

Introduction

STARTING new ALL AROUND

Savannah and James are friends going into a new school year at _____. They enjoy different activities, but both have an appreciation for school, art, theater, music, dance, sports, animals, the environment, friends, and family.

(Your school name here)

Savannah's favorite subjects in school are language arts and science. She likes to paint and play instruments like the flute, piano, and guitar. Most of all, she loves being outdoors and playing with her friends. Every week, she rides bikes or horses, plays tennis, jumps rope, swims, and participates in her favorite activity, soccer. Savannah also loves dogs, and she volunteers regularly, helping with recycling and various environmental programs.

James' favorite subjects in school are history and mathematics. He likes to perform in school plays and enjoys all sports, especially football and bike riding. He also loves playing video games, watching his favorite T.V. shows, and talking with his friends about their favorite video games.

Both Savannah and James want to be happy and healthy, now and in the future. They know that a good education, an excellent work ethic, and a healthy lifestyle are key to achieving their goals.

This school year, Savannah and James have decided they are going to learn how to make healthier lifestyle choices related to fitness and nutrition. They have started a school club called FAN (Fitness and Nutrition) Club. As part of this club, Savannah and James are going to learn about body composition, calories, fitness, nutrients, and how to make healthy food choices. Savannah and James hope you will become FAN Club members also and join them in learning new things about fitness, food, and nutrition. You can also work at home to learn about the healthy decisions you can make to achieve your goals!

Section 1

Body Composition, Calories, and Fitness

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You may have learned in school that our bodies are made of mostly water. However, that is not all! Your body is made up of a combination of water, fat, muscles, and bones. The percentage of each of these makes up your **body composition**.

You have probably noticed that we are all shaped differently. Some of us are tall, and some of us are short. Some of us are very thin, while others are heavier. This is because everyone has a different body composition. In addition, as we grow older, our bodies change even more. As you look around today, you will see that some of your friends may be growing faster than you, or that you may be growing faster than some of your friends.

The way our bodies are shaped and the rate at which we grow are both related to **body composition**. Genetics and family history play a large role in how our bodies look, but food and physical activity are also significant. To grow up to be healthy adults, it is important we understand body composition, food, and exercise. In this section, we will explore different topics with Savannah and James to help us understand our bodies.

Let's get started!



ACTIVITY #1

HEIGHT, WEIGHT, & GROWTH CHARTS

People come in all shapes and sizes!

We can start to evaluate some aspects of shape and size by determining height and weight. **Height** is how tall you are in centimeters or inches. **Weight** is the force by which your body is pulled towards the earth, and it is measured using kilograms or pounds. Have you ever wondered about your own height and weight? Health professionals measure them by using a **growth chart**.

A growth chart compares your height and weight to others of the same age and gender. Growth charts use **percentiles** to measure how one person compares with others in their age group. For example, if a teenager is in the 75th percentile for weight, it means that 75% of teenagers the same age are lighter and 25% of teenagers the same age are heavier. Growth charts can provide an early warning for potential health problems. If a teenager is below or above the recommended percentile range, the teenager may not be growing properly.

However, if you are below or above the recommended percentile range, there is probably no reason to worry because there are factors like family history and genetics that can influence your growth. Have a discussion with your healthcare provider if you have any concerns.

FUN FACT:

As we get older, we get shorter! This is because the cartilage between our joints gets worn out as we age. It is not unusual for our grandparents to be shorter than they were when young adults.

CHECK YOUR THINKING

Use the reading to find and support your answers.

1. What units of measurement do we use for weight? On page 4, draw a box around them
2. On page 4, underline the definition of growth chart.
3. If a child is in the 50th percentile for weight on the growth chart
 - a. What percentage of people on the chart would weigh less? _____ %
 - b. What percentage would weigh more? _____ %

LET'S TRY IT TOGETHER

Height, Weight, and Growth Charts

Here's the Story

Savannah has noticed that she's shorter than everyone in her class. On top of that, her friends in that neighborhood also seem to be heavier. Right now, at 17 years old, she is 110 pounds and 4 feet 11 inches tall. Savannah is starting soccer in a few months, and she is scared she may be too small to play. Luckily, she is going to have a check-up soon with her healthcare provider. Let's help Savannah find the percentiles for her height and weight.

Directions

First, we need to convert Savannah's height and weight. To do that, we can use the conversion method, converting her height from inches (in) to centimeters (cm) and her weight from pounds (lbs) to kilograms (kg). We just need a few conversion factors:

$$1 \text{ in} = 2.54 \text{ cm}$$

$$12 \text{ in} = 1 \text{ ft}$$

$$1 \text{ lb} = 0.45 \text{ kg}$$

What is Savannah's **height in centimeters**?

- Convert Savannah's height to inches by multiplying the number of feet by 12. Add the remainder of inches to this number.

$$\boxed{4} \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = \boxed{48} \text{ in}$$

$$\boxed{48} \text{ in} + 11 \text{ in} = \boxed{59} \text{ in}$$

- Convert Savannah's height in inches to centimeters by multiplying the number of inches by 2.54.

$$\boxed{59} \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = \boxed{149.86} \text{ cm}$$

What is Savannah's **weight in kilograms**?

3. Multiply Savannah's weight by 0.45 kg.

$$\boxed{110} \text{ lbs} \times \frac{0.45 \text{ kg}}{1 \text{ lbs}} = \boxed{49.5} \text{ kg}$$

Next, we need to use the girls growth chart (page 64) to figure out what is Savannah's percentile for height. Find Savannah's height in centimeters and her age on the growth chart. Use the horizontal (x) axis to locate Savannah's age. Use the vertical (y) axis to locate her height. Place a circle at the point where Savannah's age and height meet on the chart.

What **percentile** is Savannah for height? under 5 %

Last, we need to use the girls growth chart again to figure out what is Savannah's percentile for weight. Find Savannah's weight in kilograms and her age on the growth chart. Use the horizontal (x) axis to locate Savannah's age. Use the vertical (y) axis to locate Savannah's weight. Place a circle at the point where her age and weight meet on the chart.

What **percentile** is Savannah for weight? 25 %

What do Savannah's percentiles for height and weight tell you about her health status?

Answers may vary. Example: 95% of others are taller and 75% weigh more.

TRY IT ON YOUR OWN

What percentile is James for height and weight?

At 17 years old, James is 5 feet 7 inches tall and 185 pounds. He knows he is heavier and shorter than the other boys in his class. However, James does not worry about his weight because he wants to play football this year, and he knows to do so he must be big and strong. Yet, he's heard from his friends that he must be a certain height and weight to play, and sometimes he has a tough time keeping up with the other kids while they are all playing football. He wonders if he's at an appropriate weight and height for playing football. What do you think? Using the growth chart (page 63) and the conversion method, let's try to figure out if James is at a healthy weight and height.

First, convert height to centimeters and weight to kilograms.

$$\boxed{} \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = \boxed{} \text{ in}$$

$$\boxed{} \text{ in} + 7 \text{ in} = \boxed{} \text{ in}$$

$$\boxed{} \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = \boxed{} \text{ cm}$$

$$\boxed{} \text{ lbs} \times \frac{0.45 \text{ kg}}{1 \text{ lbs}} = \boxed{} \text{ kg}$$

Next, use the growth chart to figure out James' percentile for height: _____ %

Last, use the growth chart to figure out James' percentile for weight. _____ %

Summarize It

1. What is James' height in centimeters?
2. What is James' weight in kilograms?
3. What percentile is James for height?
4. What percentile is James for weight?
5. What does James' percentiles for height and weight say about his health status?

TAKE IT HOME: HOW ABOUT YOU?

Directions

Use the growth chart to determine your percentiles for height and weight.

Measurement: You will need a tape measure and a scale to determine height and weight.

First, figure out your weight in lbs and your height in inches. Convert height to centimeters and weight to kilograms.

Next, use the growth chart to figure out your percentile for height: _____ %

Last, use the growth chart to figure out your percentile for weight: _____ %

FUN FACT:

Your weight changes throughout the day, depending on how much you exercise and what you eat and drink. To get a more accurate measurement, weigh yourself first thing in the morning. Your weight can also change throughout the week, weighing yourself once in a while is recommended instead of weighing yourself daily.

Summarize it

1. What is your height in centimeters?
2. What is your weight in kilograms?
3. What percentile are you for height?
4. What percentile are you for weight?
5. What do your percentiles for height and weight say about your health?

Thinking More Deeply

Show this information to your health care provider and discuss your findings. What can you learn about the information you have shared?

