Weller Health Education Center

You Are What You Eat
Nutrition and Fitness
Grades 5-8

Table of Contents

Program Objectives 2

English Activity 3-4

Math Activity 5-11

Large Group Activity 12-13

Answer kets 14

Note to Teacher 15

Connection with Home: Letter to Guardian 16-17

Program Objectives

Program Description:

Ever wonder what's *really* in the food we eat? Students make a connection between the nutrition and ingredients in the foods they love, as well as the importance of eating for energy throughout the day.

Standards:

PA 1.6.8ad,10.1.6/8c, 10.2.6b, 11.3.6cdeg
NJ 2.1.8acd

Objectives:

Upon completion of the program, students will:

1) List the principles of healthy eating as the right foods, at the right time and in the right amounts;
2) Name two risk factors associated with unhealthy eating;
3) Identify the food label as the guide to nutritional content for a given food; and
4) Recall two benefits of eating several small, healthy meals throughout the day

Terms:

calorie – measure of food energy

clot – blockage caused by plaque

depression – overwhelming and ongoing state of sadness and despair

energy – chemical needed by the body to live and move

food label – packaging on food products which includes the Nutrition Facts Panel, the guide to nutrition content

mineral – food nutrient needed in small amounts (examples: calcium, potassium, sodium)

osteoporosis – decreased bone density

plaque – build up of fat in the artery

processed foods– foods created by having things added to them such as chemicals and fats

serving size – appropriate amount of a food as recommended on the Nutrition Facts Panel

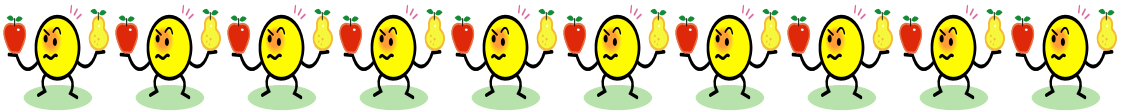
stroke – lack of blood flow in the brain

vitamin – food nutrient needed in minute amounts

Story Writing About Food.

Using folk tales that explain such quirks of animal nature as "how the lion got its roar," "how the hyena got its laugh," as a model, write a short story to explain a “quirk” about food. Some ideas are “how the raisin got its wrinkles”, “how the tomato got its color” “how the peach got its fuzz” or another quirk about any food. Be creative and think of a really fun food!

Name _____



Title: How the _____

_____

_____

_____

_____

_____

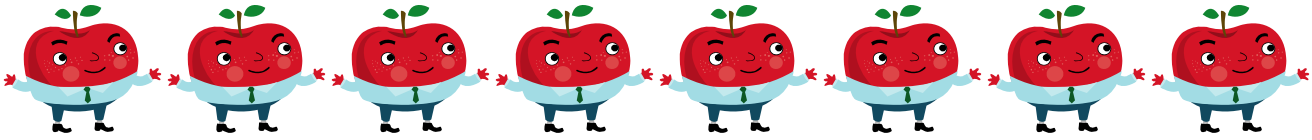
_____

_____

Rhyming riddles

Create a rhyming riddle about a favorite fruit or vegetable. For example:

I'm yellow and I'm sweet.
I'm what monkeys like to eat.
I grow in trees.
Serve me with peanut butter, please!
What am I? _____



_____

_____

_____

_____

_____

Body Math

Body Mass Index

Body mass index (BMI) is a measure of body fat based on height and weight that applies to both children and adults. Since children are still growing, the BMI is interpreted differently for children than for adults.

Body Mass Index can be calculated using pounds and inches with this equation

$$\text{BMI} = \left(\frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \right) \times 703$$

We are going to calculate the BMI for two different children and then compare. (Hint, remember, there are 12 inches in a foot.)

Calculate the BMI for person A and person B, then use the charts on the following pages (one for boys and one for girls). Find the age of the child on the bottom and their BMI number on the side and find out where they meet. Which curvy lines are they between?

Child A
Boy: Age 10
Height: 4 feet, 11 inches
Weight: 109

Answer: _____

BMI Category _____

Child B
Girl: Age 13
Height: 5 feet, 2 inches
Weight: 120

Answer: _____

BMI Category _____

BMI 1st to 4th percentile: Underweight

BMI 5th to 84th percentile: Healthy Weight

BMI 85th to 94th percentile: Overweight

BMI 94th to 100th percentile: Obese

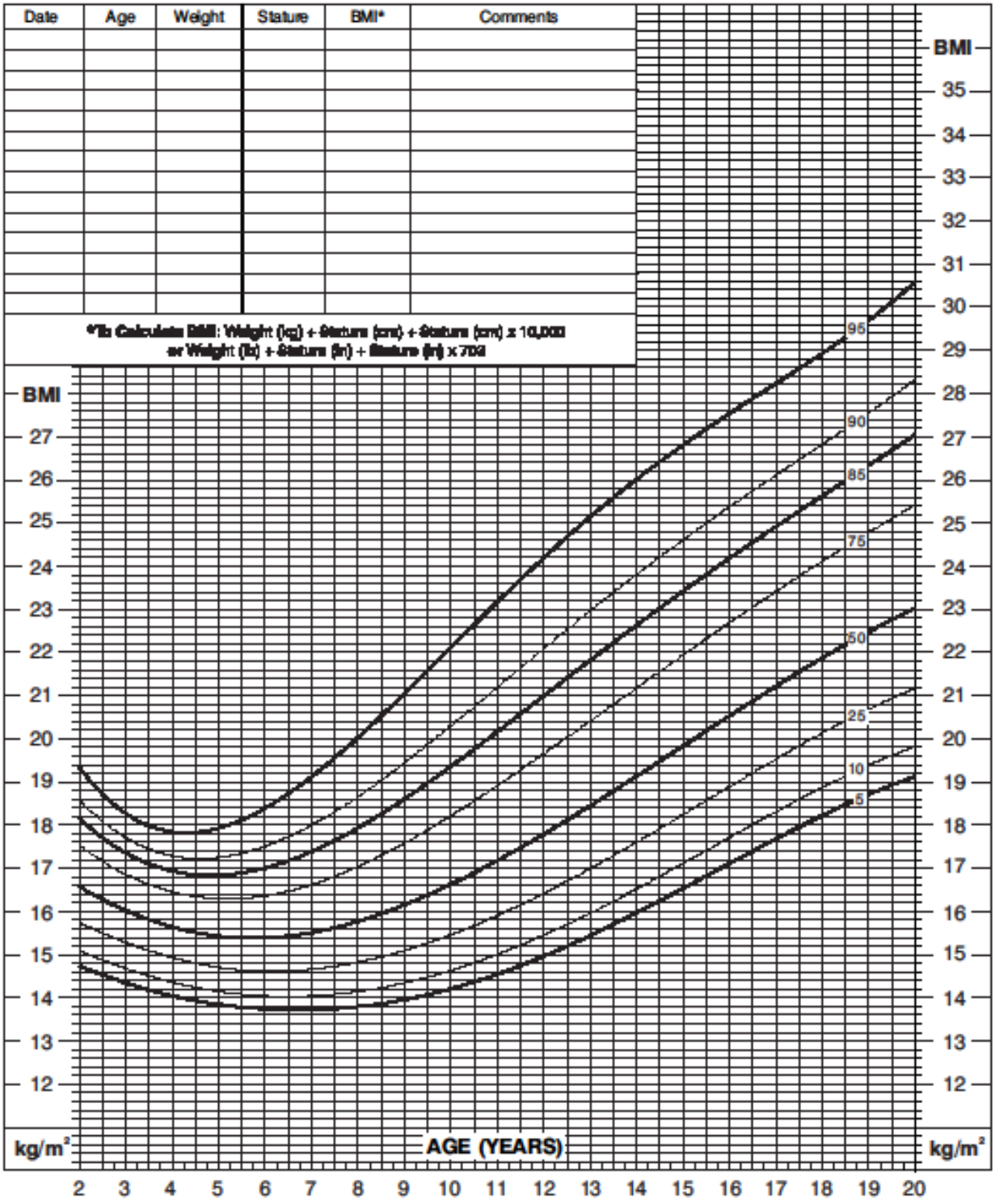
2 to 20 years: Boys
Body mass index-for-age percentiles

NAME _____

RECORD # _____

Date	Age	Weight	Stature	BMI*	Comments

*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



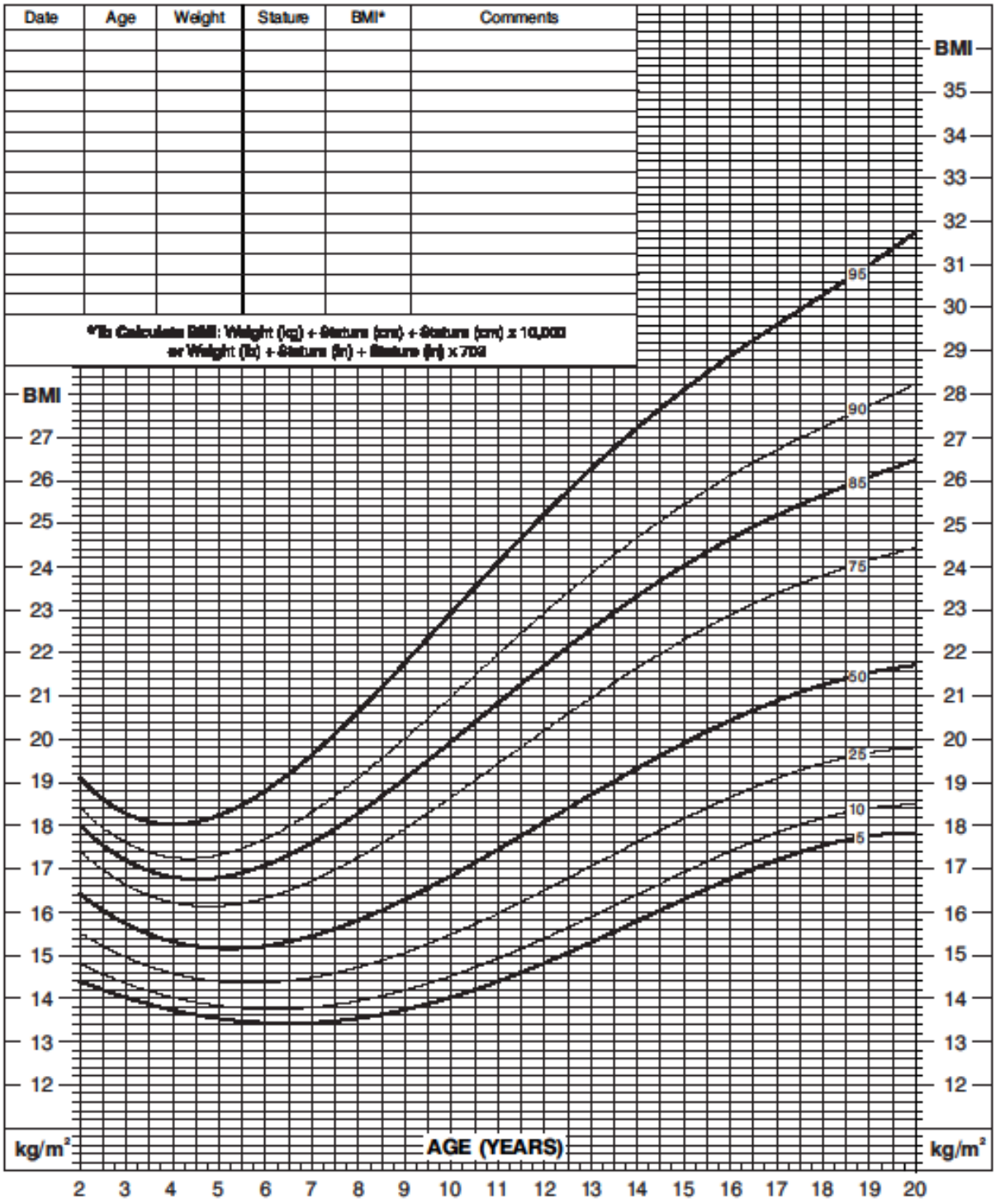
2 to 20 years: Girls
Body mass index-for-age percentiles

NAME _____

RECORD # _____

Date	Age	Weight	Stature	BMI*	Comments

*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



Basal Metabolic Rate

Basal Metabolic Rate (BMR) is the rate at which you use energy while at rest. To get a rough estimate of your BMR in calories per day:

GIRLS — EXAMPLE (100- pound girl)

1. Take you weight and add a zero. 1000
2. Add your weight to that figure. +100
3. This is your approximate BMR. 1,100 calories/day

BOYS — EXAMPLE (150-pound boy)

1. Take your weight and add a zero. 1500
2. Double your weight and add it: +300
3. This is your approximate BMR. 1,800 calories/day

Calculate your BMR here.

Answer: _____ calories/day

Adding Up Calories

Calculate the total calories for the day using the information below:

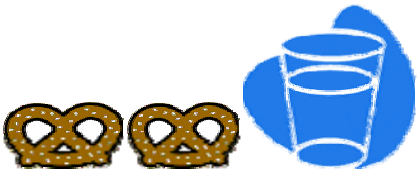
BREAKFAST

Bowl of cornflakes (2 ounces) with 1% milk (1 cup), glass of orange juice (1 cup) and a banana (medium)
Total calories= 535

LUNCH

One peanut butter (1 tbsp.) and jelly (1 tbsp.) sandwich (2 slices wheat bread), one apple (medium) and a 100% juice (1 cup)
Total calories=440

SNACK

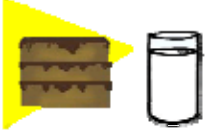


Pretzels (2 ounce), glass of water
Total calories= 224

DINNER

Roasted chicken (4 oz.), baked potato (medium) with butter (1tbsp.), green beans (1cup) and a glass of 1% milk
Total calories= 440

DESSERT



Chocolate cake with fudge frosting (1/16 of a 9 inch layer cake) and a glass of 1% milk (1 cup)
Total calories= 340

Add calories up here.

What are the total calories for the day?

_____

Adolescent boys and girls need somewhere between 1600 and 2200 calories per day depending on activity level. How does the number of total calories you calculated above compare to the suggested calorie total of 1600 to 2200 per day?

_____
_____

Exercise and Calorie Use

1. Walking 3.25 miles per hour burns about 300 calories an hour. If you only walk 15 minutes how many calories have you used?

Do your work here:

Answer: _____

2. Rollerblading requires about 360 calories an hour. If you rollerblade for 20 minutes, how many calories have you used?

Do your work here:

Answer: _____

3. Riding a bike 13 miles per hour burns about 660 calories an hour. If you ride your bike for 30 minutes, how many calories have you used?

Do your work here:

Answer: _____

Is There Water in Food?

Water is a very important part of our diet. Our bodies are more than 50% water! Drinking is not the only source of water. People take in water in many foods they eat. How much water is in some foods? Do some foods have more water than others? We will measure the mass (amount of matter) in foods before and after foods have dried out then compare to see how much water was lost in each food.

Objective: Students will rank the water content of four foods: apple, banana, potato and celery.

Materials:

food slices (1 per group of students): apple, banana, potato, celery

scales (1 per group or as available) – triple beam balance or electronic scale

Procedure:

1. Divide students into groups of three or four.

2. Provide each group with a small slice of apple, banana, potato, and celery.

3. Invite students to take the mass of each slice and to record that mass on the table that follows.

4. Leave the food slices under a lamp overnight. The light source should be about 30 cm above the food.

5. The next day, students should weigh their foods again and record the mass on the table below.

		Mass of Food	
	Mass (Day One)	Mass (Day Two)	Change in Mass
apple			
banana			
celery			
potato			

Discussion:

1. Did the foods gain or lose mass?

_____

2. Would it be possible for your food to gain mass? Why or why not?

_____

_____

3. What would be lost from the food to cause the loss in mass?

_____

4. Where did the water that left the food go?

_____

4. What would you look at on the table to identify which food lost the most water?

_____

5. Rank the foods from most water lost to least water lost.

Most_____Least

Conclusion:

Write at least three sentences explaining how the procedure showed that there is water in food.

_____

_____

_____

_____

Math Activity Solutions

BMI for Child A: **22**
BMI Category: **Obese**

BMI for Child B: **22**
BMI Category: **Normal Weight**

Total calories for the day: **1979**

Adolescent boys and girls need somewhere between 1600 and 2200 calories per day depending on activity level. How does the number of total calories you calculated above compare to the suggested calorie total of 1600 to 2200 per day? **This amount is between the suggested values, 379 more calories than the lower number and 221 calories less than the higher number.**

EXERCISE

1. Walking 3.25 miles per hour burns about 300 calories an hour. If you only walk 15 minutes how many calories have you used? **(75)**
2. Rollerblading requires about 360 calories an hour. If you rollerblade for 20 minutes, how many calories have you used? **(120)**
3. Riding a bike 13 miles per hour burns about 660 calories an hour. If you ride your bike for 30 minutes, how many calories have you used? **(330)**

You Are What You Eat Science Activity Answer Key

Discussion:

1. Did the foods gain or lose weight? **If no scientific error occurred then there should be some loss of mass in each food.**
2. Would it be possible for your food to gain weight? Why or why not? **There would be no way for the food to gain any mass since nothing is added to it.**
3. What would be lost from the food to cause the loss in mass? **water**
4. Where did the water that left the food go? **into the air**
5. What would you look at on the table to identify which food lost the most water? **Look at which food had the greatest loss in mass.**
6. Rank the foods from most water lost to least water lost. Most → Least **Students should record the results as observed.**

Conclusion: Write at least three sentences explaining how the procedure showed that there is water in food. **The procedure allowed us to measure if there was a difference in mass. Between the first and second recording of mass the food was placed under a light. The heat of the light helped water to leave the food. The amount of water that left the food was able to be measured by taking the mass of the food after it had been under the light.**

Note to teacher- the following letter is intended for your students to take home as a follow-up for the days program. Please copy and distribute as you see fit in order to enable caregivers of students to reinforce the lesson of this program effectively.

Weller Health Education Center

Dear Caregiver,

Your student has participated in a program called "You Are What You Eat" presented by the Weller Health Education Center. As educators, we understand the importance of managing our diet to optimize health. Through this program students learn about eating the right foods, correct portion sizes and at right times of the day. We also talk about food as our bodies' fuel that allows us to run, jump, and play, each and every day. Although the field of nutrition is constantly evolving as we discover new things, the recommendation to eat food that is fresh, healthy and in appropriate portions remain principles for ideal health and energy.

The middle school years are historically a challenging time for students as bodies change and appetites adjust. As a parent it is a good idea to keep a watchful eye on the things our students are eating to make sure they are fueling their body, getting necessary nutrients and maintaining a healthy weight for their body frame without overeating or under eating any specific foods.
Healthy eating contributes to overall optimal growth and development, including healthy bones, skin, and energy levels; and a lowered risk of dental caries, eating disorders, constipation, malnutrition, and iron deficiency anemia. We invite you to join the challenge and began building a solid nutrition foundation in your household. Start at home by letting your student cook with you, take them to the grocery store and encourage them to be involved in the food choices they eat. As parents, we know that as our students grow they will exercise more independence over food choices, particularly in social settings. But parents control the types of foods brought into the home.

Below you will find some sample activities to guide you in taking steps to improve family health and continue the message started today in our program. For additional resources you are welcome to utilize the parent, teacher and student resource links found on our website at www.wellercenter.org.

Sample Activities:
1) Involve the whole family in the dinner menu for the week. Let your kids pick out parts of the meal for each day: the protein, vegetable, grain etc. You can plan ahead by having a sheet of paper/whiteboard/chalkboard handy to right down the selections. Have measuring cups on hand to measure out the correct portion size for each food at the table.

> * But remember that the serving size on a food label is *not* telling you the amount you *should* be eating. The serving size is a guide to help you see how many calories and nutrients (fat, sugar, salt) are in a specific quantity of that food. Sometimes the serving size on the food label will be a lot less than you are used to eating or serving. In some cases, it's perfectly OK (and even a good idea) to eat and serve more than the serving size listed. (Like Fruit and Vegetables)

2) Beat the After-School Snack Rush- Keep healthy foods on hand and in the correct portions. Examples include: fruits, vegetables, low fat yogurt, peanut butter and celery, Jell-o (pre-separated into single serve cups,) whole grain crackers with cheese, or a "make your own trail mix."

> *Handy Tip- When cooking large batches or storing leftovers, separate them into smaller portions before you put them in the refrigerator or freezer. That way, when your family reaches in, they'll automatically grab a portion that makes sense.

3) Let your student try out and make some easy healthy recipes. That way they know exactly what is in the food they are eating. Go to the local library or check online for different resources, such as www.wellercenter.org

under the teen section, for new healthy recipes to try.

4) Communicate any concerns about you students body weight and dietary behaviors to doctors, school nurses, teachers and the like in order that a cohesive plan can be adopted to move the student closer to ideal health.

Yours in good health,
Weller Health Education Center