4-H CONSUMER DECISION MAKING

2021 Study Guides & Sample Classes

Junior Division (Ages 10 - 13)
Senior Division (Ages 14 - 18)

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North Dakota 4-H Consumer Decision Making
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There are several different kinds of boots, including work boots, cowboy boots, rubber boots, and hiking boots. This guide will help you figure out the best boot suited for your needs.

**Boot Construction**

The construction of a shoe has a substantial effect on longevity and price. The construction largely refers to the way the sole is attached to the upper section of the shoe, and while the materials and brand play a big part in the cost, the construction is one of the biggest determining factors.

When choosing a work boot, it is important to consider how it is put together. There are three types of work boot constructions: *stitch down*, *cement*, and *molded or direct attach*.

**Stitch Down**

As the name implies, the stitch down is where the outsole is stitched to the upper part of the boot with a strong stitch material. A Goodyear Welt stitch down involves a single, continuous stitch around the boot for maximum durability. Stitch down construction is the strongest, and it allows you to get the boots re-soled if necessary.

**Cement**

Cement construction is where the upper part of the boot is glued to the outsole of the boot. Although this type of construction is more affordable than stitch down boots, cement construction boots do not last as long.

**Molded or Direct Attach**

Molded work boots are constructed by molding the outsole to the fabric of the boot. This type of construction is more durable than cement construction.
Boot Materials

Not all work boots are created equal. Different types of materials are used in the construction of work boots, and each has its own set of benefits and uses. When choosing a work boot, it is important to consider your line of work to determine which materials are best suited to your work environment.

Price variation in boots is usually due to the kind of materials used to make them. Combat boots are typically made out of various types of leather, suede, nylon, and other synthetic materials. Wellington boots are made of rubber or polyvinyl chloride (PVC). Cowboy boots are traditionally made from cowhide leather, but can be made from other types of leather and synthetic materials.

### Leather

Leather is the most popular choice for work boots because it is very durable. Full-grain leather is both durable and water resistant, but its thickness makes it heavy and not very breathable. If cost is not an issue, waterproof leather provides protection against water and boasts the same robustness as full-grain leather. Leather provides a great fit once it is broken in because the material molds to the shape of the foot.

Not all leather is created equal. There are a lot of differences between leathers. If the boot is labeled “leather,” it is potentially of much lower quality.

- **Full-grain leather** – top quality, strongest, most durable, expensive
- **Top-grain leather** – second best, similar to full-grain leather, does not age well with use, stain resistant
- **Genuine leather** – lowest quality of leather, less durable, bonded together, inexpensive
- **Cowhide leather** – durable, forms to foot
- **Exotic leather (ostrich, alligator, snakes, horse, kangaroo)** – expensive

### Suede

Suede is a high-quality form of leather, made from the underside of the animal hide. Suede has a smooth nap with an appealing appearance and structure. It is softer and thinner than leather, comfortable, and adds character to boots. It is lighter than standard leather and is durable. Suede is popular for fashion boots.

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Nubuck is another term for a top-grain cattle leather that has been sanded.
Rubber

Rubber is impervious to water and is easy to clean. Fit cannot be adjusted, so rubber boots have the potential to be cumbersome or awkward to walk in.

- **100% natural rubber** – waterproof, comfortable, durable, more expensive, provide good traction indoors and outdoors
- **Polyvinyl chloride (PVC)** – plastic synthetic, waterproof, cheaper, less durable, provides good traction indoors and outdoors
- **Gore-Tex** – wind and waterproof material, good air circulation, expensive

Synthetic Materials

**Nylon** – not as durable as leather, but super lightweight, breathable and pliable. This material is soft, making the boot more comfortable to wear. Usually, these types of work boots are outfitted with nylon mesh panels to promote breathability. Nylon boots can easily be made waterproof and are good for everyday wear.

**Pleather** – artificial leather made from synthetic plastics, vegan product, decomposes differently than leather, lighter material, cheaper, less durable, wear out faster

**Vinyl and Urethane** – lower cost, good looks and easy care, do not absorb foot moisture, lack memory retention, return to original shape after wearing

Waterproofing

Rubber boots are completely waterproof and are the best option if the outdoor activity requires being submerged in water for extended periods of time such as duck hunting. However, rubber boots can be awkward to walk in and may be uncomfortable to wear after repeated wears.

Waterproof synthetic leather is another good option for people who like the look of leather but do not like the upkeep necessary to make it waterproof. Most boots come with an initial waterproofing treatment already on them. But to help keep feet dry for the long term, boots will need to be treated for waterproofing regularly.

How often boots need to be waterproofed depends on how often they are worn. A good rule of thumb is to waterproof boots whenever they get extra dirty or when water stops beading on their surface. This may equate to waterproofing them once every couple of months.
Outsoles/Heels

Comfort and safety are the two most important aspects of a work boot that need to be considered when choosing what will work best. Therefore, care has been taken to determine what outsoles and heels work best for certain work environments. Traction, as well as resistance, to certain environmental factors plays a key role in determining the best outsoles and heels.

Outsoles and heels have many shapes and are made of many different materials to ensure the safety and comfort of the wearer. Having the appropriate outsoles and heels help with slip resistance, support, and sustainability needed for specific work environments, all while being comfortable. To provide the protection needed, they should be waterproof and resistant to punctures and damaging substances that could be introduced in the workplace.

The two most common materials used for outsoles are rubber and thermoplastic urethane (TPU) due to the qualities they contain.

**Rubber Outsoles**

Rubber outsoles are typically used for construction work, as they are very durable. They are made to be oil and slip resistant on both wet and dry surfaces and are known to be more slip resistant than other outsoles. Rubber works well in rugged terrain environments as well as manufacturing and construction settings. They are extremely resistant to high heat and can also withstand colder temperatures. They are known to have higher resistance to punctures, microbes, and water than other outsoles.

**TPU Outsoles**

TPU outsoles are lighter in weight than rubber outsoles, and are highly durable, which typically leads to comfort and longevity of use. They are abrasion resistant, so they can be used indoors or outdoors on many different surfaces. The material is resistant to oils and chemicals, which aids in its slip resistance and tough construction. They are also resistant to high temperatures but do not hold up well in cold temperatures. Outsoles made of TPU typically last a long time if consideration is given to the work environment temperature.
There are two major types of heels for work boots: traditional and wedge.

**Traditional Heels**

The flat front that fully touches the ground, arch support that allows a gap in the middle, and the thick heel support are the basic tell-tale signs of a traditional heeled boot. The tread patterns on traditional heels as well as the thicker soles allow for prime working conditions in many different environments. The downfall of the traditional heeled boot is that it tends to be heavy, inflexible, and could cause pressure and excess strain on your feet due to the two specific pressure points: the heel and where your toes begin. Traditional heels do tend to hold dirt and mud, but they are easy to maintain and last a long time.

**Wedge Heels**

Wedge heels are different than traditional heels because the whole bottom of the sole touches the ground. They are lighter and more flexible than the traditional heel, so there is less discomfort and fatigue connected to the wedge heel. Treads are simple on the wedge heel, and the heel portion is only slightly raised. They wear out quickly because they are thinner than the traditional heel. Additionally, they do not perform as well on rough terrain, and they offer less traction than a traditional heel.

**Insoles**

Insoles provide the comfort and support for the inside of a work boot. The discomfort from working long days on rough and hard surfaces can be alleviated by having insoles that support and cushion the body. They lessen physical fatigue and foot problems such as blisters, bunions, and bone spurs associated with footwear.

Insoles can be placed in boots for support.

Often, foot problems are associated with lack of arch support. Insoles can relieve pressure on heels and toes, spread the impact of each step, and correct alignment issues your body may have. All of qualities aid in the comfort factor of the boot.

Impeccable support, a perfect fit, and durability are three factors that should be considered when choosing insoles for your boots. Check these factors for your specific foot type to ensure the best insole fit for your body and boot type. Make sure your arch, heel, and toes are supported by the insole, as this will help alleviate the fatigue associated with work environments. Longevity of insoles is a bonus, as there is less of a need to replace them frequently.
Ankle Support/Shaft

The shaft of a boot is the upper part of the boot ranging from ankle to calf. Ankle/ shaft support is important when ensuring safety and comfort of a work boot. Boot length ranges from 6 inches to 14 inches. There are both positive and negative aspects of boot shaft height. A positive includes protection higher up the leg if necessary. A negative includes lack of movement which can hinder flexibility.

Shorter boot shafts are lighter in weight and take less time to lace. They also allow for ease of movement and are trendier. They may be more suitable for general contractors, electricians, and engineers.

Taller shafts allow for better protection and less rubbing on the ankles. If they are waterproof, they allow for deeper water depths, but take longer to lace up. They may be more suitable for agricultural work, logging, plumbing, and are often required for first responders and military personnel.

Safety Toes

Safety toes provide you with more compression and impact protection than standard boot toes. If a boot does not indicate it has a safety toe, then it most likely does not provide additional protection.

Steel Toe

Steel toe boots provide the most protection against heavy objects dropping on your foot. Since they are metal, they do conduct electricity, heat, and cold. They are not recommended for those working with electricity or in extreme hot or cold environments. Those that work in extreme hot or cold environments usually find that either their feet get sweaty or get cold easily when wearing steel toe boots.
Aluminum Toe

Aluminum toes provide similar protection from heavy objects as steel toes but are a lighter weight option. Aluminum toes are still metal and will conduct electricity, heat, and cold like steel toes.

Composite Toe

Composite safety toes are made from non-metal materials such as Kevlar, carbon fiber, plastic, or fiberglass. Since they do not contain metal, they are the preferred safety toe for electricians. They also are a warmer safety toe for those who work in cold temperatures and help keep your feet cool when working in hot conditions.

Traditional Toe

A traditional toe does not have an additional safety toe feature and will not protect your toes from heavy objects falling on them.

Insulation

For those either working in cold weather, hiking, or hunting during the winter, or simply wanting warm boots as part of their winter survival kit, the temperature rating for the boot will indicate between what temperatures the boots can keep your feet warm. The more grams of insulation a boot has, the more protection against cold temperatures it will provide. However, the more insulation that is added to the boot, the bulkier and heavier the boot will become, which may restrict movement.

You should keep in mind the level of activity you plan to do while wearing your boots. Higher levels of activity will help keep your feet warm and require a more flexible boot. Feet tend to get colder faster with lower levels of activity, requiring more insulation, but the flexibility of the boot is not as important due to less activity.
Sources


Written March 2021 by Alicia Harstad, NDSU Agriculture & Natural Resources Extension Agent; Kari Helgoe, NDSU Family & Community Wellness Extension Agent; and Katie Henry, NDSU Family & Community Wellness Extension Agent

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Situation Statement:
The summer months are quickly approaching, and Elliot is looking forward to working outdoors for the city park board tending to landscaping duties. Elliot has $170.00 to spend on a new pair of boots. He will be trimming trees, mowing grass, planting and weeding flowers and other plants, as well as working with the irrigation system to ensure all plants stay watered so they can thrive and grow on all city park properties. Since he is working with an irrigation system, he wants his boots to be waterproof. Because of those duties, it is policy that all employees follow safety dress code of wearing work boots. He prefers his boots to provide good traction. Elliot wants them to be lightweight since they will be primarily used during the summertime. Of the options Elliot is considering, which one will work best for him?

Standards:

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Class Items:
1. Men’s Thorogood 8” Wedge Sole Work Boot
2. Men’s Altama 8” Raptor Steel Toe Boot
3. Men’s San Jose 6” Waterproof Boot
4. Wolverine Overpass Waterproof Composite Toe Wellington Boot

Placing: 3-4-2-1  
Cuts: 4-3-2

Reasons:
I place this class of boots 3-4-2-1.

I place 3 over 4 because 3 is lightweight, while 4 is not.

I place 4 over 2 because 4 is waterproof, while 2 is not. 4 has traction, while 2 does not. Grant: 2 is lightweight.

I place 2 over 1 because 2 costs $170.00 or less, priced at $112.99, while 1 exceeds $170.00 with a price of $224.99. 2 is lightweight, while 1 is not. Grant: 1 has traction.

I place 1 last because it is not $170.00 or less. It is not waterproof. It is not lightweight.

For these reasons, I place this class of boots 3-4-2-1.
Sample Class – Junior & Senior
Boots
Elliot

#1

Men's Thorogood 8" Wedge Sole Work Boot

Cost: $224.99

- Soft toe
- Trail crazyhorse leather upper
- Goodyear storm welt construction
- Removable dual density Ultimate Shock Absorption™ insert on Poron® comfort cushion insole
- Composite shank
- Thorogood's exclusive oil and slip-resistant polyurethane maxwear wedge outsole for good traction
- Electrical hazard rated
Sample Class – Junior & Senior
Boots
Elliot

#2

Men's Altama 8" Raptor Steel Toe Boot

Cost: $112.99

- Quick drying air mesh fabric with no stitch construction to create flexibility
- Gusseted tongue to keep dirt and debris out
- 3mm round lace with increased strength and durability
- Lightweight molded dual density EVA midsole with shock absorption zone for fatigue control
- Durable microfiber PU upper with abrasion resistant toe and mudguard
- Steel toe cap protects the foot from falling objects or compression
- Custom molded thermoplastic heel counter and toe box for instant comfort and protection
- Advanced UFit lacing system ensures that the foot is properly positioned within the boot to eliminate rubbing and discomfort
- Additional UFit lacing system creates optimal ankle support and allows a custom fit

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Sample Class – Junior & Senior
Boots
Elliot

#3

Men's San Jose 6" Waterproof Boot

Cost: $165.00

- Left and right asymmetrical aluminum toes weigh 35% less than steel and offer a sleeker appearance
- KEEN.DRY waterproof, breathable membrane
- TPU shank for midfoot support
- Electrical Hazard (EH) or Electric Shock Resistant (ESR) footwear provides a secondary source of protection in case of accidental contact with live electrical circuits
- Siped (small slits in rubber) outsole disperses liquids quickly for increased traction
- Midsole meets oil and isooctane chemical resistance standards
- Our lightest boot, yet with an air-injected midsole for sustained comfort and aluminum safety toe
Sample Class – Junior & Senior
Boots
Elliot

#4

Wolverine Overpass Waterproof Composite Toe Wellington Boot

Cost:  $159.95

- Premium waterproof leather with abrasion resistant toe
- Moisture wicking mesh lining
- Removable OrthoLite cushioning footbed
- Advanced comfort PU midsole
- Dual compound rubber and PU outsole
- Nylon shank
- CarbonMAX safety toe rated
- Flex performance feature constructed to bend and flex at essential points for maximum comfort
- Overpass utilizes an outsole with shock absorption
- Heavy protection and good traction
When people get together, especially to celebrate an important occasion, music is invariably part of the celebration. Weddings, funerals, graduations, sporting events, rocking a baby to sleep, or even studying can all have music that plays a part of the activity. Music is an important part of human life and culture. The portability of speakers and their wireless connection both add convenience. Wireless and Bluetooth speakers bring top-quality sound whether you are at home, work, or on the go.

There are two main groups of wireless speakers available on the market today. While there are other technologies out there, the market share is split between Bluetooth and Wi-Fi. These speakers can range in price from $2 to $800 and are a convenient alternative to larger portable P/A systems.

**Bluetooth** is a short-range wireless communication technology that allows devices such as mobile phones and computers to transmit data or voice (sound) wirelessly over a short distance. The typical range for Bluetooth technology is about 30 feet.

**Wi-Fi** is a wireless communication technology that uses radio waves to provide wireless high-speed internet and network connections. The typical range for Wi-Fi routers (2.4 GHz) can reach up to 150 feet indoors and 300 feet outdoors.

Bluetooth and Wi-Fi, like many other wireless devices in a home or office, use the same band of radio wave frequency clustered around 2.4 GHz. Look at stickers on baby monitors, cordless phones, or wireless microphones on karaoke machines. The label “2.4 GHz” has nothing to do with speed. It simply refers to the radio band frequency used to communicate or transmit data or sound. Although the effective range of Bluetooth and Wi-Fi varies dramatically, both can be affected by interference from other wireless devices as well as structures like walls, furniture, and even people.

**Setup**

Establishing a connection between the broadcasting device (source of the data) and the wireless speaker is an important consideration. Bluetooth can be easily connected, whereas Wi-Fi models require an app or more detailed connection requirements. However, Bluetooth connections may be interrupted by device use (phone/alarm/notifications). Wi-Fi devices, on the other hand, get their audio directly from the internet stream, avoiding interruption by the device.
Portability

One of the most important design features of a portable speaker is the size. Keep in mind that the smallest models (minis) and the largest models (sometimes called “tailgater” or “block rocker”) can both be considered portable wireless speakers.

Portability is a relative term and can include the Mini models, the Tailgate models, and everything in between. Remember that a 29 pound speaker will not fit in a backpack or beach bag. Nor is it a good idea to take a Wi-Fi speaker on a camping trip. The key is to determine how the speaker will be used and where it will be used. Moving a speaker around the kitchen can be portable as can carrying it in a canoe down the river.

Many portable speakers that connect via Bluetooth or Wi-Fi must be plugged into a power source. Some have rechargeable batteries while other models require a battery pack accessory to power the speaker with a wired power source. Any of these configurations may be considered portable if they are moved easily from place to place for different needs and uses. Unless you are using disposable batteries, most devices must be plugged into a power source at some point. Do not discount a speaker that must be plugged in as not being portable.

Sound

Sound quality can be a major factor in deciding which model is good for you. Like other features, where you plan to use it needs to be at the forefront of your decision. Large outdoor areas may require higher wattage or bigger sound than a small dorm room. However, loudness is not the only measure of quality. In fact, all wireless speakers require the transmission of data or sound to the speaker and the data compression has a dramatic impact on sound quality.

In general, Wi-Fi speakers are better than Bluetooth speakers due to how the data is compressed and transmitted. Wi-Fi can transmit higher quality sound to the speaker than Bluetooth. Some of the simpler wireless models only have a single speaker and can only play in Mono as opposed to Stereo sound delivery. Higher end models may include a 2.1 channel system that includes two channels of sound (left and right speaker) plus a separate subwoofer. The quality of sound between a Mono and a 2.1 channel system is clearly distinguishable to any listener.

A wireless speaker’s sound can also be affected by its arrangement of speakers. A single speaker can only send sound in a single general direction. There are other speakers that can send sound in multiple directions. A speaker with multiple speakers arranged appropriately can be placed in the middle of the room and send sound in all directions.
These omnidirectional models are likely more expensive than the single-speaker unidirectional speakers. The omnidirectional model can be placed in the middle of a room, and it broadcasts sound in all directions. The smaller unidirectional model plays sound in only one direction. If laid flat, the speaker will push sound upward. Additionally, arranging speakers in a circular pattern allows for optimal omnidirectional sound.

Power Supply and Batteries

Portability of any device can certainly be extended by its ability to function under DC (direct current) power. Wireless speakers may have integrated rechargeable batteries with a charging port, or they may require AC (alternate current) power supply to function. Some of the AC-powered devices can be powered by a battery-pack purchased separately as an accessory. AC-powered devices that can easily be unplugged, moved, and plugged into another outlet can certainly be considered portable with the scope of its size and the availability of a power source.

Excluding size and function, the portability of speakers that operate in some capacity with DC power (internal or external), is much greater than being tethered to a power supply with a power cord. Not all batteries are the same. There are differences in the amount of power they will store, how fast the device consumes the battery power, how long it takes to recharge, and what power source can be used to recharge. In addition, battery life can increase or decrease the life of your device especially if the batteries are internal and cannot be removed/replaced.

Most DC models on the market have internal rechargeable batteries. Lithium-ion and Lithium polymer batteries provide great power density, are lightweight, small, and are safer than other designs in recent years. There are three factors related to understanding batteries:

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• **Capacity** – refers to the battery that will charge to 100% when new and only 70% over time

• **Longevity** – refers to the number of times a battery can be charged (charging cycles) before it will no longer charge

• **Performance** – refers to the runtime of a battery on a full charge

However, most devices disclose only two details: the battery type and either number of hours of runtime or milliamp Hours (mAh). The playtime/runtime is likely the closest comparable detail.

**Example:** Consider two devices, one boasting 1,400 mAh and the other 4,400 mAh. The assumption that the 4,400 mAh battery will outplay the 1,400 mAh battery may be false if the 1,400 mAh device is considerably more efficient with its power than the other. They may in fact offer equal playtime.

Generally, Bluetooth devices use less power than a Wi-Fi device. Without knowing what quantity of mAh each has, their expected playtime is the closest comparable measure.

**Voice Control**

Voice control speakers are sometimes referred to as “smart” speakers and are voice command devices with an integrated virtual assistant that offers interactive actions and hands-free activation with the help of a wake phrase such as, “Alexa…” or “Hey Google…” or “Hey Cortana…” Some of these devices may be accessed via Bluetooth, Wi-Fi, or both, and they may extend functionality of the speaker beyond playing sound (music) by accessing/controlling automated functions with integrated controllers.

**Pairing Multiple Devices**

Some Bluetooth and Wi-Fi models have the capability to pair multiple devices simultaneously. However, the pairing process, range, and other factors vary greatly between and among both types. Pairing two devices via Bluetooth may be challenging in public areas with many devices. You need to know which one is yours. Pairing Bluetooth can also pose issues if the signals are blocked or interrupted by moving objects (people at a party). Wi-Fi devices may not be any easier to connect, but once connected, they can be much more reliable if there is a Wi-Fi signal.
Sources


Adapted from the 2020-2021 Texas 4-H Consumer Decision Making Contest Categories and Descriptions through Texas A&M AgriLife Extension; Reviewed and revised February 2021 by Holly Tuhy, NDSU Family & Community Wellness Extension Agent; Deb Lee, NDSU Family & Community Wellness Extension Agent; and Katie Thompson, NDSU Family & Community Wellness Extension Agent

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Situation Statement:
Heather likes to listen to music wherever she goes. She has saved $60.00 to purchase a new portable speaker. Her previous portable speaker required an auxiliary cord, but she cannot use it with her new iPhone. She will have to connect to her new speaker via Bluetooth. Heather needs the battery to last at least six hours. She would also like her speaker to be water resistant since she listens to music both indoors and outdoors.

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Class Items:
1. Blasses Portable Bluetooth Speaker
2. Anker Soundcore 2 Portable Bluetooth Speaker
3. JBL Flip 4 Waterproof Portable Bluetooth Speaker
4. TAMPROAD Portable Speaker

Placing: 2-4-1-3  Cuts: 3-4-2

Reasons:
I place this class of portable speakers 2-4-1-3.

I place 2 over 4 because 2 is water resistant, while 4 is not.

I place 4 over 1 because 4 has 6 hours or more of battery life lasting 24 hours, while 1 lasts 3-4 hours.

I place 1 over 3 because 1 costs $60.00 or less, priced at $15.99, while 3 exceeds $60.00 with a price of $79.00.

Grant: 3 has 6 hours or more of battery life.
Grant: 3 is water resistant.

I place 3 last because it is not $60.00 or less.

For these reasons, I place this class of portable speakers 2-4-1-3.
Sample Class – Junior & Senior
Portable Speakers
Heather

#1

Blasses Portable Bluetooth Speaker

- Crystal clear 360 degrees surround sound
- Excellent design
- Maintains a strong connection
- Protected by an 18-month warranty
- Play time of 3-4 hours and takes 1.5 hours to fully charge
- $15.99
Sample Class – Junior & Senior
Portable Speakers
Heather

#2

Anker Soundcore 2 Portable Bluetooth Speaker

- Outstanding audio
- Compact speaker
- Deep bass ensures a wide, balanced audio range
- Plays all day 24-hour/500-song playtime
- IPX5 water resistant rating and dustproof engineering – bring your beats anywhere – from the garden, to the beach, to the shower
- Listen up to 66ft with the latest technology
- No Bluetooth? No problem, an auxiliary port allows you to plug in and play
- Worry-free 18-month warranty
- $39.99
Sample Class – Junior & Senior
Portable Speakers
Heather

#3

JBL Flip 4 Waterproof Portable Bluetooth Speaker

- Wireless streaming
- Built-in 3000mAh rechargeable lithium-ion battery
- Supports up to 12 hours of playtime
- IPX7 waterproof means no more worrying about rain or spills – you can even submerge Flip 4 in water
- JBL connect+ allows you to link more than 100 JBL connect+ enabled speakers together to amplify the party
- Dual external radiators demonstrate just how powerful your speaker is and has voice assistant integration
- $79.00
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Sample Class – Junior & Senior Portable Speakers Heather

#4 TAMPROAD Portable Speaker

- Portable multi-function speaker with Bluetooth connection
- Supports FM radio, TF Card music playback, AUX input
- Excellent sound and FM radio
- 11W Bluetooth speaker
- 3 loudspeakers including one high output subwoofer, two tweeters, and a rear heavy bass guide tube
- All day battery life
- AUX cable included
- 12-month warranty and friendly customer service
- $44.99
What is Yogurt?

Yogurt is a cultured dairy product that can be made from whole, low-fat, or skim milk, including reconstituted nonfat dry milk powder, as well as cream. It is made when certain bacteria are combined with milk. Then, this mixture is heated and kept warm until firm.

Most yogurts in the U.S. are made from cow milk. Yogurts also can have other added ingredients such as sweeteners, flavorings, color additives, or preservatives.

Yogurt is a healthful food because of the cultures used to make it. There are many kinds, flavors, and types of yogurt, making it a favorite food for many people.

Health Benefits

Yogurt is a nutrient-rich food that is a good source of protein and calcium. Depending on the style of yogurt, you can find on average 8 to 10 grams of protein per serving. That is about 16% to 20% of your daily requirements. For comparison, a cup of milk has about 8 grams of protein. Yogurt is also low in fat and high in some vitamins and minerals. With a serving of yogurt, you may be able to reach 35% of your daily needs for calcium.

The words “live and active cultures” refer to the living organisms used in making yogurt. Researchers are exploring how “live and active culture” yogurt may be helpful to the immune and digestive systems.
Benefits of eating yogurt include:

- Calcium-rich diets may help reduce the risk of osteoporosis, high blood pressure, and colon cancer.
- Eating yogurt strengthens the immune system for certain individuals.
- People who are lactose-intolerant may be able to tolerate yogurt better because the milk sugar is partially broken down by the bacteria cultures.
- Plain, unflavored yogurt can be used as a substitute for mayonnaise, sour cream, or cream cheese to cut down on fat and calories.
- Yogurt is considered a meat alternative because of its high protein content.

### Protein

An average serving of yogurt contains about 8 grams of protein. Look at the table below and see how many grams of protein you need each day.

**Recommended Dietary Allowance (RDA) of Protein for Children Ages 1-18**

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>RDA (grams/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>13</td>
</tr>
<tr>
<td>4-8</td>
<td>19</td>
</tr>
<tr>
<td>9-13</td>
<td>34</td>
</tr>
<tr>
<td>14-18</td>
<td>52 (boys), 46 (girls)</td>
</tr>
</tbody>
</table>

Source: Dietary Guidelines for Americans, 2020-2025

### Calcium

You need calcium at every stage of life because it is important for bone growth. Calcium is very important for teenagers, who need to build calcium storage to stay healthy later on in life. After age 35, adults begin to lose bone mass, so calcium intake is still vital as an adult. Getting enough calcium is especially important for teenage girls and women age 51 and older. See the table below for your needs.

**Recommended Dietary Allowance (RDA) of Calcium for Children and Adults**

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>RDA (milligrams/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>700</td>
</tr>
<tr>
<td>4-8</td>
<td>1,000</td>
</tr>
<tr>
<td>9-18</td>
<td>1,300</td>
</tr>
<tr>
<td>19-50</td>
<td>1,000</td>
</tr>
<tr>
<td>51+</td>
<td>1,200 (women) 1,000 (men)</td>
</tr>
</tbody>
</table>

Source: Dietary Guidelines for Americans, 2020-2025
Calcium is an important part of any diet and is found in many foods, but most people do not get enough calcium each day. Use the table below to track the amount of calcium you get each day.

**How much calcium is in food?**

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving Size</th>
<th>Calcium (milligrams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live and active culture yogurt (plain)</td>
<td>1 cup</td>
<td>450</td>
</tr>
<tr>
<td>Calcium-fortified orange juice</td>
<td>1 cup</td>
<td>300</td>
</tr>
<tr>
<td>Milk (skim, low-fat, whole)</td>
<td>1 cup</td>
<td>300</td>
</tr>
<tr>
<td>Chocolate milk 1%</td>
<td>1 cup</td>
<td>280</td>
</tr>
<tr>
<td>Swiss cheese</td>
<td>1 ounce</td>
<td>270</td>
</tr>
<tr>
<td>Spinach, cooked</td>
<td>1 cup</td>
<td>240</td>
</tr>
<tr>
<td>Salmon (edible with bones)</td>
<td>3 ounces</td>
<td>180</td>
</tr>
<tr>
<td>Frozen yogurt</td>
<td>1/2 cup</td>
<td>105</td>
</tr>
<tr>
<td>Turnip greens, chopped</td>
<td>1 cup</td>
<td>105</td>
</tr>
<tr>
<td>Dried figs</td>
<td>1 cup</td>
<td>241</td>
</tr>
<tr>
<td>Broccoli, chopped</td>
<td>1 cup</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: Food Data Central, USDA Database

Common food sources where calcium can be obtained, including yogurt.
Yogurt Glossary

Yogurt comes in many flavors, forms and textures. Here are the common terms used with yogurt. These terms were defined by the Food and Drug Administration (FDA) and the manufacturers.

**Buttermilk:** Buttermilk is like yogurt because it is made in a similar way. The carton is usually labeled *cultured buttermilk* and *salted* or *unsalted*. Buttermilk is slightly thicker than regular milk but not as heavy as cream.

**Contains active yogurt cultures:** The FDA requires all yogurts to be made with active cultures. Some yogurts are heated, which kills the bacteria. This is done so the yogurt lasts longer, but then the manufacturer cannot say the yogurt may have health benefits. The NYA (National Yogurt Association) Live & Active Cultures seal lets you know that you are getting the health benefits believed to come from “live and active cultures.”

**European-style yogurt or stirred curd method:** This is yogurt that is cooked in a large kettle instead of in individual cups. The curds are stirred in the kettle before they are poured into the cups. This makes a smoother, creamier yogurt.

**Frozen yogurt:** Frozen yogurt is not made the same way as other yogurt and may not have “live and active cultures.” Manufacturers begin making frozen yogurt the same way other yogurt is made. Then ice cream, fruit, and other ingredients are added and the yogurt is frozen. Freezing puts the cultures into a kind of “sleep.” When the yogurt is eaten and warmed, the cultures “wake up” and the frozen yogurt can be helpful to the body.

Not all frozen yogurts contain “live and active cultures.” Some have been made with a heat process that kills the cultures. To make sure that a frozen yogurt contains yogurt with “live and active cultures,” look for the NYA Live & Active Cultures seal.

**Fruit-on-the-bottom yogurt:** The fruit is on the bottom so that when the container of yogurt is turned upside down, it looks like a sundae. The fruit and yogurt can be mixed together before eating to make it smooth and creamy.

**Greek yogurt:** Greek yogurt is a thicker, creamier version of the regular variety. Greek yogurt is strained to remove the excess whey (the liquid left after straining) from the yogurt, which in turn gives it a thicker and creamier texture. In Greece, yogurt is made with sheep or goat milk. Greek yogurt is also higher in protein than regular yogurt.
Heat-treated: Yogurt with this label has been heated after culturing. This kills the beneficial live and active yogurt cultures.

Kefir: This is similar to a drinking-style yogurt, but it contains beneficial yeast as well as friendly “probiotic” bacteria found in yogurt. Kefir can be made from any type of milk: cow, goat, sheep, coconut, rice, or soy. Kefir is easier to digest than yogurt. Kefir is rich in vitamins B12 and K. It is an excellent source of biotin, a B vitamin that helps the body use other B vitamins.

Liquid yogurt or yogurt smoothie: This type of yogurt has been thinned to make it drinkable and blended with fruit, fruit juice, or other flavorings. Liquid yogurt is made to the same standards as yogurt. It must meet the requirements for yogurt (the white mass or yogurt portion). Yogurt drinks go through a process to make the particles smaller, making it easier to drink than regular yogurt. Many types of smoothies contain yogurt or frozen yogurt. These smoothies usually use yogurt as the base and mix in various fruits. It is thick and smooth like a milkshake but healthier.

Lite (light) yogurt: It contains one-third the calories or 50% less fat than regular yogurt.

Low-fat and nonfat: Yogurt is available in three kinds: regular, low-fat, and nonfat. Yogurt made from whole milk has more milk fat than low-fat yogurt. Nonfat yogurt is made from skim milk and has even less milk fat.

Probiotics: Probiotics are living microorganisms believed to benefit the health of a host organism when administered in adequate numbers. The live bacterial cultures in yogurt are considered probiotics.

Skyr: Skyr is an Icelandic cultured dairy product. It is made by adding bacteria cultures to skim milk and then straining it to remove the whey. It has the consistency of Greek yogurt, but a milder flavor. Skyr can be classified as a fresh, sour milk cheese but is consumed like a yogurt. It is low in calories, fat, and carbohydrates, yet high in protein, vitamins, and minerals. For example, it contains more protein than many other types of dairy, with 11 grams of protein compared to Greek yogurt with 7 grams per 3.6 ounces (100 grams).

Swiss or custard: Fruit and yogurt are often mixed together. To thicken this yogurt, a stabilizer, such as gelatin, may be added. You might see these products called “blended” yogurt.
**Yogurt cheese:** This is yogurt that has been drained and pressed into a soft cheese form. The consistency of yogurt cheese is similar to soft cream cheese. It can be used as a base for dips and spreads and as a topping for baked potatoes. It is a great alternative for regular mayonnaise, sour cream, or cream cheese.

**Cost**

When looking at cost, you will need to decide whether to buy single-size cartons or larger cartons. Larger cartons are generally cheaper when you compare the price per ounce.

- 32-ounce store brand nonfat at $1.84 = 6 cents per ounce
- 5.3-ounce store brand flavored nonfat at 42 cents = 8 cents per ounce
- Package of 16-2-ounce name brand portable yogurt treats (32 ounces) at $3.98 = 12 cents per ounce.

Fruit-flavored varieties may cost more and have extra sugar. The sweetened fruit takes the place of some of the yogurt in the carton, so you get less calcium-rich yogurt. Try buying plain or vanilla yogurt and add your own fruit to it.

**Other Facts to Consider**

Other facts to consider when choosing yogurt include serving size, calories, fat, and added sugars. Reading labels is the best way to know if a particular brand is healthy.
Nonfat Plain Greek Yogurt Nutrition Facts

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Daily Value from Protein</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fat</td>
<td>0g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>0g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trans Fat</td>
<td>0g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>5mg</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td>65mg</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>7g</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>0g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Sugars</td>
<td>5g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes 0g Added Sugars</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>16g</td>
<td>32%</td>
<td></td>
</tr>
</tbody>
</table>

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Sources


Written March 2021 by Ellen Bjelland, NDSU Family & Community Wellness Extension Agent and Vanessa Hoiness, NDSU Family & Community Wellness Extension Agent

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Situation Statement:
Kevin is going to ride his bike to the grocery store to purchase yogurt for an afterschool snack. He has $1.00 to spend on a yogurt cup. He is starting to lift weights and wants to make sure he is getting at least 12 grams of protein per serving. Kevin prefers Greek yogurt. Kevin wants the yogurt to be his favorite flavor, banana.

Standards:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.00 or less</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>$0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 grams or more of protein per serving</td>
<td>5</td>
<td>X</td>
<td>X</td>
<td>6</td>
</tr>
<tr>
<td>12 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greek style</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Banana flavored</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Class Items:
1. Yoplait Light Fat-Free Strawberry Yogurt
2. Dannon Light & Fit Greek Raspberry Yogurt
3. Oikos Triple Zero Blended Greek Banana Crème Yogurt
4. Great Value Light Banana Cream Pie Fat Free Yogurt

Placing: 3-2-1-4
Cuts: 2-5-6

Reasons:
I place this class of yogurt 3-2-1-4.

I place 3 over 2 because 3 is banana flavored, while 2 is raspberry flavored.

I place 2 over 1 because 2 has 12 g or more of protein per serving having 12 g, while 1 contains 5 g.

2 is a Greek style yogurt, while 1 is not.

I place 1 over 4 because 1 costs $1.00 or less, priced at $0.56, while 4 exceeds $1.00 with a price of $1.20.

Grant: 4 is banana flavored.

I place 4 last because it is not $1.00 or less.

It does not have 12 g or more of protein per serving.

It is not a Greek style yogurt.

For these reasons, I place this class of yogurt 3-2-1-4.
Sample Class – Junior & Senior Yogurt
Kevin

#1

Yoplait Light Fat-Free Strawberry Yogurt

Cost: $0.56
Size: 6 oz.

Ingredients: Cultured Grade A Nonfat Milk, Strawberries, Water, Modified Corn Starch, Sugar, Kosher Gelatin, Citric Acid, Natural Flavor, Tricalcium Phosphate, Potassium Sorbate Added to Maintain Freshness, Acesulfame Potassium, Sucralose, Red #40, Vitamin A Acetate, Vitamin D₃.
Sample Class – Junior & Senior Yogurt
Kevin

#2

Dannon Light & Fit Greek Raspberry Yogurt

Cost: $0.74
Size: 5.3 oz.
Sample Class – Junior & Senior Yogurt
Kevin

#3
Oikos Triple Zero Blended Greek Banana Crème Yogurt

Cost: $0.83
Size: 5.3 oz.

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Sample Class – Junior & Senior Yogurt
Kevin

#4

Great Value Light Banana Cream Pie Fat Free Yogurt

Cost: $1.20
Size: 6 oz.

Ingredients
Contains milk. May contain traces of coconut and soy. Phenylketonurics: Contains phenylalanine. Cultured Pasteurized Grade A Nonfat Milk, Fruit Preparation (Bananas, Banana and Cream Flavor with Other Natural Flavors), Cornstarch-Modified, Aspartame (Phenylketonurics: Contains Phenylalanine), Citric Acid, Potassium Sorbate (Preservative), Tumeric, Annatto, Cornstarch-Modified, Gelatin, Whey Protein Concentrate, Polysorbate 80, Vitamin A Palmitate, Vitamin D3. Contains the Following Active Yogurt Cultures: L. Acidophilus and Bulgaricus, Bifidobacterium Longum and S. Thermophilus.

Nutrition Facts

<table>
<thead>
<tr>
<th>Amount Per 6 oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories 80 Kcal (335 kJ)</td>
</tr>
<tr>
<td>Calories from fat 0 Kcal</td>
</tr>
<tr>
<td>Total Fat 0g 0%</td>
</tr>
<tr>
<td>Cholesterol 6mg 2%</td>
</tr>
<tr>
<td>Sodium 95mg 4%</td>
</tr>
<tr>
<td>Total Carbs 12.1g 4%</td>
</tr>
<tr>
<td>Sugars 8g 32%</td>
</tr>
<tr>
<td>Protein 6g 12%</td>
</tr>
<tr>
<td>Vitamin C 1.5mg 3%</td>
</tr>
<tr>
<td>Vitamin A 0.5mg 16%</td>
</tr>
<tr>
<td>Calcium 200mg 20%</td>
</tr>
</tbody>
</table>

* Percent Daily Values are based on a 2000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.