items that appear to be clean. The teacher rubs and touches each of these items. Then she cleans her hands on a wet white towel to show that although things appear to be clean, they are not. Students try the same procedure. They discuss what makes things dirty.

Exploring the Idea

At the **Science Center**, students

1. begin **Activity** — But My Hands Are Clean!
2. investigate the reason for placing clean bandages on wounds. The students wash their hands and pretend to have a wound. They cover the area with a clean bandage and wear the bandage throughout the day.

At the **Mathematics Center**, students

1. participate in **Activity** — Achoo!
2. participate in **Activity** — Bacteria Fighter
3. complete **Activity** — Bacteria Grow Fast
4. complete **Activity** — Soap and Math.

Getting the Idea

Show pictures of bacteria and explain that they are very small and we can't see them except through a microscope. Bacteria need food in order to grow. They grow on many things, but they can also grow inside our bodies. They grow in our mouths, in our nose, between our teeth, under our fingernails, in our hair and in our ears. We need to keep all of our body clean to keep bacteria from growing on it. Bacteria are a cause of illness. Keeping clean and getting vaccinations (shots) help protect against illness.

In our activity in the **Mathematics Center**, we needed to use numbers to count the bacteria as they grow by separating. Each single organism can separate itself into two. We count the number of cells there are after each separation. We can also add them using the same number in repeated addition. These numbers become large very fast.

Ask students to observe a mark on the teacher's palm before and after washing hands in soap and water. Explain that people can see the mark and decide that the hands need to be washed. Bacteria are very small, and we cannot see them. Dirt and other marks are signs that there may be bacteria on the hands and that the hands should be washed.

Discuss the experiment with the peeled potato as the students make their daily observations of the two potatoes. Mold spores easily transfer from the hands to the potato. They will multiply quickly. After a few days, mold is likely to form on the potato that the teacher peeled with unwashed hands. Little or no growth will be noted on the potato that the teacher peeled after scrubbing the hands. Point out that the jars were clean before the experiments.

Daily observations, particularly after the mold begins rapid growth, help students realize the importance of washing their hands before handling food. Use a magnifying glass for students to observe what the mold looks like. Remind students that although the hands may have looked clean before the teacher peeled the first potato, they were not.

At the end of the day the students remove the bandage on the imaginary wound and compare the covered skin with the area around it. Students discuss how a bandage protects a wound from bacteria that cause infection and disease.

At the **Writing Center**, the students

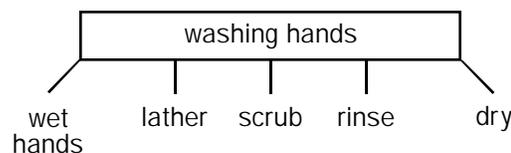
1. play hang-man using the unit's vocabulary
2. complete writing the frame sentence: I hate to take a bath because

Organizing the Idea

1. **Washing Our Hands** Activity.

Students brainstorm things they do when they wash their hands. Map their contributions on a chalkboard. Students list their actions of washing their hands in order.

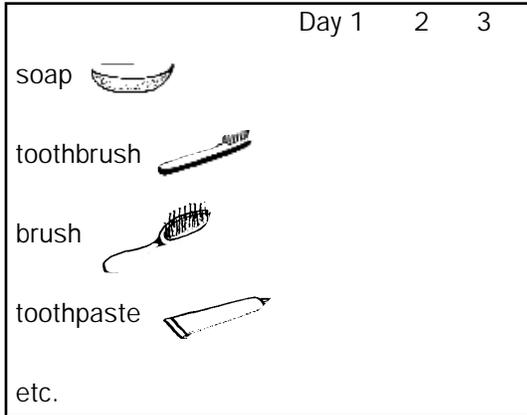
First, I wet my hands. Second (or next) I use soap to get a lather, etc.



Review the concept map with the students and encourage them to give complete sentences that you will write on sentence strips. Using a pocket chart, the children put the sentence strips in order. After students are in agreement that the sentences are in correct sequential order, students read sentences aloud.

2. **Our Personal Hygiene** Activity.

Brainstorm and list items needed for personal hygiene: soap, towel, washcloth, hairbrush, toothbrush, toothpaste, shampoo, and comb. The students keep a log for one week indicating the use of each of their personal hygiene items.



Closure and Assessment

Students conclude the lesson by completing the following activity. Materials needed:

- teacher-made diagram
- 24 x 24 in. paper (butcher paper) for each student
- meter stick or yardstick
- marking pens, pencils, crayons
- box containing soap, towel, washcloth, toothbrush, comb, toothpaste, shampoo and hairbrush.

Materials preparation:

1. Trace a student's hands and bare feet with a black marking pen or pencil on a 24 x 24 in. piece of paper. Use a red marking pen and a meter stick or yardstick to draw a line to connect the hands, connecting a thumb to a thumb, or two other corresponding parts. Use a blue marking pen to draw a line to connect the feet, connecting heel to heel, etc. Use a green marking pen to draw a line across the width of one hand and one foot.
2. Additional lines may be drawn for students to measure, such as a line connecting the right hand and right foot or the left hand and right foot, or they can measure the length of a ring finger and the length of a little finger.
3. First the students estimate and then measure each of the items in the personal hygiene activity for length. Using one-inch square tiles they estimate and then measure the area of the towels and the washcloths.

List of Activities for this Lesson

- ▲ But My Hands Are Clean!
- ▲ Achoo!
- ▲ Bacteria Fighter
- ▲ Bacteria Grow Fast
- ▲ Soap and Math

ACTIVITY *But My Hands Are Clean!*

Objective

The student says that although hands look clean, they may carry bacteria and other organisms that cause illness.

Materials

Two jars with tight lids; the jars should be thoroughly cleaned

Gummed labels

Potato peeler

Soap and towel

Procedures

1. Label one jar: **Not Washed**; label the other jar: **Washed**.
2. Without washing her hands, the teacher peels a potato and puts it in one of two jars, labeling the jar with the **Not Washed** label. She points out to the students that her hands look clean.
3. Scrub the hands well, using soap. Wash the second potato and the potato peeler also. The teacher points out to the students that not only did she wash the potato, but she also cleaned her hands and the peeler. Peel the second potato and put it in the other jar. Label it: **Washed**.
4. Seal both jars tightly with their lids; place the two jars in a warm place where students can observe them but not touch them for several days.
5. Without removing the lids on the jars, examine the two potatoes daily. Compare them.
6. Are there any changes in the potatoes? The students draw and date pictures of how the potatoes look.
7. The students write a description of the changes and draw a picture of what the growth on the potato looks like. They sequence the pictures as the growth becomes larger.

Discussion

In this activity, the students observe that even though hands may “look” clean, they may not be. They do this by peeling a potato to see if bacteria can grow on it. Someone whose hands appear to be clean but have not been washed for several hours should do the potato peeling. Mold spores can transfer from the hands to the potato during the peeling process. The spores multiply quickly, and students can see that the spores spread.

Students can describe the growth of the mold by comparing the area of the growth to different coins, such as dimes or pennies, or to small buttons, etc.

ACTIVITY *Achoo!*

Objective

The students practice addition and subtraction.

Materials

Poster board marked in sequential squares

Laminated, printed 3x5 cards listing poor and good health practices

Numbered cubes

Procedures

1. Draw a path on a poster board and mark off spaces every inch.
2. On a few of the spaces write **Achoo!**
3. Students make game cards by laminating 3x5 cards that have written on them either a good health practice — brush teeth every day — or a poor health practice — forget to wash hands before eating.
4. Each student rolls a pair of numbered cubes and moves the total number of spaces shown on the cubes. If a person lands on “**Achoo!**” he/she must take a game card. If the card shows a good health practice, the player moves forward two spaces. If it lists a poor health practice, the player moves backward two spaces.
5. The game can vary by the students subtracting the smaller number from the greater number on the cubes and moving that number of spaces.

ACTIVITY *Bacteria Fighter*

Objective

The student says that the body protects itself from harmful bacteria as the body's white cells eat the harmful bacteria.

Materials

Clothespins (one for each player)

Green paint or marker

Stick-on novelty eyes (optional)

Scissors

Cardboard from corrugated boxes or other heavy cardboard

Construction paper of different colors

Procedures

1. Paint clothespins green and allow them to dry before playing the game.
2. Paint eyes on the top of the clothes pins or attach stick-on novelty eyes.
3. Cut circles, triangles, squares and rectangles out of cardboard.
4. Put the shapes in a pile in the middle of a table.
5. Draw "bacteria" on these shapes.

Rules: The students play in pairs; the teacher may want to demonstrate the first round.

1. The bacteria fighters like to eat bacteria shapes (demonstrate pinching the clothespin so its "mouth" opens).
2. One student tells the other student's bacteria fighter which shape to eat, and then the second tells the first student's bacteria fighter which shape to eat. For example: There's a big circle that looks good to eat. Can your bacteria fighter eat a circle?
3. The child (the clothespin) "eats" a circle and gets a turn to tell the other student's bacteria fighter which shape to eat.
4. Place shapes that are eaten in a pile until the original pile is eaten up. If the child's bacteria fighter eats the wrong shape, the partner holds up the correct shape. If there is a difference of opinion, students ask the teacher to intervene.

ACTIVITY *Bacteria Grow Fast*

Objective

The student says that, like bacteria, numbers become large very fast when we use multiplication.

Materials

Pound of beans; watch with a second hand

Procedures

In a whole group activity, the students place one bean for every bean they get, to demonstrate that bacteria grow very fast by dividing into two.

1. The teacher keeps time and says GO every two or three seconds, but the number of seconds must be consistent.
2. One student begins with one bean, which represents a single bacteria. When the teacher says GO, the student places one bean under the first one to show that the first bean divided. The student now has two beans.
3. When the teacher says GO again, the student places one bean under each of the beans she/he has. Now there are four beans.
4. The teacher says GO. The student places one bean under each of the beans and now has eight.
5. After every two seconds the teacher says GO, and the student adds more beans. The student may ask other students for help to keep up with the two-second intervals.
6. After six trials, the teacher stops and asks the students to count the beans.
7. The students decide how to count them. They may want to group by fives or by 10s.
8. The students make a chart showing the sequence of the number of beans after each time the teacher said GO. They may want to repeat the exercise at a slower pace to count the beans every time before proceeding.

Sequence: **1, 2, 4, 8, 16, 32, 64, 128**

Discussion

1. Ask students if they have ever gotten up in the morning with “bad breath”? What caused the bad breath? Yes, bacteria that have grown in the mouth overnight. That means bacteria have been growing very quickly and separating.
2. This is one example of multiplication. Another way of thinking of multiplication is to think of repeated addition. For example:
 $1 + 1 = 2$, then $2 + 2 = 4$, then $4 + 4 = 8$, then
 $8 + 8 = 16$, and so on with **32**, then **64**, and then **128**.
3. What can we do to prevent bacteria from growing in our mouth at night? (Brush teeth.) Why? Show what would happen if you had started with 4 beans in this activity. How many would you have after the “bacteria” separated five times?
4. Do bacteria grow in your mouth during the day? What can we do about it? (Brush our teeth after we eat, whenever we can.)

ACTIVITY *Soap and Math*

Objective

The students practice making subtraction sentences with numbers written on cards.

Materials

Two feet of string

Magnet powerful enough to pick up two paper clips and two index cards

10 paper clips

Shoe box or small container

13 3 x 5 index cards

Felt tip pen

Construction paper of different colors

Drawing of a hand on construction paper

Small, straight stick (or dowel rod) to serve as a fishing pole

Procedures

1. On 11 of the index cards, print numbers 0 through 10. (The cards can have numbers greater than 10 written on them, if appropriate, depending on the students' prior experiences.) Make a "minus" sign on another card and an "equals" sign on the last.
2. Spread all the cards out on the floor.
3. Tie one end of the string around the magnet and the other around the stick to make a fishing pole. Glue the handprint on the magnet.
4. Using construction paper, make a drawing of a bar of soap for each paper clip. The student counts the paper clips and puts one on each construction paper picture of a soap bar.
5. Put the soap bars in the shoe box.
6. Put the box on the seat of a chair and cover the chair back with a towel.
7. Position a student behind the chair and let him/her dangle the fishing pole so that the magnet is in the box.
8. Each student "catches" two bars of soap and constructs a subtraction statement using the "minus" and "equals" cards. Students take turns fishing and making subtraction sentences.

LESSON

6

Exercise Is for Life

BIG IDEAS Proper exercise helps the body maintain its good health and good looks. Keeping a chart helps us develop good exercise habits.

Whole Group Work**Materials**

Book: **The Sand Lot** by M.B. Christian

A rusted hinge, pair of pliers, or some other unused object that will creak when moved; an old battery; other discarded objects, covered with dust, etc., that have not been kept in good repair

Machine oil

Word tags: exercise

Encountering the Idea

Look at this hinge. What do you hear when I move it? It squeaks. Why? (Rust, hasn't been used; can't be used, etc.) I'm going to put some oil on it and move it slowly back and forth. Now, do you still hear it? Can it work now? Look at these pliers. They're covered with dust and rusted. Do you think they are still useful? What would we have to do with them to get them into good shape?

In our last unit we said that many of the parts of our body work like machines. Our heart is like a pump; our lungs exchange air; our kidneys remove wastes. Do you think our body could become like the rusty hinge? Let's explore how this could be.

Exploring the Idea

Students run in place for 30 seconds. They return to their seats. Did this activity make your body work hard? Was it fun? How do you feel? In a few minutes, you are going to your Physical Education class. What do you do in that class?

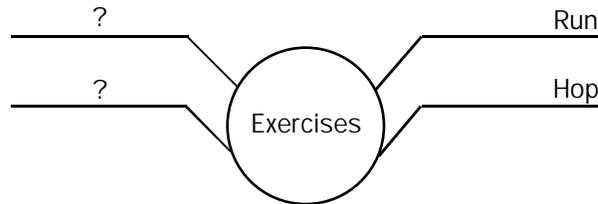
First, you exercise. Which exercises do you do? Jumping Jacks, Touch your Toes, Windmills, etc. Are those fun? No? They're boring? Okay, after you exercise, what do you do? You get to play. What have you been playing?

Softball, kickball, etc. Are those fun? Yes, you like games, but you don't like the exercises as much as the games. Well, today we'll discover that there are many ways to keep your body from becoming rusty and creaky like the hinge and the pliers, and you can **still have fun**.

Getting the Idea

Read the book **The Sand Lot**. Discuss the ideas of what "exercise" really is. Can it be fun? Does it have to be like work? Show the word tag **exercise**. Exercise is **any activity** that makes the body work hard. A person must exercise on a regular basis in order to become and stay physically healthy.

Many of our body parts are designed for movement, such as hands, feet, arms. What are some other part that have to move? (Fingers, heart, lungs.) Regular exercise is necessary to keep these parts in good health. Regular exercise makes the heartbeat strong and efficient. A strong heart pumps more blood with each beat than a weak heart. We also need strong lungs. Exercise makes the lungs bring in more oxygen than without exercise.



Recreation can be a fun way to exercise. When we play games that make us run, hop or move around in any way, we are exercising. Let's name some fun ways to exercise. As the students name some games, the teacher lists them on the chalkboard for use in the **Writing Center**. Students brainstorm about how we use water for recreation. Are we exercising when we swim? How do you know? Yes, you get tired and you breathe faster and your heart beats faster. Write down these ideas also.

We need to exercise on a regular basis. Suggest one way to know if we are getting enough exercise every day. We can write down the days we exercise and how long, how much time, we exercise. We will decide how we want to organize this information and use it at the **Mathematics Center**.

Organizing the Idea

1. Students draw types of recreation and compare their preferences using a pictograph. Divide students into groups that prefer different types of recreation.
2. At the **Mathematics Center**, the students design a chart to help them organize information on how often and how much they exercise each day.

Applying the Idea

Working in teams the students select a part of the body that they need to exercise and design an exercise or a game to keep that part of the body fit: hands, feet, arms, fingers, heart, lungs, neck, face, etc.

Closure and Assessment

1. Invite the school nurse to talk to the class about routine examinations conducted at school (hearing, sight, vision, etc.), treatment of school-related injuries and the instruments the nurse uses for these purposes. During the nurse's visit, the students make a list of what parts of the body the nurse examines in the routine examinations and/or a list of the treatment of school-related injuries.
2. Students use the chart to record when and how much they exercise for at least one week. The students discuss the need for proper exercise with the school nurse.

LESSON
7

Practicing Safety Helps Our Health

BIG IDEAS Avoiding illness and preventing injury are important for our health. Charts summarize information so that we can use it.

Whole Group Work

Materials

Book: **Here Comes Kate!** by J. Carlson.

Rinsed and sealed containers of safe and unsafe products

Word tags: drugs, medicines, prescription, prescribe, prevention, accident, pharmacist, allergy, vaccination, summarize

Encountering the Idea

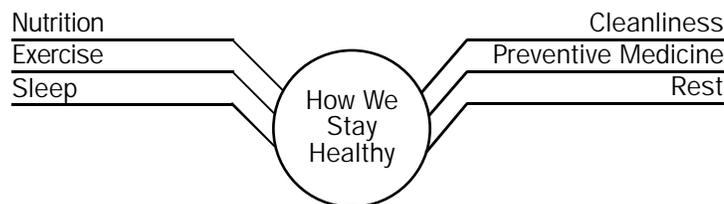
Read the book **Here Comes Kate!** Why did Kate have to be careful? Yes, she could have hurt someone badly. She could also have hurt herself. We know good health is very important. We have learned that there are many things that help us have good health. Let's name some. Students list: We need to eat the proper food; we need to take vitamins and drink plenty of water. We need to rest, and we need to be clean. But, there is something else. We have to **take care of our health** by trying not to get sick and by preventing accidents.

Exploring the Idea

Prevention of Illness

In a whole-group activity the students brainstorm ideas for ways to prevent illness and disease. As the children list effective health habits, they make a web that they can use later in the **Writing Center**.

Students name a good health habit and why they consider it a good habit.



One way of preventing illness, as we mentioned, is by enjoying good nutrition. Proper nutrition can include many good things to eat.

At the **Mathematics Center**, the students complete the **Activity** — Almond Cookie Factory, modified so that students group by some other number than five or 7. See **Activity** — Almond Cookie Factory in **Lesson 1**.

Practicing Safety at Home

Do Poisonous Things at Home Activity.

Students make a list of poisonous items they may find at home, i.e., Clorox, insect spray, etc. The students take the list home and take a survey of the poisonous items they found in their homes. If they find others at home that they have not listed, they add them to the list. Then the class accumulates the data brought in by all the members of the class. They summarize it in a pictograph charting the poisonous materials most frequently used at home.

Do Unsafe Substances in Familiar Containers — Activity.

1. Display rinsed and sealed containers of safe and unsafe products.
2. Name each product; students group each according to whether it is safe or unsafe.
3. Sometimes poisons are stored in familiar containers, such as milk cartons.
4. Emphasize that we should ask an adult about the safety of all unfamiliar substances.
5. Make labels for poisons with the word **poison** on each label.
6. Students take labels home and put them on containers that contain poison. They may have a family member help them at home.

Do Safe Ways to Play at Home Activity.

Students draw or write about safe ways to play when they are home. (They should clean up toys after playing to prevent accidents.) Students list things in their homes that they should not touch. (Guns, whether loaded or not, stove, medicines, tools, cleaners, iron, any plastic wrappers they can try to put over their heads, etc.)

Safety Test

Students take a Safety Pretest. Describe a situation to the students. They answer by saying whether it is hazardous or not hazardous. Students discuss each situation telling how to correct the dangerous situations, i.e., newspaper near the fireplace, heater or stove; children playing by the stove; slippery carpets; open staircases; open windows in upper stories of apartment houses; exposed electrical wires; unprotected electrical outlets; iron resting on top of the ironing table, etc. Discuss until all situations are covered.

Say NO! to Drugs

A drug is something other than food, water or air that can change the way the body works. Some drugs may be helpful such as those in medicines that make people feel better when they are ill. But, **even these medicines may be harmful if we don't use them correctly.**

Drugs also appear in products other than medicines. Household products such as paint thinner, airplane glue, rubber cement, insect sprays, and oven cleaners contain drugs that can be **very harmful if we use them on the body.** None of these products should be used inside our bodies.

At the **Art Center**, the students select one or two of the dangerous situations and depict how they would correct the situation.

Getting the Idea

Introduce vocabulary such as “drugs”, “medicines” and “prescription” in a discussion. Students name some medicines that are for a specific illness. Discuss with the students the difference between a drug and a medicine. Discuss the idea that only doctors can prescribe some medicines, and why. Discuss the idea that even though a pharmacist has studied and knows about medicines, the pharmacist cannot **prescribe** certain drugs — only doctors.

Let’s look at the pictograph we made that summarizes the information about the different harmful products we find at home. What do we mean when we say that the chart “summarizes” the information we collected? Look at the word “summarize”. What word do you find in it that we use in mathematics? Yes, the word “sum”. What is a sum? A total; it means putting all our information together. Instead of saying what each person found in their homes, we put all the information together so that we can look at it to see which of the poisonous products are the ones that we are most likely to find in our homes. This is information that tells us about all the homes represented in this classroom and not just about one home at a time.

Which products did we find to be the most used in our homes? Now that we have that information, what can we do with it? The students make suggestions that the teacher writes on the chalkboard for the students to use in their writing.

Organizing the Idea

Students make a list of products containing drugs, which includes products that contain caffeine, alcohol and nicotine. Students cut out pictures from magazines and categorize them into two groups.

Harmful-dañino cigarette-cigarro	Helpful—útil aspirin-aspirina
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The students go to the school cafeteria. The cafeteria manager talks to the students about how the cafeteria workers keep bacteria from spreading to food.

At the **Writing Center**, the students

- select one or two of the health practices listed in the health web and write a paragraph on each stating why these are effective health practices
- write and draw in their journals at least three ways to prevent disease
- write and draw in their journals at least three ways they can use the information summarized on the pictograph showing the most-used poisonous products that they found in their homes
- make an illustrated booklet entitled **Protect Yourself From Illness**. Students include information about how we can prevent bacteria from spreading, how vaccinations (shots) can help people stay well and how people can take care of their bodies. They can make the booklet into a class Big Book.

Applying the Idea

1. **Problem Solving:** Your friend has been sick with a cough. He went to the doctor, and the doctor gave him a prescription for a medicine that made him well. The next day you begin to feel sick and have a cough. Should you or shouldn’t

you take some of your friend's medicine to make you well? Explain the reasons for your answer. (You should **never** take someone else's prescribed medicine. Only the doctor knows what a person's illness is and what medicine will be effective for that person. Sometimes people are allergic to some kinds of medicines. The doctor would know what to prescribe for you knowing what your illness is.)

2. Students make a **PERSONAL HEALTH CHART** that they will keep for the duration of the school year. On a weekly basis they record their general health, whether they have been ill or had an accident, whether they have been to see the doctor, nurse, dentist, etc.

Closure and Assessment

Written Assessment

1. What is a drug?
2. What are some products that contain drugs?
3. What is a prescription?
4. Why are children not permitted to buy beer, wine, liquor and tobacco products?

Performance Assessment

Reread the story **Here Comes Kate!** Using the story to develop ideas, the students write about and illustrate at least three things they might do to be safe at home, at school and at play.

List of Activities for this Lesson

- ▲ Almond Cookie Factory (from Lesson 1)

LESSON

8

The Health Professions

BIG IDEAS Some of the most important professionals in our community are the people who help us maintain our health. Each of these professions requires knowledge of science and mathematics.

Whole Group Work**Materials**

Books: **Farley Goes to the Doctor** by E.P. Kingsley and **Five Little Monkeys Jumping on the Bed** by E. Chislelow

Medical instruments (play, if real ones are not available) used by physicians, dentists, ophthalmologists

Various reference books on the medical and health care professions; pamphlets from a local health department describing these professions

Word tags: profession, nurse, dentist, medical, instruments, doctor, technician

Encountering the Idea

Read **Farley Goes to the Doctor** or **Five Little Monkeys Jumping on the Bed**. Ask students who has gone to the doctor. The students take turns describing their visits, the doctor or nurse, the medicines they have had to take, whether they like them or not and so on.

Ask students if they have gone to the doctor not because they are ill, but because they need a **checkup**. What is a checkup? Do babies get regular checkups? Why? Yes, the parent and the doctor need to know that as the baby grows there is nothing going wrong, there is no sign of illness. The parent needs to know if the baby is gaining weight and developing its body normally.

Has any one of you gone for a checkup? You went to the doctor? Good. Oh, you went to the dentist? Who has gone to see an eye doctor? It's always a good idea to find out if you need glasses. Many of us sometimes don't want to go to the doctor or the dentist, or to get glasses if we need them. In this lesson we are going to find out that the people, the professionals, who help us take care of our health are some of the most important people in our community.

All of us have seen and heard ambulances that take people to the hospital when they become very ill or when there has been an accident and the people need immediate help. The **emergency medical service** technicians give first aid to the people who are sick or hurt and take them to the hospital. These people are very important because they have to respond to many different kinds of illnesses and take care of the people until they get to the hospital.

Exploring the Idea

In the **Science Center**, place several boxes containing medical instruments. The students sort them out. They sort them by the way they think each instrument is

used and who would use it — a doctor, a nurse, a dentist or an eye doctor. Sometimes the same tools are used for different things. The students examine the instruments. Later the students will summarize what they have learned about the instruments on a chart.

Getting the Idea

1. Students brainstorm and make a list of the different health professions they know about.
2. Using pamphlets from a local health services department to suggest ideas, students list other health professionals and describe the tasks they perform. They also try to identify what mathematics and science preparation these health professionals need.

Organizing the Idea

At the **Writing Center**:

1. The students list, describe and/or draw procedures used in examining a patient.
2. Each student selects a health profession. The students can organize into like-profession groups to share ideas to write, describe and illustrate why they picked that profession and whether they would like to study and prepare themselves to enter that profession. During the discussion the students look in books or pamphlets to identify the levels and courses in science and mathematics they need to complete to become professionals in the health care field.
3. Students complete a chart in the **Writing Center** to describe the medical instruments.

Instrument	Description (size, material, picture)	Function (what it does)	What It Measures

Applying the Idea

Invite at least two health professionals to visit the class and to describe their jobs. Select both a male nurse and a female doctor, if possible, to decrease the stereotypes of the gender of health professionals. Ask the health professional to describe the type and level of mathematics and science preparation required in various health care professions.

Closure and Assessment

1. The students write and illustrate their own version of **Five Little Monkeys Jumping on the Bed**.
2. A student group pantomimes being a health professional while the rest of the class tries to guess who it might be.
3. The student writes a paragraph using the pattern: “The most important thing about (profession) is (describe job) , because (list benefits) .”

References

Annotated Children's Books

- Allard, H. (1979). *I will not go to the market today*. New York: The Dial Press.
Fenimore B. Buttercruch meets several obstacles before he finally gets to the market to get jam for his toast and tea.
- Arkin, A., & Stevenson, J. (1972). *Tony's hard work day*. New York: Harper and Row.
Because he is little, Tony's family is reluctant to allow him to help with chores. Left with nothing to do, Tony builds a house in a day.
- Barrett, J. (1975). *I hate to take a bath*. New York: Four Winds Press.
This reviews "reasons" why baths should be taken and why baths should not be taken.
- Black, I. S. (1972). *Is this my dinner?* Chicago: Albert Whitman.
An easy reader, this story in rhyme tells of a boy looking for his dinner and discovering several kinds of food he cannot eat.
- Blas, J. W. (1987). *Old Henry*. New York: William Morrow and Company.
This is the story of how a community tries to get Henry to improve his property and fix up his house.
- Brown, M. K. (1986). *Let's go swimming with Mr. Sillypants*. New York: Crown Publishers.
This humorous tale tells of the concerns Mr. Sillypants has about learning to swim.
- Brown, M. W. (1992). *Red light, green light*. New York: Scholastic.
All day and night the traffic signal blinks its messages of stop and go.
- Burningham, J. (1978). *Time to get out of the bath, Shirley*. New York: Thomas Y. Crowell.
While her mother lectures and tidies up the bathroom, Shirley's imagination takes her off on a series of adventures.
- Caines, J. (1988). *I need a lunch box*. New York: Harper and Row.
A young boy, not yet in school, thinks of all the reasons he needs a lunch box just like his older sister does.
- Carlson, J. (1989). *Here comes Kate!* Milwaukee: Raintree Publishers.
A beginner reader, this story is about a girl in a wheelchair who eventually learns when to go fast and when to slow down.
- Christelow, E. (1989). *Five little monkeys jumping on the bed*. New York: Clarion Books.
Five little monkeys jumping on the bed fall one by one, making the doctor come in each time.
- Christian, M. B. (1978). *The sand lot*. New York: Harvey House.
This is a story of how adults tend to "over organize" children's creative nature and children's play.
- Demarest, C. L. (1991). *No peas for Nellie*. New York: Macmillan Publishing Company.
Nellie tells her parents all the unusual things she would rather eat than her peas, and while doing so she ends up eating them all.
- de Paola, T. (1975). *Strega Nona*. New York: Simon & Schuster.
An old tale, retold, and illustrated by de Paola. When Strega Nona leaves Big Anthony alone with her magic pasta pot, he gets into trouble in his determination to show the towns people how it works.
- Fassler, J. (1975). *Howie helps himself*. Chicago: Albert Whitman & Company.
This is a story of a child who is physically handicapped and wants more than anything else to be able to do things for himself.
- Hare, L. (1983). *Who needs her?* New York: Atheneum.
A Margaret K. McElderry book, this volume addresses cleanliness. Cynthia's clothes rebel against the rough treatment she gives them.
- Hitte, K., & Hayes, W. D. (1970). *Mexicali soup*. New York: Parents' Magazine Press.
Mother makes the soup just like everyone in the family wants it and finds it easy to make: "you just leave everything out of it." This text may need to be read by the teacher.
- Ivenson, G. (1979). *I want to be big*. New York: E. P. Dutton.
A young girl wants to be big but not too big.
- Kingsley, E. P., & Swanson, M. (1980). *Farley goes to the doctor*. Racine, WI: Sesame Street Golden Press Books, Western Publishing.
- Leaf, M. (1961). *Safety can be fun*. Philadelphia: Lippincott.
This takes a first look at safety and accident prevention.
- Marshall, J. (1984). *The cut-ups*. New York: Puffin Books.
Practical jokers get away with every trick until they meet Mary Frances.
- Melser, J., & Cowley, D. (1980, 1990). *The big toe*. San Diego: The Wright Group.
This folk tale about a lost big toe is adapted from one originally designed and edited by June Melser. Large illustrations and very low burden of print make this book predictable.

Morris, A. (1989). *Bread, bread, bread*. New York: Lothrop, Lee and Shepard Books.

This is a good photojournal of how bread is celebrated throughout the world. It also shows different kinds of bread.

Patent, D. H. (1990). *An apple a day*. New York: Cobblehill Books/Dutton.

This may have to be read by the teacher. It shows an overview of how apples are planted and harvested.

Zolotow, C., & di Grazia, T. (1972). *Hold my hand*. New York: Harper and Row.

Two children hold hands through bad weather.

Teacher Resources

Tolman, M. N., & Morton, J. O. (1986). *Life Science activities for grades 2-8*. West Nyack, NY: Parker Publishing Company.