**Introduction**

Making decisions about what to purchase is an everyday activity. You use your best judgment every time you make a purchase. Consciously or unconsciously, you weigh factors such as time, energy, price, quality and need. You decide the importance of each of these factors and then make your decision.

In judging, you do the same thing. You learn the standards of quality for goods and services. Then, you observe, compare and make decisions based on the facts you have collected.

Consumer judging teaches you to organize your thoughts and defend your decisions with oral reasons. You learn principles and standards for evaluating the quality of goods and services.

The skills you use in the consumer judging activity are skills you will use throughout your life. The more you practice and use these skills, the easier they will become. Practice in making decisions will provide you with opportunities to improve your problem-solving skills. Giving oral reasons will develop and polish skills you will use as you work with others in the future.

**Consumer judging helps you develop...**

- decision-making skills by applying the decision-making process and by recognizing quality standards for selected goods and services.
- self-confidence and skills in verbal expression by identifying reasons for choices made by using comparative language, by organizing thoughts and ideas in logical order and by thinking and speaking spontaneously.

**A good consumer judge has...**

- a clear idea or mental picture of an item’s characteristics.
- quick and accurate observation skills.
- the ability to weigh objectively and evaluate what is seen.
- the ability to defend choices made.

**Definitions**

**Contestant:** Contest participant.

**Contestant’s number:** This is the number assigned to a contestant during registration. It is used as identification throughout the contest.

**Class:** This includes the articles of one kind to be judged. Four similar products make a class (for example, four credit cards, four cordless phones or four pairs of sunglasses).

**Situation statement:** For each class, a buying problem is presented. This problem describes a hypothetical set of circumstances. As you place a class, consider which item is the “best” for the situation described.

**Placing:** The contestant examines articles in a class and decides which is best, second best, third best and poorest. This process is called placing.

**Placing card:** A card that has the written name of the class, the number of the contestant and the scores. The placing card also has a listing of all possible combinations in which a class of four items can be placed.

**Oral reasons:** An oral explanation of why the articles are placed as they are. An official will listen to your reasons and will score you on accuracy, information presented and delivery.
Organizing the Contest

There are two divisions in the Consumer Judging Contest: junior and senior. Each division is composed of teams of three or four members each from the appropriate age group.

Each team member will make individual decisions about the four items within each of three categories. Team members will have 5 minutes per category for ranking the items. Individuals also may participate in the event but are not considered a team.

In the junior division, a written reason will be given for the decision in one category. The written reason will determine the winner in the event there is a tie. The category for written reasons will be announced the day of the judging activity.

In the senior division, after individual team members have turned in their score cards, the team as a group will decide on the ranking in one category. The captain of the team will present oral reasons to the judges for the choices made. The method for selecting the captain will be explained by the chair of the consumer judging activity the day of the contest.

The team will have 15 minutes to make its ranking and develop the reasons for its decision. The captain will have 5 minutes to present the reasons to the judges.

The Judging Procedure

The judging activity involves combining your knowledge of consumer products with your decision-making skills. The following steps will help you combine these two important types of knowledge.

1. Identify the Class
   When you judge a class, follow a logical sequence. What is the class you are going to judge? As soon as you identify the class, consider the general characteristics of the item, its use, and the service that might be expected.

2. Analyze the Situation Statement
   Read the situation statement carefully. Pick out the standards. If cost and construction are not included in the situation statement, add them. Below are some things to look for as you read a situation statement.

   • WHO will use the item?
   • HOW and WHERE will the item be USED?
   • What CARE (or upkeep) will the item require?
   • What COST is involved? (Consider both purchase and upkeep of the item.)
   • How LONG WILL THE ITEM LAST?
   • What is the QUALITY of the item? (Is it well-made and durable?)

Preparing for Reasons

Giving reasons for your decisions is an important part of consumer judging. When you explain your placing, you are giving reasons. To give reasons, you will need to do the following:

   • Have a clear picture of the entire class in mind.
   • Know the quality or standards for the judged class.
   • Be able to compare good and poor points for each choice.
   • Take notes and study them before giving your reasons.

Pairing

It is easier to evaluate and discuss two items at a time instead of comparing all four at once. With four items, there are three pairs: top, middle and bottom. For example, suppose you ranked a class of athletic shoes 3-2-4-1.

<table>
<thead>
<tr>
<th>Top pair</th>
<th>Middle pair</th>
<th>Bottom pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

This means: 3 and 2 are your top pair, 2 and 4 are your middle pair and 4 and 1 are your bottom pair.

When there is little difference between a pair, it is called a close pair. Items that are obviously different are referred to as an easy pair.

Making Notes

Your reasons will be easier to develop if you follow an orderly system. Begin by making good notes. They should be short, simple and easy to make. Here is an example outline for taking notes:

Reasons for Placing      Admit or Grant      Faults
Giving Reasons

There is a basic format for giving reasons. The format helps you organize your thoughts for presenting reasons, and it also helps the person listening to the reasons. The following four steps will help you plan your reasons:

1. **Open Statement:** Give the name of the class and the order of placing. Example: “I placed this class of athletic shoes 3-2-4-1.”

2. **General Statement:** Give a general impression of the overall class. Example: “This was a somewhat difficult class to judge, with a close middle pair and an obvious bottom athletic shoe.”

3. **Explanation of Reasons:** Tell why one choice was placed over the next by comparison. Explain the major difference between the top pair, the middle pair and the bottom pair. Example: “I place 3 over 2 and at the top of the class for its overall good quality for the price. Both the materials and the construction are of good quality. It meets the easy-care requirements for Rob. Style, features and details are typical of athletic shoes. I admit that 2 has the same materials and requires similar care. It also costs less. However, I fault athletic shoes 2 for lacking the quality of material and the construction details of athletic shoes 3.”

   “In the middle pair, I place 2 over 4 because the overall quality is better. In general appearance, materials and construction, it is superior to athletic shoes 4. Granted, athletic shoes 4 is the least expensive, a good value for the money and easy to care for. I fault it for poor-quality materials, poor construction and general appearance. The high man-made-material content will make it hot to wear and could result in irritation to the feet.”

   “I place 4 over 1 because the price, $40, is more in line with the budget and the material content will make it easier to care for. I grant that athletic shoes number 1 is the best quality; best construction; and with 100 percent cotton fiber, the most comfortable to wear in warm or hot weather. I fault athletic shoes 1 because of the high cost, even on sale, and the life expectancy. One-hundred-percent cotton will stain more easily and will not stand up to the everyday use as well as some of the shoes with blends of man-made materials.”

4. **Closing Statement:** Repeat the opening statement, but begin with “therefore” or “for these reasons.” Example: “Therefore, I place this class of athletic shoes 3-2-4-1.”

**Tips for Oral Reasons**

In the preparation of oral reasons, try to inform the judge that you saw and analyzed the items in relation to the given situation.

When you are being scored on your oral reasons, what you say will have the greatest influence on the judge. However, the way you present your reasons also influences the judge. Your reasons will be scored on the following:

- accuracy and completeness about the placings and facts given.
- confidence exhibited about the decision-making process and the belief that your placing is correct.
- experience as shown by the knowledge and use of specific terms for the specific item.
- poise as exhibited by being at ease, by use of grammar and speaking skills and by being wide awake and alert.

For the class on which you are to give oral reasons, you should...

- have in mind a clear picture of the entire class.
- know the qualities or standards for judging that particular class.
- be able to compare the good and poor qualities of each item.
- make notes and study them ahead of time.
  (Do not read your notes.)

Remember, the basic format for giving oral reasons is an opening statement, a general statement, an explanation of reasons and a closing statement.

Additional guidelines and terms you may find useful as you prepare and give your oral reasons:

- Be serious, but pleasant. A smile is always welcomed.
- Use good posture. Stand on both feet and keep your hands relaxed.
- Don’t fidget!
Have confidence in yourself.

Look at the judge.

**Scoring**

Before starting a contest, you will be given placing cards with your contestant number and team number on them. You will have one card for each class. If the cards are not already numbered, you will be given instructions for doing this. After each class, turn in your placing card to the person in charge.

The placing card has a listing of all possible combinations in which a class of four items can be placed. Find the placing you believe is correct and put a check mark (✓) immediately to the right of it. For example, if you place the items 3-4-1-2, mark the card as illustrated in the next column. This means you placed item number 3 first, item number 4 second, item number 1 third and item number 2 last.

The score for the ranking will be determined using the Hormel Computing Slide. This allows for differences in class placings to be taken into account. For example, if two items differ only in minor areas, fewer points will be deducted than if major differences exist between the two items. A perfect score for rankings would be 50.
4-H Activity and Events
Consumer Judging

- 4-H Consumer Judging Guide
- All Fluids
- Breakfast Cereals
- Energy Drinks
- Facts About Clothing
- Green Cleaning Products
- Hoodies
- Jeans
- Luggage
- Movie Rentals
- Produce
- Selection and Use of Home Cleaning Products
- Televisions
- Toys
- Umbrellas
- Yogurt

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As consumers become more conscious about the significant role that food plays in keeping them healthy, they often search for products that promote wellness and provide prevention against diseases. Functional food products are becoming increasingly popular due to this perception by consumers. The beverage industry has not wasted much time in capitalizing upon this consumer trend and has responded to this demand by creating health-promoting functional beverages that fit neatly into the healthiness-on-the-go market. According to Beverage Marketing Corporation, functional beverage sales in the U.S. have tripled over the past five years, with sales in 2007 totaling $9.8 billion. Ready-to-drink noncarbonated beverages showed a 13 percent growth, while soft drinks reported a 3 percent decline during this same period.

**Functional Beverages**

A functional beverage can be defined as a drink product that satisfies thirst, is nonalcoholic, is ready to drink and includes in its formulation nontraditional ingredients, such as herbs, vitamins, minerals, amino acids or additional fruit/vegetable raw ingredients, depending on the purpose for which it is designed.

Sports and performance drinks, energy drinks, ready-to-drink teas, enhanced fruit drinks, soy beverages, and enhanced water, among others, are some of the product segments under the functional beverages umbrella in the marketplace. Popular ingredients in functional beverages include caffeine, green tea, yerba mate, vitamin C, schizandra, acai, ginger, cranberry extracts and ginkgo biloba.

Enhanced waters are also surging in popularity, with a number of formulations labeled with catchy names and slogans with images of health and tranquility. Soft drinks are even branching into the functional market with vitamin-enriched colas.

But consumers should think twice before sipping drinks that promise to “enlighten your senses” or “sharpen your mind.” While some functional beverages may provide hydration, many may not address today’s major health issues – such as obesity, heart disease, and cancer. Most people do not benefit from low levels of vitamins and minerals found in many of these beverages. Typically, functional beverages do not capitalize on recognized short-fall nutrients like calcium, potassium, folate, and vitamin D but add B vitamins and vitamin C because they are water soluble and can be added without significantly changing the taste.

Functional beverages are often very expensive, usually double that of soft drinks or bottled water. These beverages also add extra calories to one’s diet. For example, one popular energy drink contains 130 calories and 34 grams carbohydrates in an 8.3-ounce serving – this is higher than colas. Other products contain ingredients that have not been sufficiently studied for health benefits, safety and dosage. Caffeine content can also be high in these products. Caffeine content of caffeinated energy drinks ranged from 0 to 141 milligrams per serving. An average 8-ounce cup of coffee contains 133 milligrams of caffeine.

The Food and Drug Administration (FDA), which regulates the claims food and drink makers can put on their labels, does not require companies to seek approval for claims before the products reach store shelves. Specific health claims of links
between a product and disease or about how a nutrient affects functions of the body are supposed to be backed by scientific evidence. However, the FDA cannot get involved until after the product is available to consumers and questionable claims have been made. The FDA is currently reviewing its regulation of functional foods.

The point of drinking any fluid is to rehydrate the body. Tennis players can lose as much as two quarts of water an hour, and a professional football player working out in August can lose a quart and a half. Water works best to replace those fluids, but sometimes athletes want more.

**Water**

Water has historically been considered the best choice of fluids for athletes. Research has shown that during 1 hour of cycling in the heat, high water intake (1.3 liters or 5½ cups) improved performance 6.5 percent more than lower water intake (200 milliliters or about ¾ cup). However, adding carbohydrates (6-8 percent) to the 1.3 liters of water improved performance another 6.3 percent. Water is a good fluid replacement during exercise for the majority of athletes, especially those who compete in events of short duration (less than 1 hour of intense exercise at a time) where they can replace fluids during the event. Refillable water bottles and jugs are available, making water a relatively inexpensive beverage choice. Commercially bottled water in individual servings is also available, which is a little more costly but might be more convenient, depending upon the situation. When choosing between bottle or tap water, both are safe and equal in nutrition, but tap water may have more fluoride. Cooling water (to about 50-59 degrees F) improves the taste to many people, and water of this temperature may get out to the muscles of the body faster, cooling the body more quickly.

**100% Fruit Juice**

One hundred percent fruit juice is very nutritious. It provides the same vitamins and minerals naturally found in fruit, although juice is a little lower in fiber. One hundred percent fruit juice is a nutritious beverage choice. However, because of the high amount of naturally present sugar (usually about 12 percent carbohydrate, or 29 grams per 8 ounces), it may cause stomach distress and impair exercise performance. If used as a fluid replacement for an athlete, juice should be diluted (half water, half juice). One hundred percent fruit juice is often available in single serving containers. Labels should be read to ensure that the product is 100 percent juice. Juice should be diluted for young children also.

**Fruit Juice Beverages**

Fruit juice beverages, fruit juice drinks, fruit punch and fruit “ades” are not the same as 100 percent fruit juice. These fruit drinks usually contain water, calorie-containing sweeteners, colors and flavoring. Some fruit juice (often as little as 10 percent) is usually added along with vitamin C. Label claims, such as “made with real fruit juice,” should be investigated to determine how much fruit juice is actually in the product. Fruit juice beverages are usually less expensive than 100 percent fruit juice. They may be sold as powdered drink mixes or as ready-to-drink products. Carbohydrate content is generally the same as fruit juice, about 12 percent (29 grams per 8 ounces), which is an amount high enough so that it may cause stomach distress and impair exercise performance. If used as a fluid replacement for athletes, fruit juice beverages should be diluted (half water, half juice).

**Sodas**

Sodas are carbonated soft drinks (nonalcoholic beverages) made from water, sweeteners, flavorings, colors, acids and carbon dioxide. The calorie-containing sweeteners most often used are sugar and high fructose corn syrup. The non-nutritive sweeteners on the market today used in soft drinks, with table top version listed in parentheses, include aspartame (Equal or Nutrasweet), sucralose (Splenda), acesulfame potassium (Sunette) and saccharin (Sweet ‘n Low). All of these non-nutritive sweeteners have been approved by the Food and Drug Administration (FDA). Caffeine, a stimulant, is present in some sodas and must be listed as an ingredient if it is added. It is naturally present in the cola nut, from which colas are made.

Although sodas are popular, they have no nutritional value except for providing fluid and energy from carbohydrates when it is used as the
sweetener (generally sucrose and high fructose corn syrup). The calories that soda provides are considered empty calories because few, if any, vitamins or minerals are present. Soda manufacturers have begun trying to increase the nutritional value of some products by adding vitamins and minerals. The carbohydrate content of sodas, which contain caloric sweeteners, is about the same as fruit juice, about 10-12 percent (38 grams per 12 ounces). This is an amount high enough to potentially cause stomach distress and impair exercise performance for the athlete. Diet soft drinks contain little, if any, carbohydrates. However, stomach discomfort due to the carbonation in sodas could result.

**Sports Drinks**

Sports drinks are made of water, mineral salts (mainly sodium and potassium) and calorie-containing sweeteners (usually sugar or high fructose corn syrup). They have approximately 50-75 calories, 80-110 milligrams of sodium and 30-45 milligrams of potassium per 8-ounce serving. Sports drinks generally do not contain vitamins or protein. Gatorade and PowerAde are two common sports drinks, although other brands, including generic and store brands, may be available. They are packaged in ready-to-drink, single-serving bottles ranging from 8 to 32 ounces and ready-to-mix powder. The carbohydrate content is usually 6-8 percent (14-18 grams carbohydrate per 8 ounces), an amount that studies have shown is well tolerated in the heat and improves endurance when physical activity is for an hour or more. A recent study showed that consuming 1.3 liters (about 5½ cups) of water alone improved performance during one hour of cycling, but when 79 grams of carbohydrate were added, performance improved even more.

**Tea**

Sweet tea contains about the same amount of sugar as soda. Regular sweet tea and diet sweet tea are available in single-serving bottles and cans and in larger containers ready to drink. Tea bags and tea leaves are available for those who like to brew their own tea, and powdered tea mixes, with and without sweetener, are also popular. A caffeine-like stimulant is naturally present in tea, so it should be assumed that the product has caffeine unless it is labeled as “decaffeinated.” In the South, sweet tea typically contains at least as much sugar as soda, about 10-12 percent carbohydrate (38 grams per 12 ounces). This is an amount high enough to potentially cause stomach distress and impair exercise performance for the athlete. Unsweetened tea or tea sweetened with non-nutritive sweeteners does not contain carbohydrates. Regular and decaffeinated tea contains natural antioxidants called flavonoids. However, tea is not a substitute for fruits or vegetables, which provide a wider range of antioxidants along with vitamins and minerals. The potential health benefits of tea are the focus of many scientific studies. However, it is too early to draw any conclusions about tea’s contributions to health.

**Flavored Water**

Flavored waters or fitness waters are relatively new to the marketplace. Dasani Flavored Water, Sam’s Choice Clear American, Propel, Fruit20 and others are available in various fruit flavors. Most flavored waters contain one or more non-nutritive sweeteners such as sucralose (Splenda), aspartame (NutriSweet or Equal) and acesulfame potassium (Sunette). Sometimes sucrose (table sugar) is also in the sweetening blend, in which case, the product will have some calories from carbohydrates. Some brands also have vitamins and minerals added. In general, flavored waters provide an additional category of beverage choices with the benefits of plain water.

**Milk**

Like all beverages, milk is a source of water. Milk is approximately 89 percent water. It is also one of the best sources of calcium in the American diet. Along with water, milk supplies us with many essential nutrients—calcium, vitamin D, vitamin A, protein, potassium, riboflavin, vitamin B12, phosphorus and niacin. Fat and calorie content differ between the various types of milk from skim to whole, but the other nutrients are about the same. MyPyramid suggests 3 cups of milk or low-fat dairy product for every person each day. The protein and calcium in dairy products are especially important for athletes as they work to build strong muscles and bones.
Hydration Before, During and After Exercise in the Heat

It is important for athletes to make sure they drink plenty of fluids, beginning several days before an event. The extra water is not stored in the body, but it enables the body to be fully hydrated at the start of the event. According to an article in The Physician and Sports Medicine, drinking about 2 cups (16 ounces) of fluid two hours before an event may help keep athletes from becoming dehydrated. However, those participating in sports where a great deal of running is involved may find this uncomfortable, so it should be practiced in training sessions.

Drinking fluids during exercise in the heat reduces dehydration, body temperature and strain on the heart. It can also increase performance. The amount needed varies because of individual differences. General recommendations range from 5-10 ounces of fluid every 15-20 minutes during heavy exercise. If the exercise is for longer than one hour, fluid with 6-8 percent carbohydrates may be beneficial for endurance. In addition, ultra endurance athletes (events lasting 4 hours or more) should consume food or fluid containing carbohydrates, sodium and other electrolytes during and after the event. The amount of fluid which individuals should replace after exercise varies a great deal from person to person. The best way to determine individual fluid replacement needs is to weigh before and after exercise, keeping everything else the same (clothing, shoes, etc.). Replace every pound lost with 1 pint (16 ounces or 2 cups) of fluid (a pint, a pound). Research indicates that sodium is important for fluid restoration after exercise. Most physically active people do not need to replace the minerals lost in sweat immediately. A meal eaten within a few hours of competition can replace these minerals soon enough for most people.

References


Functional Beverages by Carol W. Turner, PhD, RD, Extension Food and Nutrition Specialist.


Adapted from “Fluid Tips for the Active Person: Comparing Sports Drinks” by Gail M. Hanula, EDs, RD, LD, Extension Nutrition and EFNEP Specialist.

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Introduction and Background

Have you heard of the “most important meal of the day”? That’s breakfast.

A healthful, balanced breakfast can give you the energy you need to do well in school. If you do not eat breakfast, you are more likely to feel tired, restless, and even crabby.

With so many breakfast foods out there, how do you know which ones are the most healthful options? Think about the food groups shown on MyPlate (grain, vegetable, fruit, milk, and meat and beans) and some foods you like from each group. Which foods would you enjoy for breakfast? For more information check out the MyPlate web site (www.myplate.gov).

Let’s take a closer look. What breakfast cereals are in your cupboards? Sweetened cereals are marketed skillfully to today’s youth. The breakfast cereal aisle at your grocery store is loaded with colorful boxes and bags of dry cereal. The bright colors and cute cartoon characters on the packages may get your attention. Look beyond the advertising to find out what cereals are best for you.

Some Types of Breakfast Cereals

While many types of breakfast cereals are available, most of them can be broken into just five main categories.

Whole-Grain Cereal

Nutrition experts recommend that we make half our grain choices whole grain. Whole grains are an excellent source of fiber. Identify whole-grain products by reading the ingredients listed on the food label. You cannot identify whole grains by the color of the food. Examples of whole grains are whole barley, brown rice, bulgur (cracked wheat), whole wheat, oats and rye. Look for whole grain or made with whole grain cereals. Examples such as Cheerios, Kashi and Shredded Wheat feature whole grains with very little or no added sugars. To identify a whole-grain cereal, you can look for the health claim. Researchers at Columbia University Medical Center have found that oat-based whole-grain cereals can help reduce blood cholesterol and aid in heart health. Other whole grains, such as whole wheat, can help you feel full and satisfied as you start your day.

Hot Cereal

Hot cereals such as oatmeal, Cream of Wheat and Malt-O-Meal are a warm, comforting, and wholesome way to enjoy breakfast. Some hot cereals are available in wholesome, unsweetened versions as well as instant, sweetened versions. By buying unsweetened, whole-grain hot breakfast cereals, you can add naturally sweet fruit or a drizzle of honey for a touch of sweetness.
Many **ready-to-eat cereals** such as Corn Flakes and Rice Krispies are not made from a whole grain. These cereals are fortified and enriched to include some of the nutrients that we get from whole grains.

### Bran Cereal

Bran cereals, such as Raisin Bran, Fiber One, All-Bran and Bran Flakes, are high-fiber offerings for your breakfast table. Fiber can help you keep feeling full and aid in digestion and regularity. Are you getting enough dietary fiber in your daily diet? Consider adding a bran-based cereal to your morning routine. When adding fiber to your diet, add it slowly and drink plenty of water.

### Sweetened Cereal

Sweetened cereals sometimes are called “candy cereals,” and they often are placed at a child’s eye level in the grocery store. Check the ingredient label for added sweeteners, which may be listed as sugar, brown sugar, honey, molasses, high-fructose corn syrup, dextrose, sucrose, maltose or fruit juice concentrates.

If you enjoy sweetened cereals such as Reese’s Puffs, Fruit Loops and Lucky Charms, have them as an occasional fun treat but not on a daily basis. Or mix sweetened cereals with unsweetened cereals. Many nutrition experts recommend that we look for cereals with 8 grams or less of sugar per serving. Look at the Nutrition Facts label and compare grams of sugar among types of cereal.

### Organic Cereal

Nature’s Path, EnviroKidz and Cascadian Farm are examples of organic cereal brands. Organic food is produced without using pesticides and fertilizers. Organic foods also cannot be genetically engineered. Compare the Nutrition Facts labels to help you decide if the added cost is worth the possible benefit to your health.

### Questions of Ask Yourself

**Do you “make half your grains whole”?**

MyPyramid teaches us to make at least half of our grain food choices whole grains. For kids and teens, this means trying to eat at least 3 ounces of whole grains each day.

**How do you know if a food has whole grain?**

Look for a couple of clues.

1. Look for the word “whole” before grain on the ingredient list. It is usually under the Nutrition Facts panel. For example, the ingredient list for Cheerios is *Whole Grain Oats (includes the oat bran), Modified Corn Starch, Sugar, Salt, Tripotassium Phosphate, Wheat Starch.*

2. Look for a “health claim” on the package. Some whole grain foods also carry a health claim, such as this: “*Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain fiber, particularly soluble fiber, may reduce the risk of coronary heart disease.*”

**Do you like colorful cereal that is very sweet?**

Many cereals have lots of added sweeteners. We all can enjoy some sweet treats, but not if it crowds out healthier foods. Go for the nutrition bonus by enjoying naturally sweet fruit on your whole-grain cereal. Raisins or other dried fruits will add to the amount of sugar shown on the Nutrition Facts panel. This natural sugar is not distinguished from added sugars, so you only can estimate the amounts of natural versus added sugars. Check the list of ingredients to help you determine how much sweetener has been added. Ingredients are listed on the ingredient label in order of weight, from most to least. If sugar is listed first, you may want to keep looking to get the most nutrition for your money.

**Is your cereal a good source of fiber?**

Fiber fills you up and may help with weight management. “Insoluble fiber” (found in bran cereals) may help prevent constipation. “Soluble fiber” (found in oatmeal) may help people reduce their blood cholesterol level.

**How much fat does the cereal contain?**

Although many types of cereals are low in fat, many granolas and some other cereals may
contain saturated fat from coconut or palm oil. Saturated fat and trans fat are not heart-healthy fats. Compare Nutrition Facts labels.

**How hungry are you?** Whole-grain breakfast cereals can be tasty, good for you and fill you up, too. Pay attention to the serving size on the package. Is it 1 cups, 1 cup, % cup, or cup? We may eat more than the suggested single-serving size found on the food label. Remember that the numbers on the Nutrition Facts label refer to the nutrients in one serving of the food, so you may need to do some math.

**How much can you spend?** To compare food items, you need to look at the cost per serving. To determine the cost per serving, you can divide the total cost of the snack by the number of servings.

**Is it good for you?** Your breakfast combines with the meals and snacks you eat to make your body strong and healthy. Calcium, iron, protein, vitamin A and vitamin C are important for growing bodies. These nutrients are listed on the Nutrition Facts panel.

**Do you drink the milk in the bottom of your cereal bowl?** Most breakfast cereals are fortified with vitamins and minerals and contain 10 to 100 percent of the daily value for nutrients. Some vitamins and minerals may end up in the bowl, so drink your milk to take advantage of the nutrients.

You deserve the best. Your body is an amazing machine, and food is the fuel. Choosing your breakfast cereal wisely helps you put the best fuel in your body and will keep your body running at its best.

### Reading Food Labels (sample label for macaroni and cheese)

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<thead>
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<th>Action</th>
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<tr>
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<td>3</td>
<td>Limit these Nutrients</td>
</tr>
<tr>
<td>4</td>
<td>Get Enough of these Nutrients</td>
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<tr>
<td>5</td>
<td>Foodnote</td>
</tr>
<tr>
<td>6</td>
<td>Quick Guide to % Daily Value</td>
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#### Nutrition Facts

**Serving Size 1 cup (228g)**

<table>
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</tr>
<tr>
<td>Sodium</td>
<td>470mg</td>
<td>10%</td>
</tr>
<tr>
<td>Total Carbohydrates</td>
<td>31g</td>
<td>0%</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>0g</td>
<td></td>
</tr>
<tr>
<td>Sugars</td>
<td>5g</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>5g</td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>Vitamin C</td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td>4%</td>
</tr>
</tbody>
</table>

*percent daily values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

<table>
<thead>
<tr>
<th>Calories</th>
<th>2,000</th>
<th>2,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>Less than 65g</td>
<td>80g</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>Less than 20g</td>
<td>25g</td>
</tr>
<tr>
<td>Trans Fat</td>
<td>Less than 300mg</td>
<td>300mg</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Less than 2,400mg</td>
<td>2,400mg</td>
</tr>
<tr>
<td>Sodium</td>
<td>Less than 30g</td>
<td>37g</td>
</tr>
<tr>
<td>Total Carbohydrates</td>
<td>30g</td>
<td>30g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>25g</td>
<td>30g</td>
</tr>
</tbody>
</table>

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Arkansas Cooperative Extension Service is implied.

**Acknowledgment**

is given to Monique Stelzer and Julie Garden Robionson, North Dakota State University, for the original manuscript.

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University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.
To judge clothing you need some basic knowledge. A garment performs according to what it’s made of and how it’s made. You need to know about the fibers from which fabric is made, fabric construction, color and design on fabric and fabric finishes. You also need to know about care labels.

A general knowledge of construction methods helps you recognize quality and also predict durability. Design features also determine how suitable a garment is for a person or a particular use.

This manual provides the basics on fiber content, fabric construction, color and design, fabric finishes, seam construction, care labels and general criteria (reasons) for garment selection. It’s a lot to learn, but remember – you aren’t just learning for a contest – you’re learning for a lifetime of smart choices.

Fiber Content

The Textile Fiber Products Identification Act protects consumers and producers from false advertising and mislabeling of the fiber content of textile fiber products.

This act requires most textile products sold at retail price to have labels stating the textile fiber content. To reduce confusion, the law establishes 21 generic or family names of textile fibers. If you learn the generic names, you won’t need to remember the hundreds of trade names. For example, polyester is a generic fiber classification; Dacron, Kodel and Fortrel are all manufacturers’ trade names for their polyester fibers.

Each label must give the following information.

- The generic or family name of the fiber.
- The name of the manufacturer or a registered identification number or trade mark.
- The percent of each fiber in the fabric listed in order of its predominance by weight. If a particular fiber is five percent or less, it may be designated as “other fiber.”
- The country of origin, if other than the United States.
- The fiber trade name may be given on the label, if desired. If so, the trade name cannot be used without the generic classification and the trade name may not be in larger print than the generic.

Fibers in each generic class behave much the same. It’s wise to learn the generic names and their general characteristics.
Here are the most common generic classes used for clothing items:

<table>
<thead>
<tr>
<th>Fiber</th>
<th>Advantages</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Absorbent.</td>
<td>Wrinkles unless treated.</td>
</tr>
<tr>
<td></td>
<td>Cool.</td>
<td>Susceptible to mildew and strong acids.</td>
</tr>
<tr>
<td></td>
<td>Comfortable to wear.</td>
<td>May scorch.</td>
</tr>
<tr>
<td></td>
<td>Durable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economical.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td></td>
</tr>
<tr>
<td>Linen</td>
<td>Best wicking of natural fibers; therefore, cool to wear.</td>
<td>Wrinkles badly unless treated.</td>
</tr>
<tr>
<td></td>
<td>Dries quickly.</td>
<td>Susceptible to mildew and strong acids.</td>
</tr>
<tr>
<td></td>
<td>Natural, soft sheen.</td>
<td>Color frosts on creases.</td>
</tr>
<tr>
<td></td>
<td>Strong and durable.</td>
<td>May be weakened with repeated creasing in the same place.</td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td>May scorch.</td>
</tr>
<tr>
<td>Ramie</td>
<td>Cool.</td>
<td>Wrinkles easily.</td>
</tr>
<tr>
<td></td>
<td>Absorbent.</td>
<td>May be weakened with repeated creasing in the same place.</td>
</tr>
<tr>
<td></td>
<td>Wicks.</td>
<td>May scorch.</td>
</tr>
<tr>
<td></td>
<td>Resists mildew, insects and rotting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very economical.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td></td>
</tr>
<tr>
<td>Silk</td>
<td>Luxurious.</td>
<td>Weakened by sunlight, perspiration and chlorine bleach.</td>
</tr>
<tr>
<td></td>
<td>Lightweight.</td>
<td>Absorbs body oils and grease stains.</td>
</tr>
<tr>
<td></td>
<td>Dyes in beautiful, rich colors.</td>
<td>Water spots.</td>
</tr>
<tr>
<td></td>
<td>Absorbent.</td>
<td>Yellows and fades with age.</td>
</tr>
<tr>
<td></td>
<td>Strong.</td>
<td>Subject to attack by carpet beetles unless treated.</td>
</tr>
<tr>
<td></td>
<td>Moderately wrinkle resistant.</td>
<td>Affected by high temperatures.</td>
</tr>
<tr>
<td></td>
<td>Resists mildew and moths.</td>
<td>Loses strength when wet.</td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td>Should be pressed with a press cloth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Color damaged by hair spray.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Damaged by perfumes.</td>
</tr>
<tr>
<td>Wood and specialty hair fibers: Alpaca, Camel's hair, Cashmere, Llama, Mohair, Vicuna</td>
<td>Warm and comfortable to wear.</td>
<td>Subject to attack by moths and carpet beetles unless treated.</td>
</tr>
<tr>
<td></td>
<td>Absorbent.</td>
<td>May shrink and felt when laundered unless blended or especially treated.</td>
</tr>
<tr>
<td></td>
<td>Wrinkle resistant.</td>
<td>Damaged by chlorine bleach.</td>
</tr>
<tr>
<td></td>
<td>Mold and shape easily when pressed.</td>
<td>Damaged by dry heat.</td>
</tr>
<tr>
<td></td>
<td>Water repellent.</td>
<td>Loses strength when wet.</td>
</tr>
<tr>
<td></td>
<td>Flame resistant.</td>
<td>Sensitive to alkaline agents.</td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td>Should be pressed with a press cloth.</td>
</tr>
</tbody>
</table>

Facts About Clothing 2
<table>
<thead>
<tr>
<th>Fiber</th>
<th>Advantages</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rayon</td>
<td>Dyes easily.</td>
<td>Wrinkles easily.</td>
</tr>
<tr>
<td></td>
<td>Versatile.</td>
<td>Weaker when wet.</td>
</tr>
<tr>
<td></td>
<td>Relatively inexpensive.</td>
<td>Damaged by strong acids and mildew.</td>
</tr>
<tr>
<td></td>
<td>Absorbent.</td>
<td>May shrink or stretch unless treated.</td>
</tr>
<tr>
<td></td>
<td>Does not melt.</td>
<td>May scorch.</td>
</tr>
<tr>
<td>Acetate</td>
<td>Feels and appears silky.</td>
<td>Poor abrasion resistance.</td>
</tr>
<tr>
<td></td>
<td>Has good drapability.</td>
<td>Builds up static electricity.</td>
</tr>
<tr>
<td></td>
<td>Solution-dyed fibers resist fading.</td>
<td>Requires care in pressing due to heat sensitivity.</td>
</tr>
<tr>
<td></td>
<td>Resists pilling.</td>
<td>Loses strength when wet.</td>
</tr>
<tr>
<td></td>
<td>Resists mildew and moths.</td>
<td>Damaged by silverfish.</td>
</tr>
<tr>
<td></td>
<td>Dries quickly.</td>
<td>Dissolves in acetone, acetic acid and alcohol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subject to fume-fading unless solution-dyed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melts at low temperature.</td>
</tr>
<tr>
<td>Triacetate</td>
<td>Good wrinkle resistance.</td>
<td>Dissolves in acetone, nail polish remover, paint remover and some perfumes.</td>
</tr>
<tr>
<td></td>
<td>Less sensitive to heat than acetate.</td>
<td>Melts at relatively low heat.</td>
</tr>
<tr>
<td></td>
<td>Retains creases.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blends well with other fibers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More resistant to sunlight than rayon and acetate.</td>
<td></td>
</tr>
<tr>
<td>Nylon</td>
<td>Extremely strong.</td>
<td>Builds up static electricity.</td>
</tr>
<tr>
<td></td>
<td>Extremely durable.</td>
<td>Low moisture absorption.</td>
</tr>
<tr>
<td></td>
<td>Can be heat set to retain pleats.</td>
<td>Grays and yellows with age and poor care.</td>
</tr>
<tr>
<td></td>
<td>Wrinkle resistant.</td>
<td>Picks up dye and soil in laundering.</td>
</tr>
<tr>
<td></td>
<td>Resists mildew and insect damage.</td>
<td>Absorbs and holds body oils and perspiration stains.</td>
</tr>
<tr>
<td></td>
<td>Does not burn easily.</td>
<td>Melts if too hot.</td>
</tr>
<tr>
<td></td>
<td>High elasticity.</td>
<td>Pills if spun.</td>
</tr>
<tr>
<td></td>
<td>Very resistant to abrasion.</td>
<td></td>
</tr>
<tr>
<td>Polyester</td>
<td>Wrinkle resistant.</td>
<td>Absorbs body oils.</td>
</tr>
<tr>
<td></td>
<td>Retains heat-set pleats and creases.</td>
<td>Accumulates static electricity.</td>
</tr>
<tr>
<td></td>
<td>Superior wash-wear performance.</td>
<td>May pill and attract lint.</td>
</tr>
<tr>
<td></td>
<td>Strong.</td>
<td>Absorbs perspiration odor.</td>
</tr>
<tr>
<td></td>
<td>Resists damage from abrasion, strong sunlight, weather conditions,</td>
<td>Melts if too hot.</td>
</tr>
<tr>
<td></td>
<td>moths, mildew and most strong chemicals.</td>
<td></td>
</tr>
<tr>
<td>Fiber</td>
<td>Advantages</td>
<td>Limitations</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Rubber</td>
<td>Very elastic. Adapted for many uses.</td>
<td>Sensitive to heat. Damaged by perspiration, body oils, lotions, creams and light. Bondings may become soft from perspiration or cleaning. Melts at relatively low heat.</td>
</tr>
<tr>
<td>Metallic</td>
<td>Adds a rich quality. Laminated yarns are lightweight, non-tarnishable and relatively inexpensive.</td>
<td>Sensitive to abrasion. Laminated yarns are sensitive to heat. Plastic coating on yarns may melt.</td>
</tr>
</tbody>
</table>
Fabrics

Fabrics are usually constructed from yarns. Fabrics vary as much as the fiber(s) yarns and construction processes used to make them. In addition to the many types and varieties of yarns, the yarns may be made into fabric by several processes. The appearance, design, texture, hand and serviceability can be affected by fabric construction.

**Woven fabrics** are made by interlacing two or more sets of yarn at right angles to each other. The set of yarns running lengthwise is called *warp*; the crosswise yarns are called *filling*. Woven fabrics have grain and the yarns may be raveled in the lengthwise and crosswise direction. The interlacing pattern gives interest to the fabric. The following are three basic weaves and several variations of these weaves:

**Plain weave** is the simplest of weaves. The filling yarn passes over one warp yarn and under the next, alternating across the fabric. Broadcloth, poplin and taffeta are made by a plain weave using heavier yarns in one direction. Bengaline and faille are ribbed fabrics made by using a plain weave and heavy filling yarns.

![Plain Weave](image)

**Basket Weave**

*Twill weave* is identified by diagonal ridges on the face of the fabric. In the simplest twill weave, the filling yarn is carried over one and under two warp yarn. Each yarn progresses one yarn to the right or left to create the diagonal pattern.

Twill weaves are usually tightly woven. They don’t soil as quickly as plain woven fabrics, but are more difficult to clean. They’re durable, so they’re used often for clothes that get heavy wear.

Surah, drill, denim, khaki and gabardine are all made with a twill weave. Herringbone fabric reverses the twill line at regular intervals and creates a design that resembles the backbone of a fish.

**Satin weave** is created by passing a yarn over four or more yarns before going under one yarn. Some satin weaves may cross over as many as seven yarns. The result is long floats that create a luster on the fabric face. The floats may be warp or filling yarns. The long floats are easily picked and pulled. The fabric is easily abraded.

![Twill Weave](image)
Because of their smoothness, satin weave fabrics make good linings. Satin, sateen, and crepe back satin are satin weave fabrics. Satin is considered a dressy fabric. But, some satin weaves are used for fabrics suitable for pants, jackets and upholstery.

_Pile weave_ - Some fabrics are made using a base fabric plus an extra set of yarns. The loops of yarn extend above the base fabric.

_Terry cloth_ is an _uncut_ pile fabric. It’s used in towels, robes and swim coverups. Corduroy, velvet and velveteen are _cut_ pile fabrics. The loops have been cut giving a plush surface that reflects light. Cut pile fabrics show crush and abrasion. The ribs of corduroy make this wear less visible.

Knit fabrics are made by interconnecting loops of yarns. They are classified by the direction in which the loops are connected. Knits are known for being pliable, stretchy and wrinkle resistant. The open spaces trap and hold air, acting as insulation.

_Filling (west) knits_ are interlooped, working in a crosswise direction. They’re characterized by horizontal stretch. Filling knits can be made by hand or machine, either circular or flat.

_Warp knits_ are inter-looped, working in a lengthwise direction. They’re made on flat machines.

_Single knits_, often called jersey, are filling knits. They have a definite fabric face. Lengthwise wales show on the face and courses are visible on the underside. Single knits have a soft hand and drape well. T-shirts are single knits. Many sweaters are single knits.
Double knits are also filling knits and look the same on the face and back sides, unless the surface is textured or patterned. Because of the double thickness, they are heavier, have a firmer drape, hold shape better and are warmer than single knits. Double knits are used in outer apparel for men, women and children.

Tricot knits are warp knits. They have fine vertical wales on the face and crosswise ribs on the back. They’re run-resistant, non-raveling and have good stability and elasticity. Tricots are usually fine and lightweight. Summer jersey, lingerie fabrics, swimsuit linings and the backings on laminated fabric are usually tricot.

Raschel knits are warp knits with lacy open-work and surface patterns. The yarns are usually textured, giving additional interest. Raschel knits are used for laces, thermal underwear and women’s outer apparel.

Felt is a mat or web of wool or part wool fibers held together by interlocking of the scales on wool fibers. Heat, soap and agitation are used to mat the fibers and to shrink the cloth. Felt is used for some clothing.

It’s widely used for hats, house shoes, clothing decorations and pennants. It doesn’t fray, so it requires no finish on cut edges.

Films are made by extruding a fiber solution onto a drum, into warm air or pressing a molding powder between hot rollers. They may vary in thickness from a very thin transparent film to a heavy leatherette. Films may be finished to appear like leather, lace or woven fabric. Supported films have a woven bonded or knitted fabric backing. Expanded films are spongy and soft due to air cells that have been incorporated. Film has the advantages of being waterproof, low cost, resistant to soil and easy to maintain. Rain wear, upholstery fabrics and purses are often made of textile films.
**Lace** is an open work fabric, usually creating figures like flowers, made by knotting, interlacing, interlooping and twisting thread. Lace may vary in width from a fraction of an inch to more than 100 inches. Today lace is machine-made. Generally lace is less durable than most fabric. It has varied uses, like trim on garments, lingerie and as fabric for dresses, blouses and tablecloths.

**Color and Design**

Color and design make fabrics attractive and fashionable. Durability depends on how the color and design are made into or added to the fabric.

**Color**

Color may be introduced to fabric at several stages depending on the fiber content and the intended end use. Man-made colors are created by adding dye or pigment to the solution before the fiber is formed. This makes fibers that are the same color throughout. Fibers may be dyed before they’re spun into yarns. This method is used for tweeds and heathers. Fabric woven from colored yarn is considered yarn-dyed. However, most fabrics are piece-dyed. This means color is added to the fabric after it is made.

Color fastness is the term used to refer to the durability and performance of fabric color. Many conditions may change or destroy fabric color.

Conditions in the use and care of garments are important. **Crocking** refers to the rubbing of color from the fabric surface to another fabric surface. **Bleeding** is fading or loss of color in water. When color shifts from one area of a printed fabric to another, the change is called **migration**. Home remedies may help, but they aren’t satisfactory in making fabric colorfast. This should be done by the manufacturer.

Other conditions may cause color change. **Sunlight** can cause fading in fabric. Draperies, beachwear and fabric intended for outdoor use should be fast to sunlight. **Fume-fading** refers to color changes which take place due to contaminants in the air. These can come from cars, industry and even heating systems. Perspiration may also change a fabric color.

To be sure a garment is colorfast, you must depend on labels, hangtags, personal knowledge and experience.

**Design**

Design on fabric may be incorporated as the fabric is made or applied afterwards. This affects how it will last with wear and care.

**Structural Design**

**Structural design** is incorporated in the fabric as it’s constructed. It’s as durable as the fabric itself. Yarns, color, size, arrangement and combinations give great variety.

**Checks, plaid and stripes** are formed by the arrangement of different colored yarns as the fabric is woven. Checks, plaid and stripes that are printed onto a solid color fabric aren’t durable and may not follow the grain of the fabric.

**Seersucker** is formed by varying tensions on the yarns producing the stripes. The lengthwise yarns making up the flat stripes are held at tension; the ones forming the puckered stripes have the tension released at intervals.

**Grouping** together creates dimity and bengaline. **Spacing of yarns** creates the designs in ephrata cloth and lace striped voile.

**Jacquard designs** are woven-florals or scrolls. They’re made by a complex interlacing of designs as the fabric is woven. Brocade, tapestry, damask and matelasse’ are jacquard designs.

**One-tone, satin-stripe** fabric is made with a stripe of plain weave alternating with a stripe of satin weave. The choice of yarn for weaving creates tweed, true crepe and boucle fabric.

**Applied Design**

Design applied to fabric after construction can be created by a mechanical or chemical finish, printing or stitching.

**Design by Finish**

**Moire** is used on ribbed fabrics such as taffeta and faille. Light is reflected from the fabric from the fabric in a rippling manner resembling the effect of waves on water.

**Embossed designs** are created with heat and pressure. Fabrics which are heat-sensitive (thermoplastic) can be made to have a permanent design.
Other fabrics can be resin-treated to give design permanence. *Pleating* is a variation of embossing.

*Flocking* is a process by which very short fibers are glued to the fabric surface. The fiber flocks are usually rayon. Flocking may be an overall pile surface or applied in areas to create designs such as dots, flowers, animals and scrolls.

*Plissé* is a fabric resembling seersucker. It’s made by chemically treating the fabric in lengthwise stripes. Plissé crinkles are not as durable as the woven-in crinkle of seersucker. In fact, the wrinkles can be removed by excessive heat in ironing. Plissé has the same number of yarns in all areas, while seersucker has a more dense weave in the smooth stripes.

**Design by Printing**

In the printing process, dye is applied to the fabric in a definite pattern by some mechanical means and a treatment is used to fix the dye.

Print designs are created by applying dye to fabric in a definite pattern. One or more colors may be used. A treatment is used to fix the dye. A print fabric can be recognized from the wrong side. The design is not as distinct and the colors aren’t clear and bright. You can tell that the fabric was solid and the print added. The clearer the design on the wrong side, the longer the fabric will hold color. You may hear these terms used to describe types of printing: roller, warp, duplex discharge, photographic, stencil, silk screen, block, tie-dye and batik.

**Consumer Tips**

Color fastness is important. Check labels and hang tags for information. Select fabrics with color-fastness suited to the intended use. Using textile products for the purpose the manufacturer intended will also help assure good performance.

Structural design, achieved by use and arrangement of yarns, is usually more durable than design applied after the fabric is constructed.

*Plaids, checks and stripes* which are woven are more satisfactory than when printed. In addition to being more durable, the grainline is true with the design.

*Embossed designs* and pleating are most durable on heat-sensitive (thermoplastic) fibers.

*Flocked designs* are subject to abrasion.

The puckered design of *seersucker* is more durable than that of plisse.

*Burnt-out or etched designs* tend to weaken the fabric.

*Printed fabrics* with a good penetration of color on the back side tend to hold color longer.

*Block printing*, tie dye, batik, and hand screening are all hand-crafted. Expect fabrics with these designs to be more expensive, come in shorter yardage length and many times one of a kind.

*Embroidered designs* are subject to picking and pulling. Longer stitches are less durable than shorter ones.

*Quilting threads* may break, pick or pull. Consider use when purchasing.
Fabric Finishes

Finishes are applied to fabrics to improve their appearance and to make them more serviceable. With today’s technology, fabrics can be finished to meet many demands made by consumers. These finishes play an important role in the consumer’s satisfaction with fabrics or clothing they buy.

Read labels and hangtags to find out if a garment has a special finish and what this finish will do for the garment. Many finishes are on garments today. Here are some common ones with a few trade names:

<table>
<thead>
<tr>
<th>Finish Type</th>
<th>Description</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlled shrinkage</td>
<td>Treatment used to reduce shrinkage. Some are more effective than others. Improper care may still cause fabric to shrink.</td>
<td>Bancora, Dylanized, Sanfor Set, Sanforized, Sanforknit, Zeset</td>
</tr>
<tr>
<td>Mercerization</td>
<td>Process increases strength, luster and dying quality of cotton fabrics.</td>
<td>Word “mercerized” on the label.</td>
</tr>
<tr>
<td>Glazed</td>
<td>Shiny, slick, somewhat stiff surface achieved with resins, glue, shellac or starch. May not be permanent. Chintz is most common example.</td>
<td>Vita-glaze</td>
</tr>
<tr>
<td>Antibacterial</td>
<td>Chemical treatment applied to a fabric to slow or prevent bacterial growth. Prevents odors and prolongs life of the fabric. Desirable for shoe linings, coat linings, lingerie, undergarments, socks, luggage, carpets and rugs.</td>
<td>Cyna-finish, Hygenized, Permacide, Sani-Age, Sanigard, Vancide, Vita-Fresh</td>
</tr>
<tr>
<td>Antiseptic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteriostatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antistatic</td>
<td>Chemical treatment applied to fibers or fabric to prevent the buildup of static electricity. Some are temporary and others permanent. Desirable for undergarments, socks, various garments, carpeting.</td>
<td>Aston, Negastat, Permastat, Staticide</td>
</tr>
<tr>
<td>Crush-resistant</td>
<td>Resin treatment applied to pile fabrics to prevent crushing.</td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Examples</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Flame-resistant</td>
<td>Chemical treatment on a fabric that enables it to resist the action of a flame. Does not make fabric fireproof. Most finishes will remain durable even though they may be laundered as many as 50 times, while some are semi-durable or non-durable.</td>
<td>Banfire, Durette, Fireguard, FireStop, FWWMR, Lynrus FR-1, Permaproof, Pyrovatex CP, Roxell</td>
</tr>
<tr>
<td>Flame-retardant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mildew resistant</td>
<td>Chemical finish applied to a fabric to slow the growth of mildew and mold. May be used with other finishes such as water repellents.</td>
<td>Fresh-Tex, Mel-Tron 80</td>
</tr>
<tr>
<td>Moth resistant</td>
<td>Chemical treatment of wool to make it resistant to moth attack. There are durable and non-durable finishes. Some non-durable formulas can be used for moth-proofing by consumers or dry cleaners.</td>
<td>Mitin, Moth Snub, Mothspray, Woolgard</td>
</tr>
<tr>
<td>Permanent Press Durable press</td>
<td>Garments maintain sharp creases, pleats, flat seams and smooth appearance. Ironing is eliminated when garments are tumble-dried with cool-down cycle and are promptly removed from dryer. Garment alterations (lengthening and enlarging) cannot be done satisfactorily.</td>
<td>Semeriset, Coneprest, Dan-Pres, Kara Set, Koratron, Never-Press, Onyx Set, Pak-Nit RX, Penn-Press, Perma-Prest, Ranedare Press, Sharpe/Shape, Sta-Prest, Super-Crease, Tanapress</td>
</tr>
<tr>
<td>Soil release</td>
<td>Chemical finish applied on permanent press fabrics to provide greater ease in removing soil. Fabrics tend to resist oil-borne stains.</td>
<td>Come Clean, Cran-Set SR, Danclean, Dual Action, Miraclean, Rhoplex SR-488, Scotchguard, Soil-Out, Soilex, Visa, Wash Ease</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Products</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Stain and spot resistant</td>
<td>Treatment that imparts soil resistance as well as water and oil repellence. Laundering and abrasion during wear tend to reduce stain resistance; pressing after laundering helps restore stain resistance.</td>
<td>Aerotex, Aquaguard, Drilene, Hydro-Pruf, Norance, Permal, Ramedane Plus, Scotchguard, Syl-Mer</td>
</tr>
<tr>
<td>Wash and Wear Drip-Dry</td>
<td>Garments will dry smooth and need little or no ironing after washing. Similar to wrinkle-resistant finishes, but garment will not retain creases or pleats. Read and follow care labels carefully.</td>
<td>SanCare, Relfast, Coneset, Everglaze, Minicare, Perma-Pressed</td>
</tr>
<tr>
<td>Waterproof</td>
<td>Fabric completely sealed with rubber, lacquer, linseed oil compounds or a synthetic resin. Treated fabric will not absorb water. Does not allow passage of air or evaporation of perspiration.</td>
<td>K-Kote, Koroseal, Reevair</td>
</tr>
<tr>
<td>Water repellent</td>
<td>Resists penetration of water into the fabric, but it is not waterproof. Fabric is porous and permits the passage of air, water vapor and perspiration. Finishes are often non-durable to dry cleaning.</td>
<td>Cravenette, Hydro-Pruf, Impregnole</td>
</tr>
<tr>
<td>Water-resistant</td>
<td>Resists penetration of water for a limited time. Not to be confused with water repellent finishes.</td>
<td></td>
</tr>
<tr>
<td>Wrinkle-resistant Crease-resistant</td>
<td>Fabrics are resistant to wrinkles and creases and have improved wrinkle-recovery properties. Heat will not set sharp creases or pleats on treated fabrics.</td>
<td>Ayana, Banguard, Cransheen, Fresh-Tex, Permel Plus, Winset</td>
</tr>
</tbody>
</table>
Care Label

Study care labels. You must read them carefully, so your favorite purchases will remain favorites after being worn and cleaned several times.

<table>
<thead>
<tr>
<th>When Label Reads:</th>
<th>It Means:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine wash</td>
<td>Wash, bleach, dry and press by any customary method, including commercial laundering and dry-cleaning.</td>
</tr>
<tr>
<td>Home launder only</td>
<td>Same as above, but do not use commercial laundering.</td>
</tr>
<tr>
<td>No chlorine bleach</td>
<td>Do not use chlorine bleach. Oxygen bleach may be used.</td>
</tr>
<tr>
<td>No bleach</td>
<td>Do not use any type of bleach.</td>
</tr>
<tr>
<td>Cold wash</td>
<td>Use cold water from tap or cold washing machine setting.</td>
</tr>
<tr>
<td>Cold rinse</td>
<td></td>
</tr>
<tr>
<td>Warm wash</td>
<td>Use warm water or warm washing machine setting.</td>
</tr>
<tr>
<td>Warm rinse</td>
<td></td>
</tr>
<tr>
<td>Hot wash</td>
<td>Use hot water or hot washing machine setting.</td>
</tr>
<tr>
<td>No spin</td>
<td>Remove wash load before final machine spin cycle.</td>
</tr>
<tr>
<td>Delicate cycle</td>
<td>Use appropriate machine setting; otherwise, wash by hand.</td>
</tr>
<tr>
<td>Gentle cycle</td>
<td></td>
</tr>
<tr>
<td>Durable press cycle</td>
<td>Use appropriate machine setting; otherwise, use warm wash, cold rinse and short spin cycle.</td>
</tr>
<tr>
<td>Permanent press cycle</td>
<td></td>
</tr>
<tr>
<td>Wash separately</td>
<td>Wash alone or with like colors.</td>
</tr>
</tbody>
</table>
### When Label Reads:  
### It Means:

<table>
<thead>
<tr>
<th>NON-MACHINE WASHING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand wash</td>
<td>Launder only by hand in lukewarm (hand comfortable) water. May be bleached. May be dry-cleaned.</td>
</tr>
<tr>
<td>Hand wash only</td>
<td>Same as above, but do not dry-clean.</td>
</tr>
<tr>
<td>Hand wash separately</td>
<td>Hand wash alone or with like colors.</td>
</tr>
<tr>
<td>No bleach</td>
<td>Do not use bleach.</td>
</tr>
<tr>
<td>Damp wipe</td>
<td>Surface clean with damp cloth or sponge.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOME DRYING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumble dry</td>
<td>Dry in tumble dryer at specified setting – high, medium, low or no heat.</td>
</tr>
<tr>
<td>Tumble dry Remove promptly</td>
<td>Same as above, but in absence of cool-down cycle, remove at once when tumbling stops.</td>
</tr>
<tr>
<td>Drip dry</td>
<td>Hang wet and allow to dry with hand shaping only.</td>
</tr>
<tr>
<td>Line dry</td>
<td>Hang damp and allow to dry.</td>
</tr>
<tr>
<td>No wring, No twist</td>
<td>Hand dry, drip dry or dry flat only. Handle to prevent wrinkles and distortions.</td>
</tr>
<tr>
<td>Dry flat</td>
<td>Lay garment on flat surface.</td>
</tr>
<tr>
<td>Block to dry</td>
<td>Maintain original size and shape while drying.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IRONING OR PRESSING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool iron</td>
<td>Set iron at lowest setting.</td>
</tr>
<tr>
<td>Warm iron</td>
<td>Set iron at medium setting.</td>
</tr>
<tr>
<td>Hot iron</td>
<td>Set iron at hot setting.</td>
</tr>
<tr>
<td>Do not iron</td>
<td>Do not iron or press with heat.</td>
</tr>
<tr>
<td>Steam iron</td>
<td>Iron or press with steam.</td>
</tr>
<tr>
<td>Iron damp</td>
<td>Dampen garment before ironing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MISCELLANEOUS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry-clean only</td>
<td>Garment should be dry-cleaned only, including self-service.</td>
</tr>
<tr>
<td>Professionally dry-clean only</td>
<td>Do not use self-service dry-cleaning.</td>
</tr>
<tr>
<td>No dry-clean</td>
<td>Use recommended care instructions. No dry-cleaning materials to be used.</td>
</tr>
</tbody>
</table>
Seams

The type and quality of a garment’s seams contribute to its general appearance and durability.

In appearance a seam should be:
- flat
- smooth
- even in width
- well-pressed
- sewn with stitches of the same length
- sewn with balanced tension
- sewn with matching thread or one chosen for decorative color
- finished to prevent raveling (if fabric ravels)
- as durable as the fabric
- reinforced when appropriate

A garment should be made with seams that will be as durable as the garment. A good seam choice can sometimes increase the durability of a garment.

A plain seam is often used. The cut edges of the fabric almost always needs a finish to prevent fraying or raveling in wear and washing or cleaning. A finish should be secure, without bulk and not show through to the right side.

Plain seams may be top stitched for reinforcement or a decorative look. Lace, cording or other trim may be stitched in the seam as it is formed.
A **French seam** looks like a plain seam on the right sides and a small, neat tuck on the wrong side. It’s a good finished look for sheer or semi-sheer fabrics.

A **flat felled seam** is very sturdy. It’s often used on sportswear and menswear. Two rows of stitching show on both the right and wrong side. On the right side you can see where the edge of the fabric has been folded under.

A **stitched and serged seam** is a plain seam about 3/8 inch in width. It’s stitched with a regular or chain stitch. The two edges are stitched together with a serging or over-edge stitch.

A **serged seam** is found in garments made of knits and stretch fabrics. The seam is very narrow. An over-edge or serging stitch is used. The multiple threads interlock over the cut edges. The two pieces of fabric are jointed and edges finished with the same stitching. The seams should give and stretch with the fabric without breaking any threads.

A **abutted seam** is formed by placing the cut edges of two fabrics together and stitching over them with an interlocking stitch. This seam is not very strong. It’s found in sweat clothes, which fit loosely.

A **reinforced seam** has a woven tape stitched into the seams. This gives added strength or prevents stretching.
General Criteria for Garment Selection

As a review of what you’ve learned, use this checklist when choosing a garment.

Color  Is there a color that will be cooler or warmer than the others for the specified wear and use?

Fabric  Is the fabric of good quality?
Is the fabric free from flaws?
Is the fabric a good one for the style of the garment?
Is the fabric a good one for the way the garment will be used?
When the garment is washed or dry-cleaned, will it feel and look almost the same as when new?
Will the fabric shrink?
Will the fabric stretch out of shape?
Will the fabric “pill”?
Will the fabric pick, pull or abrade with normal use?
Will the fabric look fresh while the garment is worn?

Fiber Content  How does the fiber content relate to moisture absorbency and thermal comfort (coolness, warmth)?
How does the fiber content relate to durability?

Finishes  Is there a special finish on the fabric that would make it a better choice for the person and the intended use? (Wrinkle resistant, permanent press, water resistant, waterproof, bacterial resistant)

Care  What does the fiber content and care label indicate about:
  o drying time?
  o ironing required?
  o wrinkle resistance?
  o special care?
Are there any extra costs involved with garment care?
Is there any extra caution needed to care for the garment?

Inner Fabrics and Materials  Is the pocket fabric durable and firmly woven?
Is the elastic of a good quality?
Is the elastic appropriate for the garment?
Is the waistband backing of good quality?
Will the waistband maintain shape?
Is the lining a good quality?
Can the lining be washed, ironed or cleaned the same way as the garment?
Do interfacings (fabric that shapes collars and lapels and supports buttons and buttonholes) have the same hand as the outer fabric, not making these areas stiff but helping them hold their shape?
Are zippers, snaps, hooks and other notions the correct weight or type for the garment?
| Trim               | Will the trim wear as long as the garment?  
|                   | Can the trim be given the same care as the garment?  
|                   | Will the ribbing maintain its shape?  
| Style Features    | Are there any style features that make one garment more useful or fashionable than another?  
| Closures          | Is there an advantage to one type of sleeve or leg opening over another?  
|                   | (Cuffs, bands, elastic or no closures)  
|                   | Is there an advantage for one type of closure over another for wear or ease in putting on or taking off?  
|                   | (Buttons and buttonholes, zipper, nylon loop fastener, hook and eyes, snaps, grippers or plackets)  
|                   | Will the garment stay closed in wear?  
| Waist             | Is there an advantage to one type of waist treatment over another? (Elastic, drawstring, fitted shape waistband)  
|                   | Is the number, style, size and placement of belt loops adequate?  
| Sleeves           | Is one sleeve style more fashionable than another?  
|                   | Does one sleeve style provide more wearing comfort than another?  
| Necklines         | Is there a preferred neckline style or treatment for comfort?  
|                   | Is one neckline better than another for the way the garment will be used?  
|                   | If two or more necklines are the same, is one better than another?  
| Pockets           | Are pockets needed for the intended use?  
|                   | Is one style of pocket better than another?  
|                   | Is a pocket closure desirable?  
|                   | Is one type of pocket closure better than another?  
|                   | Are pockets placed so they can be used?  
| Construction      | Are the garment pieces cut on the grain of woven fabric or with the rib of knit fabric?  
|                   | Do plaids or stripes match?  
|                   | Is the fabric design matched, centered or balanced?  
|                   | Is fabric nap or one-way design all in the same direction?  
|                   | Does the hem lie flat and smooth, and is the width even?  
|                   | Is the hem visible from the right side?  
|                   | Is the top edge of the hem finished to prevent raveling?  
|                   | Are seams smooth and free from puckers?  
|                   | Are darts smooth, tapered and secured at the point?  
|                   | Are darts evenly spaced?  
|                   | Are the sleeves smooth, without puckers; are gathers even?  
|                   | Are pockets flat, smooth and evenly spaced?  
|                   | Is the type of seam used the best for the garment type and the wear it will be given?  
|                   | Are seams straight and even in width?  
|                   | Are seams flat and smooth?  
|                   | Are seam edges finished so they won’t ravel?  

Facts About Clothing 18
Construction (cont.)
Are seams reinforced to prevent stretching or to provide durability?
Is stitching neat, continuous and straight?
Does the thread match the garment?
Is there extra stitching or reinforcing at points of strain such as underarms, seams, openings, pleats, pockets, knees and elbows?
Is the reinforcement adequate for how the garment will be used?
Are buttonholes neat and sturdy?
Are buttonholes the correct size for buttons?
Are button, hooks and eyes securely attached?
Is the zipper flat and smooth?
Is the zipper correct weight for garment?
Does the zipper work properly and smoothly?
Is trimming and decoration neat and firmly attached?
Are pockets even, flat and smooth?
Is the collar the same on each side?
Does the collar lie flat and smooth?
Is the collar stitched and pressed so the undercollar does not show?
Is the collar neatly joined to the garment?
Are collars, facings, waistband, cuffs and area behind the buttonholes and buttons interfaced for support and strength?
Are the lapels flat but not over-pressed?
Do facings lie flat and smooth?
Are outer edges of facings finished?
Is fusing smooth, with no bubbles?
Are linings finished and attached so they don’t show?
Are gathers evenly distributed?
Are pleats uniform and smooth?

Price
How does the price relate to the amount of money available for the purchase?
How does the price relate to the overall quality of the garment?
How does the price relate to the amount of wear that will be expected from the garment?

Special Need
Does the garment have a particular feature that will make it especially suitable for the intended use? (Styling, fabric, finish, color, etc.)
4-H Consumer Judging Guide

Energy Drinks 101

**What Are Energy Drinks?**

The term “energy drinks” refers to beverages that contain caffeine in combination with other ingredients such as taurine, guarana, and B vitamins, and that claims to provide energy or other benefit to those who drink the product. This term was created by beverage companies and is not recognized by the United States Food and Drug Administration (FDA) or the United States Department of Agriculture (USDA).

**Is There Evidence These Energy Drinks Increase Energy?**

There is limited evidence that consumption of energy drinks can significantly improve physical and mental performance, driving ability when tired or decrease mental fatigue during long periods of concentration. Unfortunately, it is not clear if these improvements are due to the caffeine, other herbal ingredients or a combination of both.

**Can Consumption of Energy Drinks Harm You?**

The caffeine content of a single serving of energy drink (8 to 12 fluid ounces) can range from 72 to 150 milligrams. The problem is that many of these products contain more than one serving, so the caffeine content may be as high as 294 milligrams per bottle. In comparison, the caffeine content, per serving (8 fluid ounces), of brewed coffee, tea and cola beverages ranges between 134-240 milligrams, 48-175 milligrams and 22-46 milligrams, respectively. Most adults can safely consume up to 400 milligrams caffeine daily. Women of childbearing age should limit their daily consumption of caffeine to a maximum of 300 milligrams per day, and children should limit their consumption to 5.5 milligrams per pound of body weight. Adolescents should limit caffeine consumption. Intakes greater than 100 milligrams per day have been associated with elevated blood pressure. Based on this information,

**What Is the Caffeine and Sugar Content of Energy Drinks?**

<table>
<thead>
<tr>
<th>Drink</th>
<th>Serving (fluid ounce)</th>
<th>Servings per container</th>
<th>Sugar per serving (grams)</th>
<th>Caffeine per serving (milligrams)</th>
<th>Calorie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet Rockstar Energy Drink™</td>
<td>8</td>
<td>2</td>
<td>0 g</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Full Throttle™</td>
<td>8</td>
<td>2</td>
<td>29 g</td>
<td>72</td>
<td>111</td>
</tr>
<tr>
<td>Go Girl Sugar Free™</td>
<td>12</td>
<td>1</td>
<td>0 g</td>
<td>150</td>
<td>3</td>
</tr>
<tr>
<td>Monster Lo-Carb XXL™</td>
<td>8</td>
<td>3</td>
<td>3 g</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Monster Energy Assault™</td>
<td>8</td>
<td>2</td>
<td>27 g</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Monster Energy XXL™</td>
<td>8</td>
<td>3</td>
<td>27 g</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Red Bull Sugar Free™</td>
<td>8.3</td>
<td>1</td>
<td>0 g</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Red Bull™</td>
<td>8.3</td>
<td>1</td>
<td>27 g</td>
<td>80</td>
<td>110</td>
</tr>
<tr>
<td>Rockstar Energy Drink™</td>
<td>8</td>
<td>2</td>
<td>30 g</td>
<td>80</td>
<td>130</td>
</tr>
<tr>
<td>Rockstar Juiced™</td>
<td>8</td>
<td>2</td>
<td>21 g</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>Wired 294 Caffeine™</td>
<td>8</td>
<td>2</td>
<td>26 g</td>
<td>147</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** This table does not include amounts of other stimulants found in energy drinks that can enhance the effects of caffeine.
consumption of energy drinks by pregnant or nursing women, adolescents and children is not recommended.

Caution is warranted even for healthy adults who choose to consume energy beverages. Consumption of a single energy beverage may not lead to excessive caffeine intake; however, consumption of two or more beverages in a single day can. Other stimulants such as guarana, ginseng, yerba mate, kola nut, green tea extract and bitter orange are often added to energy beverages and can enhance the effects of caffeine. Guarana, in particular, contains caffeine (1 gram of guarana is nearly equal to 40 milligrams caffeine) and may substantially increase the total caffeine in an energy drink. Adverse effects associated with caffeine consumption in amounts of 400 milligrams or more include nervousness, irritability, sleeplessness, increased urination, abnormal heart rhythms (arrhythmia), decreased bone levels and stomach upset.

Furthermore, it should be noted that energy drinks contain added sugar. According to the USDA Dietary Guidelines, sugar should be limited in the normal daily diet.

There are many unusual ingredients in energy drinks. What do they claim to do?

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Found In</th>
<th>Functional Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carnitine</td>
<td>Monster™, Rockstar™, Full Throttle™</td>
<td>Improves endurance, increases fat metabolism, protects against heart disease</td>
</tr>
<tr>
<td>Glucuronolactone</td>
<td>Go Girl Sugar Free ™, Red Bull™, Monster™</td>
<td>Promotes excretion of toxins and protects against cancer</td>
</tr>
<tr>
<td>Guarana</td>
<td>Inositol™, Rockstar™, Full Throttle™</td>
<td>Increases energy, enhances physical performance and promotes weight loss</td>
</tr>
<tr>
<td>Inositol</td>
<td>Go Girl Sugar Free ™, Red Bull™, Monster™, Rockstar™, Wired B12, Rush™</td>
<td>Decreases triglyceride and cholesterol levels, lowers risk of heart disease</td>
</tr>
<tr>
<td>Panax Ginseng</td>
<td>Monster™, Rockstar™</td>
<td>Speeds illness recovery, improves mental and physical performance, controls blood pressure</td>
</tr>
<tr>
<td>Super Citrimax</td>
<td>Go Girl Sugar Free ™</td>
<td>Suppresses appetite, resulting in weight loss</td>
</tr>
<tr>
<td>Taurine</td>
<td>Go Girl Sugar™, Red Bull™, Monster™, Rockstar™, Full Throttle™</td>
<td>Lowers risk of diabetes, epilepsy and high blood pressure</td>
</tr>
<tr>
<td>Yohimbine HCL</td>
<td>VPX Redline™</td>
<td>Promotes weight loss</td>
</tr>
</tbody>
</table>

Is there scientific evidence to support these claims?

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Scientific Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carnitine</td>
<td>There is no clinical evidence that carnitine use is effective for increased endurance or weight loss, but it may protect against heart disease.</td>
</tr>
<tr>
<td>Glucuronolactone</td>
<td>Scientific evidence does not exist to support claims regarding glucuronolactone.</td>
</tr>
<tr>
<td>Guarana</td>
<td>A major component of guarana is caffeine. Caffeine consumption has been associated with increased energy, enhancement of physical performance and suppressed appetite.</td>
</tr>
<tr>
<td>Inositol</td>
<td>Scientific evidence does not exist to support claims regarding inositol.</td>
</tr>
<tr>
<td>Panax Ginseng</td>
<td>Scientific evidence does not exist to support claims regarding panax ginseng.</td>
</tr>
<tr>
<td>Super Citrimax</td>
<td>There is scientific evidence that use of this supplement decreases food consumption.</td>
</tr>
<tr>
<td>Taurine</td>
<td>Clinical evidence is insufficient to show that taurine is effective in treating diabetes or epilepsy, but it may lower blood pressure.</td>
</tr>
<tr>
<td>Yohimbine HCL</td>
<td>Currently no evidence exists to support the claim that use of Yohimbine HCL leads to weight loss.</td>
</tr>
</tbody>
</table>
Is consumption of these ingredients safe?

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carnitine</td>
<td>Insufficient data exists to establish the safety of carnitine use.</td>
</tr>
<tr>
<td>Glucuronolactone</td>
<td>Insufficient data exists to establish the safety of glucuronolactone use at the concentrations found in energy drinks.</td>
</tr>
<tr>
<td>Guarana</td>
<td>This substance is generally regarded as safe (GRAS) by the Food and Drug Administration Center for Food Safety and Applied Nutrition (FDA CFSAN).</td>
</tr>
<tr>
<td>Inositol</td>
<td>Inositol is generally regarded as safe (GRAS) by the Food and Drug Administration.</td>
</tr>
<tr>
<td>Panax Ginseng</td>
<td>Insufficient data exists to establish the safety of panax ginseng use.</td>
</tr>
<tr>
<td>Super Citrimax</td>
<td>Insufficient data exists to establish the safety of super citramax use.</td>
</tr>
<tr>
<td>Taurine</td>
<td>Insufficient data exists to establish the safety of taurine use.</td>
</tr>
<tr>
<td>Yohimbine HCL</td>
<td>Approved for use by the FDA to treat hypertension, but over-the-counter use is not recommended.</td>
</tr>
</tbody>
</table>

**Should Energy Drinks Be Consumed Before or During Exercise?**

Caffeine is known to increase endurance and its use was banned by the International Olympic Committee. Red Bull® was banned in Norway, Uruguay and Denmark as the result of an 18-year-old athlete who died hours after drinking four cans prior to an event in 2000. Although the FDA limits the caffeine content in soft drinks to 71 milligrams per 12-ounce can, energy drinks are designated as dietary supplements and are not limited in their caffeine content.

**Should Children and Adolescents Consume Energy Drinks?**

A recent survey of 78 youth (11-18 years) found that 42.3 percent of participants consumed energy drinks. The effects of ingredients found in energy drinks has raised concern for children and adolescents. In adolescents, caffeine consumption has been associated with an increase in blood pressure. Based on the limited data regarding safety, it is not recommended that children or adolescents consume energy drinks.

**References**

The European Commission on Food Safety. Opinion on Caffeine, Taurine and DGlucurono-g-Lactone as constituents of so-called “energy” drinks. 1999.


Acknowledgment to Carol W. Turner, food and nutrition specialist, University of California at Davis, for the original manuscript.

Prepared by Laura J. Connerly, Ph.D., Instructor - Family Resource Management, University of Arkansas Division of Agriculture, lconnerly@uaex.edu.

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.
Cleaning is the process of removing soil, stains, or undesirable microorganisms from surfaces and restoring that surface to its original condition if possible. Cleaning plays an essential role in our daily lives by providing important public health benefits to consumers by keeping our surroundings clean, protected, and free of germs.

Environmental groups, state legislators, the EPA, and the cleaning products industry are all working together to improve the products you use every day. While “green cleaning” has only been fashionable for the last decade or so, researchers have been steadily working on developing environmentally sound cleaning products for more than 50 years.

The cleaning products industry has known and understood the importance of biodegradable cleaning products since the 1950s. In the 1970s, the industry removed all chlorofluorocarbons (CFCs) from aerosols. In the 1990s, products became more concentrated (“ultras”), which reduced packaging. (Think of your laundry detergent and dishwashing soap; you wash more loads with less detergent.) Cleaning products have been getting “greener” through innovation and continuous improvement – long before the “green” movement was even around!

“Green” products are lining store shelves, and the Internet is abuzz with tips for green living and step-by-step instructions for making your own “earth-friendly” household cleaning products. But does homemade always mean “green”? Is green always safer? The amount of information out there can be overwhelming.

So what does it mean to be a green cleaning product? The green product should be effective and have the same cleaning power as other chemically infused products. Natural cleaning products should be made with plant- and mineral-based products, such as essential oils and coconut-based cleaners, use biodegradable ingredients, and never be tested on animals. Green cleaners provide cleaning power without harsh chemical fumes of residue. A rule of thumb when looking for a green cleaner is to look at the list of ingredients. The fewer number of ingredients listed is actually better. It is also best if the ingredients listed are mostly “plant-based materials.”

Green Seal, a private, nonprofit company, offers an independent verification program that ensures products are in compliance with the green seal standard. Products are tested for environmental stewardship and performance as well as quality control procedures. If the product meets the standards, the Green Seal logo will be on the product and can be used in advertising, promotional materials, catalogs, and in product descriptions.

In January 2010, voluntary guidelines were put into place to ensure the industry discloses more about product ingredients. These guidelines are known as the Ingredient Communication Initiative. Some ingredients will still not be included and can be folded under such categories as “fragrance” or “preservatives.” The new initiative was developed to help consumers make informed decisions about the products they use in and around their homes.

This information may be provided to consumers in one or more of the following ways:

- Product label
- Manufacturer’s web site
• Toll-free number
• Other non-electronic means, to assist those who do not have access to the Internet.

Ingredients on cleaning and other consumer products included in the Initiative will be listed in descending order of predominance.

Household cleaning product ingredients with a concentration greater than one percent (1%) will be listed “in descending order of predominance,” with the ingredient present in the highest quantity listed first. Ingredients present in low concentrations equal to or less than one percent can be listed in any order.

**Key Terms**

In order to understand what uses green cleaning products can be used, consumers need to be familiar with some key terms. These terms are words that can be seen directly on product labeling at the store and other places where products are sold.

• **Cleaning Products** – Cleaning products, as defined in this document, refer to products that are used for the routine cleaning of the indoor built environment. They include, but are not limited to, glass cleaners, general-purpose cleaners, floor cleaners, deodorizers, laundry detergents, dishwashing detergents, hand soaps, and wax strippers.

• **Concentrate** – A product that is intended to be diluted with water.

• **Concentrated Form** – The product as it is packaged and sold for use.

• **Disinfectant** – A product that has received EPA registration based upon claims to kill bacteria, viruses, or other microorganisms. For purposes of this standard, the word disinfectant includes “sanitizer,” “disinfectant,” and “sterilant.”

• **Environmental Protection Agency** – The United States Environmental Protection Agency (EPA) is a government agency concerned with the American environment and its impact on human health. It was founded in 1970 under Richard Nixon in response to growing environmental concerns among Americans and often works with other agencies to achieve optimal results.

• **General Purpose Cleaners** – Cleaning products used for routine cleaning of hard surfaces including floors. It does not include any EPA-registered sterilizers, disinfectants, or sanitizers.

• **Glass and Surface Cleaners** – Cleaning products used to clean windows, glass, mirrors, Plexiglas, and similar surfaces. It does not include any EPA-registered sterilizers, disinfectants, or sanitizers.

• **Green Seal** – An independent, nonprofit organization that uses science-based standards as the power of the marketplace to create a more sustainable world.

• **Material Safety Data Sheet (MSDS)** – A written or printed material concerning a hazardous chemical that contains the information set forth in the OSHA Hazard Communication Standard.

• **Pollutant** – Any substance that directly or indirectly creates an adverse human health or environmental effect when introduced into any environmental media.

• **Recyclable Package** – A package that can be diverted from the wastestream through available processes or programs and can be collected, processed, and returned to be used as a raw material or product.

• **Toxicology** – Study of adverse effects of chemical, biological agents, and physical agents on living organisms.

• **Toxicity** – The inherent ability of a chemical, biological, or physical agent to cause adverse effects in living organisms.
Green Cleaning Options

There are a variety of ways that green products can be evaluated. Below is brief overview of those options consumers need to take into consideration when purchasing green products.

Safety

To ensure you are buying environmentally safe cleaning products that are actually safe, look for these basic qualifications:

• Nontoxic
• No harmful fumes
• Hypoallergenic
• No volatile organic compounds (VOCs)
• Formulated without hazardous chemicals such as kerosene, phenol, cresol, lye, hydrochloric acid, sulfuric acid, sulfamic acid, petroleum distillates, ammonia, sodium hydroxide, butyl cellosolve, phosphoric acid, formaldehyde, chlorine bleach, or morpholine.

Effectiveness

Some good-quality, environmentally safe cleaning products have been proven to be every bit as, if not more, effective as their caustic counterparts. Look for products that offer proof of effectiveness through third-party testing.

Make Sure They’re Really Green

• Make sure they are made from sustainable ingredients from natural sources.
• Biodegradable surfactants that break down in a short period of time rather than years!
• Recyclable packaging! Check the bottom of the package for recycling that is available in your area.
• Recyclable wipes.
• Recyclable dryer sheets.
• No chlorine bleach.
• No phosphates.
• No nitrates.
• No borates.
• No volatile organic compounds (VOCs).
• No animal testing.

Concentrates

One of the easiest, most environmentally friendly, and economical things you can do is to buy concentrates. Think about it. You may not have considered how much you are paying for water in a bottle of cleaner. Water in cleaners is the MOST EXPENSIVE WATER you can buy! Not only are you paying a high price for this basic first ingredient, you are also paying to:

• ship the water,
• package the water and
• store the water.

Each of these steps adds tremendously to the pollution problem. Why not add your own water, in reusable bottles, at a fraction of the cost? By adding our own tap water, we save emissions, landfill space, and energy.

Final Note

Cleaning products are designed to be safe for consumers, their families, and the environment when used as directed. Always read instructions on cleaning products before using, and follow usage instructions carefully. Remember, each product’s instructions can be different, but in general, always follow these basic guidelines:

• Store all household cleaning products in a secure location, out of the reach of children and pets.
• Don’t mix cleaning products – irritating (or potentially toxic) fumes could result.
• Keep products in their original containers with the labels intact.
• Cleaning products are intended for external use only. Refer to the product label for emergency information if a cleaning product is swallowed, comes in contact with eyes, or if irritating fumes from combined chemicals are inhaled.

• In an emergency situation, call the U.S. Poison Control Center’s national toll-free hotline at 1-800-222-1222 or call the number listed on the product label.

Resources and References

http://www.aboutcleaningproducts.com
http://www.cleaninginstitute.org

Acknowledgment is given to Texas 4-H and Youth Development, Texas A&M AgrilLife Extension, for the original manuscript.

Prepared by Laura J. Connerly, Ph.D., Assistant Professor - Family and Consumer Economics, University of Arkansas Division of Agriculture, lconnerly@uaex.edu.

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

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The hooded sweatshirt or “hoodie” is undoubtedly American in origin and style. The first hooded sweatshirt was created by Champion® in the 1930s for workers in frozen warehouses in New York. Today, hoodies can be seen on anyone from athletes to infants, and the market for hoodies has become very diverse as a result.

What exactly is a hoodie and what are they good for? A hoodie is basically a hooded sweatshirt commonly used for exercising, protection during cooler weather, and/or fashion. Hoodies come in both pull-over and zip-up styles. An article of clothing performs according to what it is made of and how it is made.

**Fiber Content**

Most hoodies are made of cotton and/or polyester fibers, and some are made with spandex fibers. Review the classes of fiber listed in *Facts About Clothing*, and be sure to understand the advantages and limitations of cotton, polyester, and spandex.

**Things to Consider Before Buying**

The first thing to consider when buying a hoodie is its intended use. When will you wear the hoodie? What are the functional criteria that the hoodie must have to perform? Here are some examples of functional criteria:

- Breathes
- Keeps you cool or warm, as required
- Allows for movement
- Weatherproof
- Remains dry regardless of sweat or humidity
- Comfortable
- Cost and value
- Uses and needs

Before buying a hoodie, you should review the general criteria for garment selection described in *Facts About Clothing* (p. 17). These criteria provide the information that will help you determine what qualities you should look for based on your functional criteria.

**Moisture Management**

Some hoodies are designed to keep the wearer dry during activity or humid conditions — such hoodies are described as moisture-wicking. It is common for manufacturers to have their own unique name associated with their moisture-wicking technology. Some of the common names are listed below. Some are associated with a particular brand of clothing, while others are used across many brands industry wide.

- **ClimaCool**: (Adidas) allows air flow around the garment to regulate body temperature
- **ClimaProof**: (Adidas) keeps the wearer warm and dry during all weather conditions
- **CoolMax**: (DuPont) fibers are engineered to push perspiration to the surface of the garment; used in many brand-name moisture management systems

*CoolMax Technology*
- **Dri-Fit**: (Nike) water-wicking system to keep the wearer dry

- **PlayDry**: (Reebok) moisture-wicking

- **PolarTec**: This is a leading manufacturer of synthetic and technology fabrics specializing in moisture-wicking, weather resistant, and insulation technologies.

Use of products and trade names in this handbook does not constitute a guarantee or warranty of the products named and does not signify that these products are approved to the exclusion of comparable products.

**Reference**

asipublications.com, hsc.csu.edu (Properties and performance of textiles), nytimes.com (*A Look Under the Hoodie*)

Acknowledgment is given to The University of Georgia Cooperative Extension for the original manuscript.

Prepared by Laura J. Connerly, Ph.D., Assistant Professor - Family and Consumer Economics, University of Arkansas Division of Agriculture, lconnerly@uaex.edu.
An estimated 450 million pairs of jeans are purchased every year, making them a staple of the American wardrobe. Indeed, jeans are the most widely produced piece of apparel in the U.S. Jeans have long been a cyclical market being driven, in the main, by factors such as employment conditions, productivity, fashion trends, lifestyle factors, and celebrity endorsements. Manufacturers and retailers are constantly challenged to maintain the market by staying on top of fads, changing tastes, and consumer desires for different styles of jeans.

Every brand and every style of jeans will fit a little differently, but knowing what to look for will help narrow down the selection to just those jeans that will look great on you. The type of fabric, the cut of the jean, and the details can all affect how jeans fit.

**Denim Is Denim Is Denim – Or Is It?**

You may have thought that all blue jeans were cut from the same cloth, but this isn’t so. Variations in the weave, the fibers, and the finishes all create differences.

**Weave**

All denim is cotton twill – a weave that has a slight diagonal to it – but that’s where the similarities end. Some denim is a left-hand twill (the diagonal on the dark side runs from lower right to the upper left), which has a very soft feel. A few types of denim have broken twill (the diagonal line changes directions). All other denim is a right-hand twill (the diagonal on the dark side runs from the lower left to the upper right), which is the most common and has a durable feel.

**The Cotton**

The quality of the cotton the denim is made of will affect the look and feel of the jeans. Fine cotton fabric is made from longer strands of the fiber, giving the jean fabric a softer feeling and a smoother look. High-quality cotton also lasts longer because there are fewer small fibers to rub off – this is often what you are paying for when you buy premium jeans.

**Dyes and Finishes**

Most jeans are made of denim that was dyed before it was woven into cloth (this is also called “yarn-dyed”); other jeans are dyed after they have been constructed into jeans. Jeans dyed after construction may have a more saturated color, but it may also fade faster. Blue jeans are dyed with the familiar indigo blue, but there are new innovations in denim dyes all the time. For example, some manufacturers layer the indigo dye with a yellow sulphur dye to gives jeans an aged, dirty-on-purpose look.

After the pants are constructed, many manufacturers put the jeans through finishing processes. A few terms you may see in product descriptions are:

- **Stonewashed:** Jeans are washed with chemicals or actual stones – usually pumice stones – to lighten and soften the denim. Occasionally, you may even find a few small pumice stones in the pockets when you first put on your new stonewashed jeans.

- **Sandblasted:** To give new jeans a broken-in appearance, the jeans are blasted with sand in areas where wear would occur naturally. This can sometimes lighten the denim, and lighter areas will draw attention to that body part. If you buy sandblasted jeans, make sure the light area is on a part you want to emphasize.

- **Whiskered:** Crease lines, called whiskers, are created across the lap to look like the jeans have been sat in many times.
Whiskers are printed on, sanded on or created with lasers. They are horizontal lines, so if you are worried about your legs looking too heavy, choose jeans with subtle whiskers or none at all.

**Stretch**

Many people love stretch jeans, and for women with more curves, stretch denim can be very flattering. Women with flat rear ends will want to avoid stretch jeans, however, because the stretch will just emphasize the lack of curves.

**What Makes Jeans Fit Differently?**

**Legs**

- **Boot cut:** Boot cut jeans flare slightly at the bottom. The slight flare – not a bell-bottom flare – balances out large hips and heavy derrieres.
- **Wide leg:** With a fitted waist, wide leg jeans can be a stylish alternative to your other jeans.
- **Straight leg:** Straight leg jeans are not as baggy as wide leg jeans, but they share the same stovepipe shape that lacks any flare at the ankle. The straight line of straight leg jeans gives a long, lean look to your legs.
- **Skinny:** Skinny jeans are slim-fitting jeans that are narrow all the way to the ankle. These are the perfect jeans to wear tucked into a pair of boots because they don’t have extra fabric around the ankles.
- **Boy cut:** With slim hips that sit a little higher and with straight legs. Because of the relaxed fit, these jeans can be the perfect casual jeans, or you can cuff them to your calf and dress them up.

**Rise**

- The rise is the length from the crotch to the waistband. A standard rise is about 30 inches, while low-rise jeans – also called hipsters, hip-huggers, or low-cut jeans – have about a 20-inch rise. Low-rise jeans can elongate a short torso, but on a long torso, they can be a bit too revealing in the back.

**Seat**

As long as the seat of your jeans fits well and is flattering, a tailor can fix just about everything else. Even if you prefer other pants with a loose fit in the seat, choose jeans with a snug seat. The center seam gives definition to your curves. Back pockets make or break a backside.

**Understand the Washes of Jeans**

Jeans come in a number of distinct cuts and washes. Figure out which are right for you before selecting the perfect pair of jeans.

- **Stonewashed jeans:** have a lighter, more broken-in appearance.
- **Dark jeans:** The deep indigo color of dark jeans makes them the ideal jeans for a night out on the town.
- **Distressed jeans:** Holes, shredding and crinkles create the highly worn appearance of distressed jeans.

**What Does a Consumer Look For?**

**Seams**

- Flat fell seams have two rows of stitching and are enclosed on both the outside and inside of the jeans. Seams of this type leave no open seam allowances to unravel during wear and laundering. Make certain the seams are neatly constructed and firmly stitched. Where seams are not flat fell, they should be serged (overcast with thread) to cover the raw edge and reduce raveling. Seams that join at the crotch and in the back should meet accurately for smooth contour, comfort, and durability of the garment.

**Waistband**

- A waistband made of two or more layers of fabric will reduce stretching in the waist area. If the jeans have no waistband, look for interfacing (an extra layer of firm fabric sewn into the waist seam for stability).

**Reinforcements**

- Look for thread bar tacks or rivets at places of stress like corners of pockets, belt loops, and the bottom of the zipper placket.
Zipper

- The zipper will be more durable if the fabric on both sides has been turned under and stitched. Because denim fabric is so heavy, a metal zipper offers more durability than a nylon zipper.

Select the Right Jeans for Your Body Type

With so many designer jeans on the market, it’s important to do your homework and select the right pair of jeans for your body type.

- **Slim body types**: Slimmer body types look great in a variety of jeans. Look for jeans that run straight from the hips through the knee, with a slight flare at the leg opening. Low-rise jeans with a high back and lower front are another good choice. Or, if you’re looking for a snug fit, choose jeans that are tight around the waist and backside.

- **Curvy body types**: If you have great curves to accentuate, choose jeans that run straight from the hips through the knee with a slight or more generous flare at the leg opening. A wide boot-cut silhouette is also flattering.

- **Athletic body types**: If you have athletic legs and narrow hips, consider a low-rise jean with a contoured waistband. Legs that taper out to a graceful and generous boot cut are also flattering—but without giving you the retro bell-bottom look. Or, to give the appearance of wider hips and a fuller backside, choose a cigarette-style jean.

- **Full-figured body types**: Choose a traditional five-pocket-style jean that isn’t too snug and has a little give. Many jeans woven with spandex stretch nicely to your frame. Remember also that a slight flare at the leg opening, such as a boot cut, will help to balance a wider or fuller figure, as well as make your legs look longer. Always opt for jeans in darker shades, as they’ll have a naturally slimming effect.

Caring for Your Jeans

Here are a few ideas for denim care.

- Cold wash will keep the color darker longer. Cold will also prevent shrinkage.
- Warm water will shrink jeans but may get our tough stains. BEWARE: Don’t wash jeans with whites unless you want to turn all your clothes blue!
- Air dry jeans for the least shrinkage and the least fading.
- Use a warm iron to get out wrinkles.
- Turn jeans inside out to preserve the dark color.
- To keep white denim looking brand new, wash in warm or hot water. Pre-treat stains and re-wash if stains are still visible before the drying cycle.
- Wash and dry your denim before hemming or altering.
- Consider dry cleaning very expensive jeans. The process will remove dirt but won’t affect the wash as much as a machine.

Acknowledgment is given to Texas A&M AgriLife Extension for the original manuscript.

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University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.
Introduction and Background

Luggage is an essential purchase for those who travel, even if it’s only on occasion. Because buying luggage can be expensive, considering your purchase before you make it is important. You have several things to consider that may help you decide how much to spend when buying luggage.

Luggage can be stylish and practical. The more usage your luggage gets, the more quickly it will wear out. If you are a frequent traveler, you should consider durability and practicality to be the most important features. If your travel always includes checked baggage, you should not only consider durability and practicality but also think about cost. Nothing is more frustrating than owning expensive designer luggage only to find it lost or damaged by the airline. While statistically, the amount of lost luggage that is never recovered is fairly low, your odds increase the more often you travel.

Repair Versus Replace

In today’s marketplace, much of the luggage sold in the United States is made by overseas manufacturers who do not provide replacement parts for their products. This means if something breaks, you have little, if any, chance of having it repaired. Even if you purchase luggage that can be repaired, replacing those parts or repairing the damage may be as expensive as buying a new set of luggage. As a result, the initial purchase you make is very important.

Things to Consider When Buying Luggage

Size and Weight

Whether for convenience, as a cost saving strategy, or to minimize the chance of lost or damaged bags, many people prefer to fly with a carry-on bag. The typical maximum external dimensions for carry-on bags are 22 inches by 14 inches by 9 inches, including any wheels and pockets. A carry-on bag larger than these dimensions will be taken from the passenger and checked with the rest of the luggage stowed in the cargo area of the plane and is subject to regular checked baggage fees.

The weight of your luggage is a factor you should consider before purchase. Heavier luggage can prove to be more durable, but several manufacturers are creating lightweight products that can stand up to the pressure of travel. Today, most airlines have a weight limit for checked luggage. If your bag exceeds a certain weight, you will have to pay an additional charge.

Siding

The durability of the outside fabric or shell of a suitcase is very important. This area is exposed to the greatest amount of abuse, wear, and tear. Luggage manufacturers use a variety of fabrics – nylon, polyester, canvas, tapestry, denim, vinyl, and leather.
Hard-sided shells tend to offer more protection for fragile items but also may be heavier to carry. Hard shells are quite durable, resistant to heat and stains, and less likely to tear or rip. They have a tendency to crack or dent in the corners if handled roughly. When purchasing hard-sided luggage, be sure the shell of the case is fairly thick. Thinner plastic shells are more prone to cracks and dents.

Soft-sided cases offer little to no protection for fragile items but are much lighter weight. Soft shells often are lined with urethane to make them water-resistant. In addition, they often are treated with stain repellent.

### Handles and Zippers

Your luggage should have a variety of smaller handles to help you carry your case. Helper handles, often found on the top and sides of a case, should be securely fastened to the luggage and should be comfortable in your hand during use. Always use these handles when placing luggage in overhead racks or pulling luggage over curbs.

Luggage has become much easier to maneuver with the upright handle system that most manufacturers use. This system brings convenience and ease to the travel industry. However, some of these handle systems have their downfalls. Some manufacturers mount their handle on the exterior of the bag, leaving them open to damage. Other handles do not remain locked in place or, if they are hit, may bend or break. Many manufacturers have taken precautions against these flaws and use strong materials to build their handle system. Strong handle tubes are less likely to dent or bend, which could disable the handle system. The handle is best if the tubing is on the interior of the bag.

Few manufactures who mount handles on the outside of a bag provide adequate protection for them.

You also should look for a handle locking system that locks in the extended and storage positions. If the lock does not work during a flight or other transit, the handle could be damaged. Handles that store flush with the suitcase are less likely to be damaged in transit. Make sure to test your handle for ease of operation before your purchase. It should extend to a comfortable length for your height to keep your bag from hitting you in the back of your legs.

Luggage today has two basic types of zippers. The coil zipper is made of one continuous strand of nylon or polyester that is wrapped and stitched into the zipper tape. This is the most common zipper.

The molded or chain zipper has individual teeth applied to the zipper tape. Chain zippers are more durable than coil zippers.

Avoid smaller-sized zippers. Many manufacturers use zippers that are commonly found in clothing items. These zippers are not strong enough to stand up to the stress of use on a suitcase. The larger, oversized zippers are much more durable, making them better able to withstand the repeated wear, tear, and stress on a suitcase.

### Frames

Many manufacturers have greatly increased the quality of their luggage frames. You can look on the inside of a suitcase to determine what type of frame a bag has.

Be aware of any frame that is plastic or metal. The single-ply plastic frames used by some lower-end manufacturers tend to crack and shatter. This makes them impossible to repair. The metal frames, though lightweight, tend to bend and provide little protection for the contents of the bag. They also have plastic corners, which tend to crack.

The most common type of frame used today is the honeycomb. It is lightweight and durable, and it has the ability to withstand pressure by flexing...
upon impact. Luggage salespeople say, “One thing has to give when the baggage handlers throw your luggage, and it usually isn’t the concrete.”

**Wheels**

The most popular luggage for many is the suitcase on wheels. This makes taking even the heaviest luggage on vacation easy because all you’ve got to do is drag your luggage behind you. If you buy wheeled luggage, always ensure that the wheels are sturdy enough. A broken wheel on a suitcase can render a perfectly good piece of luggage useless.

Beware of luggage wheels mounted on the exterior of a suitcase. Any protruding objects are more susceptible to being caught on other items and becoming damaged. Wheels inset into the case are less likely to be damaged or broken.

**Stitching and Hardware**

Be sure you examine the stitching and hardware on any piece of luggage you plan to purchase. After all, the stitching and hardware hold it together and keep your clothes inside.

A well-constructed bag will have even stitching. The closer the stitching is together the better. Any stress points on the case, especially handles or shoulder straps, should be reinforced with extra stitching or rivets to ensure greater durability.

You also may want to check seams on the case where the material is stitched together. Poorly constructed suitcases have only a small amount of material that overlaps the stitch line, making it more likely to pull or tear loose from the bag.

In addition, you may want to check the bag’s hardware, which includes locks, handle posts, and zipper pulls. While determining the durability of the hardware on a suitcase is not easy, you can look to see whether it is made of a heavy, solid metal construction. Any hardware made of plastic or lightweight metal is more susceptible to damage than the heavy, solid metals.

**The Bottom Line**

- **Look for a long warranty.**
  Experts say this is the simplest way to estimate luggage quality, especially if the warranty covers accidental damage. However, a higher price tag doesn’t always mean a better warranty.

- **Look for industrial nylon construction.**
  This is especially important for frequent travelers or for big bags that always will be checked rather than carried on. The two main types are Cordura by Dupont, which has more abrasion resistance, and ballistic nylon, which is slicker and is more resistant to tears. Leather is heavier and prone to mold in humid climates.

- **Check the denier of the fabric.**
  Denier is a unit of measurement for thread. Denier refers to the size of the yarn in the fabric; the lower the number, the finer the thread. Higher denier fabrics (larger threads) are more durable.

- **Consider water resistance.**
  Only a few bags pass soaking tests. This feature is especially important with bags that will be checked rather than carried on.

- **Handles and zippers are potential weak points.**
  Most complaints about durability involve handles and zippers breaking, bending, or sticking. Chain zippers, which are fused to the fabric, are more durable than coil zippers, which are sewn on. Check handles also for comfort.

- **Helper handles make a bag easier to lift.**
  Extra handles on the sides and bottom, as well as the top, make maneuvering bags into and out of luggage bins much easier.
Wheels or no wheels?

One-bag travel experts tend to recommend bags without wheels because they are lighter and have more capacity. If you do choose a wheeled bag, look for skate wheels set widely apart. Tests show that wheels set too closely together make luggage unstable and hard to maneuver in tight turns. Larger wheels will maneuver more smoothly over uneven terrain, and softer wheels lessen vibration and noise.

Resources

- Consumer Reports
  www.consumerreports.org
- Road and Travel Magazine
  www.roadandtravel.com
- The Savvy Traveler
  www.thesavvytraveler.com
- Consumer Search
  www.consumersearch.com

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Situation Statement:
Sarah is going to camp this summer. She wants to purchase a duffle bag to pack her clothes in for camp. Sarah has $50 to spend on her bag. She is planning to pack a lot of clothes, so she would like her bag to have wheels to help her move it. Since her favorite color is red she would like a red duffle bag.

Standards:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duffle bag</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Costs $50 or less</td>
<td>X</td>
<td></td>
<td>$60</td>
<td>$43.99 X</td>
</tr>
<tr>
<td>Has wheels</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Available in color red</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Class Items:
1. Adidas Duffle Bag
2. Samsonite Casual Wheeled Duffle
3. Coolstuff4u Giraffe Print Wheeled Suitcase
4. CalPak Arctic Circle Wheeled Duffle

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

Reasons:
I placed this class of luggage 4-1-2-3.

I placed 4 over 1 because 4 has wheels while 1 does not.
4 is available in the color red while 1 is only available in black/white.

I placed 1 over 2 costs less than $50 at $30 while 2 costs $64.99.
Grant: 2 has wheels
Grant: 2 is available in the color red.

I placed 2 over 3 because 2 is a duffle bag and 3 is a suitcase.
2 is available in red while 3 is only available in black and white with pink trim.

I placed 3 last because it is not a duffle bag.
It costs more than $50.
It is not available in red.

For these reasons, I place this class of luggage 4-1-2-3.

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Sample Class
Luggage
Sarah

#1

Adidas Duffle Bag

- Zipper main compartment with zipper mesh valuables pocket and key fob; Easy-access front pocket; Wet/dry shoe tunnel with mesh panel for ventilation
- FreshPAK™ is a unique technology which inhibits odor-causing bacteria. Your bag and gear stay fresher, longer.
- Removable, dual adjustable shoulder strap
- No-slip contoured shoulder pad
- Wrapped haul handles
- Available in black/white
- Screen-printed adidas brand mark on front, end caps and shoulder pad; Screen-printed 3-Stripes on front
- Dimensions: 26" x 12.5" x 12"
- Polyester dobby
- Cost is $30.00

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Sample Class
Luggage
Sarah

#2

Samsonite Casual Wheeled Duffle

- Constructed of Samsonite’s ballistic polyester
- Push button locking handle
- Extra carry handles on side and top of duffel
- Padded velcro carry grip for comfortable carrying
- Smooth rolling in-line wheels
- Available in red/black/gray
- Heavy-duty, self mending, #10 nylon zippers on main compartment
- Dual adjustable compression straps help to secure packed items
- Quick release buckles on nylon compression straps
- Padded velcro carry grip for comfortable carrying
- Bottom feet keep duffel lifted off floor when laying down flat
- Drop bottom/split case features
- Fully lined interior
- Large wet pocket
- Cost is $64.99

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#3

**Coolstuff4u Giraffe Print Wheeled Suitcase**

- Made of leather-like black and white PVC vinyl, with hot pink vinyl trim, the suitcase has an animal skin texture.
- Features an expander zipper, which gives an extra 3 inches of space.
- It has double zippers, which can be locked together.
- ID holder on the back.
- The suitcase has wheels, a telescoping handle and strap handle for easy carrying.
- The pink nylon interior features a mesh pocket with a zipper closure, and crossed elastic straps to keep belongings secure.
- The exterior dimensions are 22 inches tall, 14 inches wide and 8 inches deep.
- Cost is $60.00.

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Sample Class
Luggage
Sarah

#4
CalPak Arctic Circle Wheeled Duffle

- **Product Material:** Rip stop with polyester
- **Product Weight:** 10.16 lbs.
- Roomy main compartment is great for bulky clothing or gear
- In-line skate wheel system with ball bearings for smooth, quiet rolling
- Longer handle is more comfortable across a variety of heights
- Available in red/black/gray
- 2 side zippered pockets plus 3 additional zippered pockets on the front
- Side cargo handle aids in short lifts
- Self-repairing excel zippers
- Cost is $43.99

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There are a variety of ways movies can be rented today compared to just 10 years ago. With the new ways to rent movies, such as on the Internet or at the grocery store, going to a movie rental store might not give you the best deal possible. With new rental options, learning how to compare rental prices for many different products can save money.

Key Terms

In order to understand the movie rental process, consumers need to be familiar with some key terms. These terms are words that can be seen at a movie rental store and other places where movies are rented.

- **Blu-ray** – A high-definition version of a DVD movie that usually costs more than a regular DVD. The consumer must have a Blu-ray player to play this type of movie.
- **Business Day** – A day in which businesses are open. These are usually Monday through Friday, except for days that have national holidays. When renting from companies that deliver through the mail, the plan will state how many business days it will take to receive your movie.
- **Credit Card** – A card that can be used to purchase products immediately and then pay for them at a later date.
- **Debit Card** – A card that is linked to a checking or savings account and used to purchase products. Consumers must have money in a checking or savings account for it to work. It is just like carrying cash.
- **Due Date** – When renting a movie, this is the date and time that the customer must have the movie back to the store before having to pay late fees.
- **Kiosk** – A computer station available for public use. With movie rentals, it is a large computer where you can scan a credit card to receive a movie.
- **Late Fees** – An extra amount of money that must be paid if the movie is returned after the due date.
- **Membership Card** – A card that shows an individual belongs to a club or organization. In this case, many movie rental stores have membership cards that are required to rent from that particular store or chain of stores.
- **Membership Fee** – An amount customers have to pay to join a store before being allowed to rent any movies.
- **New Release** – A movie that just came out onto DVD.
- **Streaming Video** – A method of watching videos over the Internet. The movie is played through a provider such as Netflix. There is no hard copy of the movie downloaded to the computer.
- **Subscription** – Paying a monthly amount of money to receive a product or service.
- **Queue (pronounced "Q")** – A list of movies a customer would like to view. This is most often used with a membership when renting movies through the mail.
Movie Rental Options

There are a variety of ways movies can be rented. Below is a brief overview of options consumers need to take into consideration when renting a movie.

Renting a Movie From a Store

- Must be 18 years of age or older to open an account.
- Requires completing paperwork to create an account and get a membership card.
- Usually does not require a fee to create a membership account.
- Cannot rent movies or other merchandise from this store without a membership card.
- Requires a credit card be kept on file in case a movie is lost or not returned, then store will charge the customer for it.
- Provides a selection of hundreds of movies and often has several copies of newly released movies that are in high demand.
- Allows customers to check out up to eight movies at a time.
- Requires movies be returned to the same store where they were rented.
- Prices at movie rental stores vary. Some promote features such as “no late fees,” “multiple day rentals” or other special promotions. An example might be that if a movie is returned within 24 hours, a cheaper rate will be charged and a refund or credit will be given. But if it is kept longer than 24 hours, the full rate will be charged.
- Customers will be charged for movies that are not returned, and the customer will then own the movie.

Renting a Movie Through the Mail

- Requires creating an account, usually on the Internet, using the customer’s name, address, contact information and a credit card or debit card.
- Must be 18 years of age or older to open an account.
- The account will require a monthly fee for the subscription for movie rental. The fee will be automatically charged each month, regardless of the number of movies rented.
- To cancel an account, customers may call or e-mail the company to stop service.
- A variety of rental plans are available, and most depend on the number of DVDs that can be rented at a time.
- There is a much wider variety of movies to rent, from recent releases to older movies.
- Some companies offer downloadable movies that can be viewed immediately, but this will work best with high-speed Internet access.
- Some services may offer streaming videos that can be shown on the home TV, but this service is an additional fee and requires additional hardware with access to a broadband Internet connection.
- Cost of renting Blu-ray DVDs may be higher than regular DVDs.
- Customers can create a list, also called a queue, of movies they would like to view.
- Movies will be mailed in the order listed on the customer’s queue.
- Movies are usually received within one business day.
- Once movies are sent back and received by the rental location, the next movie on the queue will be mailed.
- There is no charge to mail movies back to the rental location.
- Some retail movie rental stores also have an online service. An advantage to this type of service is that movies may be returned to the store and new movies rented on site instead of having to wait for the next movie to arrive in the mail.

Renting a Movie From a Kiosk

- Movie rental kiosks are often found at major retail stores.
- Kiosk movie rentals do not require a membership card or a monthly fee.
• A credit or debit card is needed to pay for the rental purchase.
• The fee to rent a movie from a kiosk is usually $1 per day. The customer has 24 hours to return the movie to the kiosk location before being charged another $1. The credit card must be scanned when the movie is returned to determine any additional charges if it is not returned within 24 hours.
• Some companies will allow movies to be returned to any kiosk owned by the same company, while others may require the movie to be returned to the same kiosk.
• Some companies have limits on the number of movies that can be checked out at one time, while others do not.
• A disadvantage of movie rental kiosks is that it is limited by the size of the kiosk. A kiosk usually holds between 50 and 75 titles with a few copies of each one.
• The movie rental will last for 24 hours, and the consumer can watch it or stop and start the film as desired with a digital remote.
• All of the services are different in terms of the cost structure. Some charge extra for new releases or Blu-ray, if even offered at all.

Library Check Out
• Consumers may go to a local library and check out movies to view.
• There is no cost for this service unless the movie is not returned by the due date. Fees can become costly if the movie is not returned.
• The selection of movies at most libraries is very limited.

Movies on Demand
• Can be purchased from your home through cable or satellite companies or downloaded on the computer through a variety of services such as iTunes.
• Prices range from $2.00 to $5.00 per movie through cable or satellite companies and up to $20.00 through download services.
• Movies purchased through download services become the property of the consumer and can be viewed unlimited times.
• Movies must be watched on the TV it was ordered from.
• Some services offer standard and high-definition versions of movies.

References and Resources
Information adapted from University of Florida 4-H Youth Development Consumer Choices Contest Study Materials found at:
• http://florida4h.org/projects/consumer_choices.shtml
• http://www.apple.com/itunes
• http://www.blockbuster.com/download
• http://www.consumerreports.org/cro/index.htm
• http://www.dvdplay.com/
• http://filmtvindustry.suite101.com/article.cfm/mail_order_movie_subscription_services
• http://www.moviecube.com/
• http://www.netflix.com
• http://www.redbox.com/

Acknowledgment is given to Texas 4-H Youth and Development, Texas A&M AgriLife Extension, for the original manuscript.

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Horticultural and Consumer Qualities

The 4-H philosophy for produce judging is that the qualities describing horticultural merit are identical to those traits that make produce ready for purchase and consumption. These qualities include product uniformity, stage of ripeness, freedom from disease and insect damage, absence of bruises and blemishes, and so forth.

The correct stage of ripeness is determined by examining either the product’s skin or leaves. If the product’s skin is wrinkled, shriveled, or collapsed in any way, it is probably overripe. Leafy produce should be firm and not wilted. Unripe vegetables and fruits will have uneven color and usually are very hard. Underripe is better than overripe when selecting produce.

Another way to tell if a vegetable or fruit is edible is to look for bruises, growth cracks, or sunscald. Mechanical damage, such as bruises, may need to be cut out. Growth cracks, most often caused by erratic watering practices, may need to be removed. If large portions of a produce item must be removed due to damage, the produce item is low quality.

Sometimes vegetables may be misshapen. This distortion often happens when root vegetables, such as carrots or radishes, are grown in heavy, compacted soil that has not been amended or properly worked. Odd shapes may occur in vegetables grown above ground or in fruits when they grow next to another plant, a rock, or some other obstacle.

Holes, chewed sections, and discolored areas on vegetables, fruits, and herbs are signs of insect damage. Disease damage results in discolored lesions, off-color and streaked appearances in the flesh, and rotted areas.
## Correct Produce Names

<table>
<thead>
<tr>
<th>Produce Name</th>
<th>Description</th>
<th>Produce Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>apple</td>
<td>Fruit</td>
<td>garlic</td>
<td>Vegetable</td>
</tr>
<tr>
<td>artichoke</td>
<td>Vegetable</td>
<td>ginger root</td>
<td>Root</td>
</tr>
<tr>
<td>asparagus</td>
<td>Vegetable</td>
<td>grape</td>
<td>Root</td>
</tr>
<tr>
<td>banana</td>
<td>Fruit</td>
<td>grapefruit</td>
<td>Fruit</td>
</tr>
<tr>
<td>basil</td>
<td>Vegetable</td>
<td>green onion</td>
<td>Root</td>
</tr>
<tr>
<td>beet (table)</td>
<td>Vegetable</td>
<td>head lettuce</td>
<td>Root</td>
</tr>
<tr>
<td>broccoli</td>
<td>Vegetable</td>
<td>jicama</td>
<td>Root</td>
</tr>
<tr>
<td>Brussels sprout (plural is Brussels sprouts)</td>
<td>Vegetable</td>
<td>kale</td>
<td>Vegetable</td>
</tr>
<tr>
<td>cabbage</td>
<td>Vegetable</td>
<td>kiwi</td>
<td>Vegetable</td>
</tr>
<tr>
<td>carrot</td>
<td>Vegetable</td>
<td>kohlrabi</td>
<td>Root</td>
</tr>
<tr>
<td>cauliflower</td>
<td>Vegetable</td>
<td>leaf lettuce</td>
<td>Root</td>
</tr>
<tr>
<td>celeriac</td>
<td>Vegetable</td>
<td>leek</td>
<td>Root</td>
</tr>
<tr>
<td>celery</td>
<td>Vegetable</td>
<td>lemon</td>
<td>Root</td>
</tr>
<tr>
<td>chard (also called Swiss chard)</td>
<td>Vegetable</td>
<td>mint</td>
<td>Root</td>
</tr>
<tr>
<td>Chinese cabbage</td>
<td>Vegetable</td>
<td>muskmelon or cantaloupe</td>
<td>Fruit</td>
</tr>
<tr>
<td>chive (plural is chives)</td>
<td>Vegetable</td>
<td>mustard</td>
<td>Root</td>
</tr>
<tr>
<td>collard</td>
<td>Vegetable</td>
<td>okra</td>
<td>Root</td>
</tr>
<tr>
<td>cucumber (slicing or pickling)</td>
<td>Vegetable</td>
<td>onion (dry)</td>
<td>Root</td>
</tr>
<tr>
<td>dill</td>
<td>Vegetable</td>
<td>orange</td>
<td>Root</td>
</tr>
<tr>
<td>edible podded pea</td>
<td>Vegetable</td>
<td>parsley</td>
<td>Root</td>
</tr>
<tr>
<td>eggplant</td>
<td>Vegetable</td>
<td>parsnip</td>
<td>Root</td>
</tr>
<tr>
<td>endive</td>
<td>Vegetable</td>
<td>pea (green, in pod)</td>
<td>Root</td>
</tr>
<tr>
<td>pepper</td>
<td>Vegetable</td>
<td>pineapple</td>
<td>Fruit</td>
</tr>
<tr>
<td>potato (plural is potatoes)</td>
<td>Vegetable</td>
<td>radish (plural is radishes)</td>
<td>Root</td>
</tr>
<tr>
<td>raspberry (plural is raspberries)</td>
<td>Fruit</td>
<td>rhubarb</td>
<td>Root</td>
</tr>
<tr>
<td>rutabaga (table)</td>
<td>Vegetable</td>
<td>rosemary</td>
<td>Root</td>
</tr>
<tr>
<td>shallot</td>
<td>Vegetable</td>
<td>snap bean (yellow or green)</td>
<td>Fruit</td>
</tr>
<tr>
<td>strawberry (plural is strawberries)</td>
<td>Vegetable</td>
<td>spinach</td>
<td>Root</td>
</tr>
<tr>
<td>sweet corn</td>
<td>Vegetable</td>
<td>summer squash</td>
<td>Vegetable</td>
</tr>
<tr>
<td>sweet potato (plural is sweet potatoes)</td>
<td>Vegetable</td>
<td>thyme</td>
<td>Root</td>
</tr>
<tr>
<td>thyme</td>
<td>Root</td>
<td>tomato (plural is tomatoes)</td>
<td>Fruit</td>
</tr>
<tr>
<td>turnip</td>
<td>Root</td>
<td>watermelon</td>
<td>Fruit</td>
</tr>
<tr>
<td>winter radish or daikon (plural is winter radishes)</td>
<td>Vegetable</td>
<td>winter squash</td>
<td>Vegetable</td>
</tr>
</tbody>
</table>

## Produce Descriptions, Merits, and Faults

### Apples (fruit)

Apples are round to slightly elongated. Apples commonly come in red, yellow, or green, but many of the newer varieties may be a mixture of these colors. The flesh of the apple should be white or, in some varieties, soft pink.1

Merits of apples include crisp flesh that is white and juicy, smooth skin devoid of blemishes, and firm tissue all the way to the core. The apple should have good symmetry.

Faults of apples include brown or bruised flesh, discolorations of the skin, corky tissue on the skin, soft flesh, and a watery core. Any apparent insect damage is also a fault.

### Artichokes (globe) (vegetable)

Artichokes are actually immature flower buds that are edible. Each bud contains many layers of bracts (modified flower petals), of which the lower bases of the bracts are edible. The heart of the artichoke, on which the bracts are attached, may also be eaten.1

Merits of the artichoke include leaves that are thick and firm, stem free of holes and blemishes, and all of the leaves should be tightly closed, perhaps even squeaking when handled.

Faults of the artichoke include leaves that are soft and browning, stems with holes, which may be evidence of insect damage within the head, and leaves that are loose or open.

### Asparagus (vegetable)

Asparagus has young, immature stem tips, and scales on the tips are tight. Asparagus may be dark green or white, or it may be green toward the tip and white toward the base.

Merits of asparagus include uniform stalk length and size (at least ½ inch in diameter), juiciness, bright color, and tightly closed scales at tips.

Faults of asparagus include loose scales, or undersized, spindly, wilted, or oversized stalks.

### Bananas (fruit)

Bananas are a curved, long fruit. The skin is yellow, and the flesh is white and creamy. Bunches usually grow in 6 to 25 individual bananas.1

Merits of bananas include bright yellow skin, absence of bruising on the flesh, and lack of skin browning near the stem. The flesh should be soft and creamy but not overripe.

Faults of bananas include brown skin, bruised flesh, and squishy stem end.
Basil (herb) is a fragrant herb used as a seasoning in a variety of foods. Basil is sold dry or fresh.

Merits of fresh basil include green bunches that are fresh and not wilted. Basil should be free of insect damage or yellowing and should have a strong, pleasing aroma.

Faults of basil include yellow leaves, wilting, signs of insect damage, and blackening of stems.

Beets (vegetable) have round or cylindrical roots. Beets may be red, yellow, or, rarely, white.

Merits of beets include uniform size, color, and shape. Baby beets should be 1½ inches and table beets should be 1½ to 3½ inches in diameter. The crown should have very little browning and no cracks.

Faults of beets include damaged, cracked, pithy, or wilted tissues.

Broccoli (vegetable) has immature green flower heads and is harvested before buds open.

Merits of broccoli include fresh green color with florets close together. Broccoli should be tender, crisp, and free from worms. Stems should be less than 6 inches long.

Faults of broccoli include heads that are soft or wilted or are showing yellow flowers.

Brussels sprouts (vegetable) are firm, green, round buds measuring about 1 inch across. Brussels sprouts look like small cabbage heads.

Merits of Brussels sprouts include fresh, solid, and tightly closed buds with good green color.

Faults of Brussels sprouts include small or loosely closed buds, yellowish color, or wilted buds.

Cabbage (vegetable) is a compact ball of thickened leaves. The heads can be green, red, smooth, or crinkled. Cabbage is solid and heavy with outer leaves intact. The head may be rounded, flattened, conical, or egg-shaped. The midribs may be white.

Merits of cabbage include solid, firm heads that measure about 6 to 9 inches in diameter. Heads should be tender, crisp, and heavy for their size. Worm damage or rot should never be present. Knowing the cabbage variety is important as varieties differ in size and shape.

Faults of cabbage include prominent midribs on leaves, incorrect size, light weight, loosely formed, wilted, or uneven color.

Carrots (vegetable) have yellow or orange roots. They are cylindrical, tapered, or round, without side roots.

Merits of carrots include uniform type (diameter depends on variety), smooth surface, and pale to deep orange color (depending on variety). When carrots are cut, they should have a small core without rings. Carrots should be tender and sweet.

Faults of carrots include off-color, wilted, rough, or cracked roots. Worm damage, crooked or branched roots, or green crowns also are considered faults.

Cauliflower (vegetable) consists of a firm, heavy, white head of immature flowers. Some types may be purple or green.

Merits of cauliflower include solid heads with good color and smooth, fine-grained texture. Cauliflower should be crisp with outer leaves trimmed about 1 inch above the head’s center.

Faults of cauliflower include wilted heads having yellowish color or rough, grainy texture.

Celeriac (vegetable) is a rough-surfaced, round root measuring about 2 to 6 inches in diameter. The root has crisp, white flesh. Celeriac smells like celery.

Merits of celeriac include uniform color and solid roots.

Faults of celeriac include incorrect size, wilted root, or damage from worms or insects.

Celery (vegetable) is the whole, above-ground portion of the plant. Leaf blades are trimmed off. Stalks may be green, white, or yellowish. Celery is a cylindrical cluster of leaf petioles attached to a very short stem.

Merits of celery include thick, firm, and crisp petioles that are uniform and long. Color should be uniform.

Faults of celery include stalks that are stale or wilted. Rust on the stalks is a fault. Stalks that are uneven in color, spindly, or unevenly arranged in the bunch also should be faulted.
**Chard** (vegetable) consists of large, thick, crumpled leaves. Chard can include single leaves or the entire plant with the roots removed. Stems are short. Petioles and midribs may be white, red, orange, or yellow.

Merits of chard include firm, tender, crisp leaves free from insect or disease damage.

Faults of chard include small or wilted leaves, roots that are still present, or uneven color.

**Chinese cabbage** (vegetable) has a compact, elongated head with thin, many-veined leaves. Chinese cabbage color can be light green to white. One type, bok choy, has dark green leaves and white petioles. Bok choy does not form a solid head.

Merits of Chinese cabbage include solid, firm heads with tender, crisp leaves and uniform color.

Faults of Chinese cabbage include very prominent midribs, incorrect sized heads, wilted leaves, or uneven color.

**Chives** (herb) are small, onion-like plants. Chives grow in clusters and are dark green. The leaves are hollow and thin.

Merits of chives include fresh leaves that are evenly green and have no sign of blemish or drying.

Faults of chives include wilted leaves, dried leaves, signs of insect damage, or unevenly colored leaves.

**Collards** (vegetable) consist of rosettes of tender, dark green leaves, which may be attached or detached from the main stem. The roots are removed.

Merits of collards include firm, crisp leaves with uniform color and size.

Faults of collards include wilted, dirty, or damaged leaves.

**Cucumber** (fruit) is an immature, firm, heavy, green fruit. Pickling cucumbers are 1¾ to 5 inches long, and they are blocky. Slicing cucumbers are 6 to 9 inches long. European slicing cucumbers can be up to 16 inches long. Lemon cucumbers are egg-shaped and 4 to 6 inches long. Lemon cucumbers have light yellow skin. Some might assume cucumbers and several other fruits mentioned in this guide, including edible podded peas, eggplant, okra, peppers, snap beans, squash, and tomatoes, are vegetables. They are fruits because the botanic and horticultural definition of “fruit” is a mature ovary, which may or may not contain seeds (some fruits are seedless).

Merits of cucumbers include uniform size, crisp and straight fruits, dark green color, uniform maturity, and evenly spaced spines (if present).

Faults of cucumbers include nonstandard size or color, or wilted, over mature fruits.

**Dill** (herb) has green, fragrant flower heads with stems and green leaves. Seeds are brown and immature and should not be shedding.

Merits of dill include freshness, uniform and balanced bunches, and clean leaves and stems.

Faults of dill include dirty foliage or flower heads, disease or insect damage, discoloration, or wilted foliage.

**Edible podded peas** (fruit) are tender, flat pods. The seeds inside should be starting to enlarge. Some varieties have rounder, crisp pods with nearly full-grown seeds. Both ends of the pods are intact.

Merits of edible podded peas include uniform color and size, both ends intact, and fresh, crisp pods.

Faults of edible podded peas include wilted or over mature pods, pale color, or insect or disease damage.

**Eggplant** (fruit) is a black, purple, or white, round to egg-shaped fruit. An eggplant may be as long as 14 inches.

Merits of eggplant include well-shaped, firm, mature fruit. Other merits are a connected stem and a shiny surface.

Faults of eggplant include wilted or misshapen fruit, uneven color, or over maturity.

**Endive** (vegetable) is a green, leafy rosette plant. The roots are removed, and the center leaves are creamy white.

Merits of endive include fresh, uniform, and clean leaves and stems.

Faults of endive include dirty, diseased, discolored, or wilted leaves or stems.
**Garlic** (herb) is a bulb 1½ to 3 inches in diameter. Garlic may be white to pink, and it has papery, dry skin.

Merits of garlic include individual cloves that are uniform in size and shape. Clear skin also is a merit.

Faults of garlic include soft or damaged bulbs.

**Ginger root** (vegetable) is actually an edible rhizome. The interior is golden white.

Merits of ginger root include few knots or branches, light brown skin that is smooth, and lack of blemishes or bruises.

Faults of ginger root include withered knobs, many knots and branches, and blemishes or bruised skin.

**Grapes** (fruit) are round fruits that grow in clusters on vines. The skin of the fruit may be green, red, purple, or yellow when ripe. The skin is usually thin and the flesh juicy. Seeds may or may not be present, depending on the variety.1

Merits of grapes include plump fruits, stems securely attached, rich coloring, and absence of shriveling or skin blemishes.

Faults of grapes include blackening of skin near stem, soft or shriveled fruits, and mold present on fruits.

**Grapefruits** (fruit) are large, round fruits with a thick rind. The rind is yellow but may be slightly red or pink. The flesh of the fruit is pinkish-red or yellow and is slightly bitter in taste.1

Merits of the grapefruit include smooth and shiny skin, firm fruit, and absence of mold or bruising.

Faults of the grapefruit include dull or wrinkled skin, soft fruit, and the presence of mold or bruising.

**Green onions** (vegetable) are immature onion plants. Green onions have thick, straight stems with roots trimmed short.

Merits of green onions include no large bulge at the base, clear white base color, and dark green tops. Green onions should be fresh and clean.

Faults of green onions include wilted or damaged tissues, or soft tops. Another fault is when the base bulges more like an onion.

**Head lettuce** (vegetable) is a solid, round head of green leaves. The midribs and center leaves are nearly white.

Merits of head lettuce include a firm, crisp, clean, solid head heavy for its size.

Faults of head lettuce include wilted, dirty, loose, or damaged leaves.

**Jicama** (fruit) is a large tuberous root from a legume plant.

Merits of jicama include tubers free of bruises or cracks and tissue that appears fresh and firm.

Faults of jicama include cracks, bruises, and soft tubers.

**Kale** (vegetable) has grayish or blue-green curly leaves. Kale looks like a non-heading cabbage.

Merits of kale include firm leaves uniform in color.

Faults of kale include wilted, dirty, or damaged leaves or uneven color.

**Kiwi** (fruit) is an egg-shaped fruit with bright green flesh and brown skin covered with brown fuzz. A ring of small black seeds is embedded in the flesh. The seeds are edible.

Merits of kiwi include plump, fragrant fruit with skin free of spots or blemishes.

Faults of kiwi include plump, soft, or very small fruits, and blemishes or soft spots on the fruit.

**Kohlrabi** (vegetable) has an enlarged stem measuring about 2 to 3 inches in diameter. Leaf scars and petioles of kohlrabi are in a spiral pattern. Kohlrabi may be round or shaped like a toy top.

Merits of kohlrabi include uniform size, tender stem, and even color.

Faults of kohlrabi include an oversized (larger than 3 inches), wilted, damaged, or soft stem.

**Leaf lettuce** (vegetable) consists of a rosette of tender, green leaves attached to a stem. The roots are removed.

Merits of leaf lettuce include firm, crisp leaves attached to the stem and having uniform color and size.

Faults of leaf lettuce include wilted, dirty, or damaged leaves.
Leeks (vegetable) look like large, green onions with thick, straight, 1- to 2-inch thick stems. Leeks have flattened, green leaves.

Merits of leeks include uniform size, shape, and color with dark green tops and clear white bulbs.

Faults of leeks include uneven color, faded or pale tops, or a wilted or damaged product.

Lemons (fruit) are a bright yellow, oblong shaped fruit. The skin is smooth, and the fruit may have a slight protrusion at the stem end. The inner flesh is light in color with a fragrant smell and acidic taste.1

Merits of the lemon include skin that is vibrant colored and smooth. The skin should lack blemishes. The flesh should be juicy and fragrant.

Faults of the lemon include pulpy or dry flesh. Avoid skin that is bruised or blemished.

Mint (herb) is a perennial herb known for its distinctive minty smell.

Merits of mint include green bunches that are fresh and not wilted. Mint should be free of insect damage or yellowing and should have a strong, pleasing aroma.

Faults of mint include yellow leaves, wilting, signs of insect damage, and blackening of the stems.

Muskmelons or cantaloupes (fruit) are netted or ribbed, round to oval fruits. The fruits have cream-colored netting on rinds and greenish to yellow skins.

Merits of muskmelons include clean, firm fruits free of soft spots, scratches, or decay. Netting should be deeply ridged over melons. Color should be even.

Faults of muskmelons include over or under ripeness, poor color, blemishes, or coarse netting.

Mustard (vegetable) consists of green leaves that are used fresh or cooked.

Merits of mustard include fresh, uniform, and clean leaves and stems.

Faults of mustard include dirty, diseased, discolored, or wilted leaves or stems.

Okra (fruit) has pointed, velvety pods. The pods may be green, yellow, or somewhat red. The pods should be partially mature.

Merits of okra include uniform pod size, shape, and color. Pods should be clean, fresh, and crisp.

Faults of okra include uneven color, damaged, overly mature, or wilted pods.

Onions (vegetable) are mature bulbs with dry roots and dry necks. Outer scales are dry and can be red, brown, yellow, or white. Onions may be flattened, round, or spindle-shaped, but they should be heavy for their size.

Merits of onions include even color and heaviness for their size. Onions also should have clear skin, thin necks, good color, and good shape, and they should be uniform in size.

Faults of onions include any damage, too many layers of outer skin removed, or thick, soft necks.

Oranges (fruit) are a round fruit that bears similarity to grapefruit but are smaller. The rind tends to be somewhat rough and is orange to yellow-orange in color. The flesh is yellow-orange and sweet to the taste.1

Merits of the orange include smooth and shiny skin, firm fruit, and absence of mold or bruising.

Faults of the orange include dull or wrinkled skin, soft fruit, and the presence of bruising or mold.

Parsley (herb) has curled or smooth green leaves with no flowers or seed heads.

Merits of parsley include fresh, deep green color and crisp, clean leaves.

Faults of parsley include wilted or yellowish foliage or foliage damaged by insects.

Parsnip (vegetable) is a long, tapered, creamy-white root.

Merits of parsnip include uniformity in size and trueness to type. Parsnip should be free of side roots. Parsnip should be firm, solid, and exhibit good color.

Faults of parsnip include cracked or branched roots, rubbery flesh, or uneven color. Warty or over or undersized roots also should be faulted.
**Peas** (vegetable) are full-size, tender, green seeds in fresh, green pods.

Merits of peas include freshness, bright green color, and uniform length and size.

Faults of peas include large, empty, or partially filled pods. Discolored, damaged, or over mature peas also should be faulted.

**Radishes** (vegetable) are crisp, swollen roots measuring up to 1¼ inches in diameter. Radishes may be round or long, and their skin may be red, white, or purple. They are white inside.

Merits of radishes include firm, crisp roots with bright color. Radishes should show good shape for their variety, and skins should be smooth and clean.

Faults of radishes include poor shapes or colors, rough textures, or wilting. Radishes that are over mature, woody, or pithy should be faulted.

**Peppers** (fruit) are green, red, or yellow fruits. They have three or four lengthwise lobes, and their shapes may be round or long and tapered. Peppers have deep color. Peppers are firm and heavy with thick walls.

Merits of peppers include uniform size, color, and variety. Peppers should be crisp, heavy, smooth, and free of blemishes. Stems should be attached but cut cleanly. Peppers should have the same number of lobes or sections.

Faults of peppers include dull or rough texture and fruits that are off-color or light weight. Other faults include soft spots or damage from sunscald, disease, or insects.

**Pineapples** (fruit) are oval or cylindrical and are topped by a crown of coarse leaves. The pineapple is a multiple fruit, or one that is made up of numerous flowers fused together. The skin of the pineapple has many scales and is yellow when ripe. The inner flesh is juicy, sweet, and yellow in color. There are no seeds inside the fruit, but the core of the pineapple is fibrous and white.¹

Merits of pineapples include green and healthy top, firm fruit, and a bright yellow color.

Faults of pineapples include brown leaves, soft fruit, bruises, mold, and sour smell.

**Potatoes** (vegetable) are swollen underground stems with buds (eyes). Potato skins can be smooth or russet (rough). Color and shape may differ among varieties. Potatoes should be heavy for their size and should show no green spots.

Merits of potatoes include medium size tubers (best show size 8 to 10 ounces) that are firm and plump. Skins should be smooth or russet, depending on the variety, and free of scab, mosaic, or other damage.

Faults of potatoes include immaturity, rubbed off or thin skin, or odd shapes. Bruised or diseased potatoes also should be faulted.

**Raspberries** (fruit) are aggregate fruits (one flower with multiple sections). When picked, their central core remains on the plant; therefore, the fruit is hollow when picked. Raspberries may be red, black, purple, or golden in color when ripe.¹

Merits of the raspberry include fruit is juicy and fragrant and has a rich color; the fruitlets are firmly held together; the fruitlets are not over or underripe, and they have unblemished skin.

Faults of the raspberry include fruitlets that are soft and falling apart, leakage from fruitlets, and bruising or mold on the skin.

**Rhubarb** (vegetable) is a leafstalk with a small portion of the leaf blade included. The skin and inside of the stalk either may be red or green. Rhubarb is a vegetable because the edible leafstalk is not the seed-bearing portion of the plant.

Merits of rhubarb include clean stalks and foliage, uniform color, and uniform stalk sizes.

Faults of rhubarb include absent, wilted, or dirty leaf bades or damaged stalks.

**Rosemary** (herb) is an aromatic herb with slender, pointed leaves.

Merits of rosemary include leaves that are green and pliable.

Faults of rosemary include leaves that are brittle and dry.

**Rutabagas** (vegetable) are large, round, or slightly elongated roots. Rutabagas may include several smaller roots at the base. Their skin will be white to yellow, and the top may be purplish.

Merits of rutabagas include uniform size and trueness to type. Rutabagas should be free of side roots, be firm and solid, and exhibit clear color.
Faults of rutabagas include roots that are cracked or branched, rubbery flesh, or uneven color. Warty, under or oversized rutabagas also should be faulted.

**Shallots** (vegetable) are round or oblong bulbs. Shallots have dry yellow or red skin and measure about 1 inch in diameter. They may be up to 2½ inches long.

Merits of shallots include bulbs that are crisp and have uniform color. Shallots should be relatively heavy, have clear skin, and be uniform in size and shape.

Faults of shallots include thick, soft necks. Damaged or over or under mature bulbs also should be faulted.

**Snap beans** (fruit) are crisp pods containing nearly full-size seeds. The pods may be green, yellow, purple, or green with purple spots.

Merits of snap beans include freshness, uniform color and length, and long, slender shapes. The pods should be brittle and fleshy, well-filled, and free from defects. Both ends of the pods should be intact, and pods may be straight or curled, depending on the variety.

Faults of snap beans include pods that are tough, wilted, stringy, pale or discolored, rusty, unevenly filled, or over mature.

**Spinach** (vegetable) consists of thick, dark green leaves that may be smooth or crumpled. Spinach is often harvested as a whole plant.

Merits of spinach include clean and crisp foliage with fresh, green color.

Faults of spinach include wilted foliage, dark or poor foliage color, or a gritty texture. Evidence of bolting is also a fault. Bolting is when the plant becomes reproductive and sends up a flower stalk.

**Strawberries** (fruit) are cone-shaped, red fruits having a skin scattered with small, hard seeds. Strawberry inner flesh is rich red and juicy. The green calyx (the outer covering of the flower bud) may be attached at the stem end. The strawberry is an aggregate fruit.

Merits of the strawberry include rich red skin with a juicy red flesh. The core should be fleshy and juicy. The skin should be free of bruises and blemishes. If present, the calyx should be healthy and green. No visible dirt should be present on the fruits.

Faults of the strawberry include mold present on the skin, pulpy core, bruised flesh, and a brown calyx or soft tissue near the calyx.

**Summer squash** (fruit) is a tender, immature fruit. Squash is crisp and even in color, and the seeds are very immature. Summer squash has thin skin. The shape of summer squash varies. The color can be yellow or light to dark green, or squash can be striped.

Merits of summer squash include an attached stem, heavy weight for size, clear and even color, maturity, and freedom from blemishes.

Faults of summer squash include stems that are absent or soft, light weight, presence of blemishes, or fruits not uniform to type. Over-maturity is a very common fault of summer squash. Over mature squash are often squishy and show bruising.

**Sweet corn** (vegetable) has well-filled kernels on ears covered with fresh, green husks. Sweet corn kernels should be in the milky stage. In this stage, kernel juices are milky white when kernels are squeezed.

Merits of sweet corn include uniform in length, size, and color ears, according to variety. Kernels should be full and in the milky stage.

Faults of sweet corn include immature, unfilled, overripe, or hard kernels. Sweet corn with uneven rows of kernels or rows not filled to the tips of the ears should be faulted. Also, damage from worms, insects, or disease is a fault.

**Sweet potatoes** (vegetable) are round, spindle-shaped, or cylindrical roots. Sweet potatoes may have red, orange, or yellow skin, and skin can be smooth or russet.

Merits of sweet potatoes include uniform shape, size, and color. Sweet potatoes should be free from blemishes and should be fresh.

Faults of sweet potatoes include roots that are branched or cracked, uneven in color, or blemished.
**Thyme** (herb) is a perennial herb. Thyme has a strong lemony flavor.

Merits of fresh thyme include green bunches that are fresh and not wilted. Thyme should be free of insect damage or yellowing and should have a strong, pleasing aroma.

Faults of thyme include yellow leaves, wilting, signs of insect damage, and blacking of the stems.

**Tomatoes** (fruit) can be red, orange, or yellow. Tomatoes can range from ½ inch to 6 inches in diameter and weigh up to 1 pound. They are firm and heavy but not soft or overripe. Cherry tomatoes are smaller in diameter than standard tomatoes.

Merits of tomatoes include medium size according to variety. Tomatoes should be firm and should show clear color typical of variety. They should be clean with no cracks. Stems should be closely trimmed, or all stems should be removed. Tomatoes should show only a small blossom scar.

Faults of tomatoes include coarse skins or over or under ripeness. Bruised, soft, cracked, or lobed tomatoes should be faulted.

**Turnips** (vegetable) are round roots that may either be pure white or have a purple top. Turnips have thin, tender skin.

Merits of turnips include uniformity in size, trueness to type, and freedom from side roots. Turnips should be firm and solid with clear, clean color.

Faults of turnips include roots that are cracked or branched, rubbery flesh, or uneven color. Warty or under or oversized turnips for the type should be faulted.

**Watermelons** (fruits) are round or oblong fruits with gray-green, green, striped, or yellow skin. Watermelon flesh may be red, pink, or yellow and size varies.

Merits of watermelons include good weight and medium to large size (10 to 20 pounds). Watermelons should exhibit bright color with even striping over the whole melon. Watermelon shapes should be even and without bulges, furrows, or dimples. If there is a yellow spot (rather than white) where the melon rested on the ground, it is ripe.

Faults of watermelons include light weight, uneven shape or color, or presence of blemishes. A white, rather than yellow, ground spot also should be faulted.

**Winter radishes** (vegetable) are large, round, or elongated roots. Their skins may be black, white, or pink. Their flesh should be firm, crisp, and white.

Merits of winter radishes include firm, crisp, and bright colored roots. Winter radishes should show good, uniform shapes for the variety and should have smooth, clean skin.

Faults of winter radishes include poor shape or color, rough texture, wilting, or over mature roots.

**Winter squash** (fruit) is a mature, hard-shelled fruit. Winter squash shapes and sizes vary. Winter squash should be heavy for its size.

Merits of winter squash include an attached stem and heavy weight. Winter squash should show clear, even color, be mature, and be free from insect, disease, or mechanical injury damage.

Faults of winter squash include lack of or a soft stem, uneven color, immaturity, or light weight. Winter squash also should be faulted if the fruit is blemished or not true to type.
Suggested Judging Points Scale
(Use as a Guide)

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>20</td>
</tr>
<tr>
<td>Condition</td>
<td>20</td>
</tr>
<tr>
<td>Form</td>
<td>20</td>
</tr>
<tr>
<td>Size</td>
<td>20</td>
</tr>
<tr>
<td>Uniformity</td>
<td>20</td>
</tr>
</tbody>
</table>

Suggestions for assigning points in each of the above categories follow:

**Color**
- If the produce’s color is clear, bright, and typical of the type: 11 to 20 points
- If the color is faded or not uniform: 10 points or less

**Condition**
- If the produce’s condition is fresh, unblemished, and mature for the type: 11 to 20 points
- If the produce is bruised, injured, or scarred by insect or disease damage: 10 points or less

**Form**
- If the produce is formed symmetrically and is typical of the type: 11 to 20 points
- If the produce’s form is misshapen, over or under mature, or distorted by insect, disease, or mechanical damage: 10 points or less

**Size**
- If the produce’s size is typical for ideal edibility and consumer use: 11 to 20 points
- If the produce is too small or overly large: 10 points or less

**Uniformity**
- If the produce has uniform size, form, color, and condition: 11 to 20 points
- If size, form, color, or condition is not optimal: 10 points or less

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Vegetable, Fruit, and Herb Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate fruit</td>
<td>One flower with multiple sections.</td>
</tr>
<tr>
<td>Bulb</td>
<td>Fleshy, underground leaves on a shortened stem. Compressed leaf tissue.</td>
</tr>
<tr>
<td>Butt</td>
<td>The bottom end of a fruit or vegetable.</td>
</tr>
<tr>
<td>Cob</td>
<td>The portion of an ear of corn to which kernels are attached.</td>
</tr>
<tr>
<td>Core</td>
<td>The central part of a fleshy fruit.</td>
</tr>
<tr>
<td>Ear</td>
<td>The fruiting spike of a cereal such as corn or wheat.</td>
</tr>
<tr>
<td>End</td>
<td>The tip of a branch, stem, fruit, or vegetable.</td>
</tr>
<tr>
<td>Flesh</td>
<td>The succulent, thick, or juicy portion of a fruit or vegetable.</td>
</tr>
<tr>
<td>Fruit</td>
<td>The ripened ovary; may or may not contain seeds.</td>
</tr>
<tr>
<td>Head</td>
<td>A dense formation of leaves or flowers.</td>
</tr>
<tr>
<td>Herb</td>
<td>A plant consisting only of primary tissues. Lacks wood.</td>
</tr>
<tr>
<td>Husk</td>
<td>The outer covering of certain fruits or seeds, such as corn.</td>
</tr>
<tr>
<td>Kernel</td>
<td>The seed of a grass such as corn. Notes: The kernels that are eaten are the seeds, not the fruits, which are ripened ovaries. Corn is in the grass family (Poaceae).</td>
</tr>
<tr>
<td>Leaf</td>
<td>The plant part that photosynthesizes and transpires.</td>
</tr>
<tr>
<td>Lobe</td>
<td>Any division or segment of a plant organ.</td>
</tr>
<tr>
<td>Midrib</td>
<td>The main or central vein of a leaf.</td>
</tr>
<tr>
<td>Neck</td>
<td>Any constricted, slender area.</td>
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<tr>
<td>Outer shell</td>
<td>A hard or tough covering.</td>
</tr>
<tr>
<td>Pod</td>
<td>Any dry fruit.</td>
</tr>
<tr>
<td>Rib</td>
<td>An elongated ridge, as on a leaf.</td>
</tr>
<tr>
<td>Rind</td>
<td>A hard or tough outer layer.</td>
</tr>
<tr>
<td>Root</td>
<td>The plant part below ground responsible for anchoring and water and nutrient uptake.</td>
</tr>
<tr>
<td>Russet</td>
<td>Rough.</td>
</tr>
<tr>
<td>Seed</td>
<td>The product of sexual reproduction in plants.</td>
</tr>
<tr>
<td>Shank</td>
<td>The connecting part of a plant between functional parts.</td>
</tr>
<tr>
<td>Skin</td>
<td>The outer or surface layer.</td>
</tr>
<tr>
<td>Spear</td>
<td>A young shoot.</td>
</tr>
<tr>
<td>Stalk</td>
<td>The main supporting structure, stem.</td>
</tr>
<tr>
<td>Stem</td>
<td>The vertical axis of a plant.</td>
</tr>
<tr>
<td>Taproot</td>
<td>A stout, tapering, primary root such as a carrot or radish.</td>
</tr>
<tr>
<td>Tip</td>
<td>The end of a branch, leaf, or fruit.</td>
</tr>
<tr>
<td>Tuber</td>
<td>A thickened, compressed, fleshy, stem, usually underground.</td>
</tr>
<tr>
<td>Vegetable</td>
<td>Any other edible portion of a plant besides.</td>
</tr>
</tbody>
</table>

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Produce 10
Descriptive Words: Merits

Fresh
Tender
Succulent
Crisp
High quality
Tapering
Maturity
Solid
Edible

Smooth
Clean
Straight
Firm
Compact
Ripe
Mature
Heavy
Table use

Words concerning uniformity:
Uniform size
Uniform shape
Uniform color

Words concerning trueness to variety:
Same type
Same variety
Typical shape
Typical color

Descriptive Words: Faults

Blemish
Bruise
Weather damage
Insect damage
Mechanical damage
Diseased
Deteriorated
Woody
Tough
Pithy
Withered
Wilted
Overripe
Yellowing
Dull color

Cracks
Decay
Blossom scars
Soft
Sunburn
Rust
Waste
Fibrous
Stringy
Puffy
Shriveled
Over mature
Discolored
Immature

Sample Reasons

• “I placed corn tray 1 over tray 4 because the latter tray offers the consumer the highest amount of quality product. It has fuller, plumper kernels with more evenly spaced rows. The corn ears in tray 4 showed insect damage and lacked overall consistency of color and size of kernels. Therefore, I placed corn tray 1 over tray 4.”

• “I placed tray 2 of beans over tray 4 because of the rusty and shriveled appearance of the beans in tray 4. Although I grant that tray 4 was more uniform in size, shape, and maturity, the presence of the rust and shriveling reduced tray 4’s use by the consumer. Tray 2 has the merits of bright color, a more edible product, and a crisp appearance; therefore, I placed tray 2 over tray 4.”

• “I placed corn tray 1 over tray 4 because of the numerous faults in tray 4. The corn ears in tray 4 were not fully developed and had many empty spaces. The earworm insect damage evident on ears in tray 4 also decreased its appeal to the consumer. Although the ears are not as large as those on tray 4, tray 1 showed more consistent color, filling of kernels, and freedom from insect damage. Therefore, I placed corn tray 1 over tray 4.”

Sample Class Placement

• “I place this class of leaf lettuce 1, 2, 3, 4. I placed tray 1 over tray 2 because of the crisp, green leaves on the rosettes and the uniformity of the rosettes on the tray. I placed tray 2 over tray 3 because tray 3 shows damage on the leaves from either weather or harvesting. Leaf lettuce on tray 2 is less uniform than that on tray 1 but does not show the damaged foliage like that on tray 3. I placed tray 3 over tray 4 because, even though there is damage to the leaves on tray 3, there is no wilting and the foliage is clean. I placed tray 4 last because the rosettes are wilted and are not of uniform size, and the foliage is dirty; therefore, I place this class of leaf lettuce 1, 2, 3, 4.”

• “I place this class of strawberries 4, 3, 2, 1. I placed tray 4 over tray 2 because of the bright colored fruits, juicy ripe flesh, and healthy green calyx tissue on the strawberries on tray 4. I placed tray 3 over tray 2 because tray 2 shows bruising of the fruit and brown calyx tissues. While tray 3 has some blemishes on the fruit, no bruising is evident, and the calyx tissues are green. I placed tray 2 over tray 1 because tray 1 has white mold growing on the fruit, and the flesh is extremely soft. Therefore, I place this class 4, 3, 2, 1.”

Points to Remember:

• Make comparisons
• Grant merits and criticize faults
• Use different terms
• Be sure you know what you are talking about
• Judge as if the produce would be eaten immediately
• Learn and enjoy!
References

1 Many of the fruit descriptions were adopted from the University of Florida. Many topics relating to gardening and plant sciences are at http://florida4h.org/projects/plants/index.shtml.


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University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

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Buying home cleaning products is confusing. Labels and ads are filled with numerous claims and complex chemical terms.

To choose the best product for the job, a consumer must know the most common ingredients of each and be able to compare their performance and safety. The common ingredients are abrasives, acids, alkalies, bleaches, detergents, sanitizers, and spirit solvents.

**Abrasives**

Abrasives wear off dirt by rubbing. They scour off hardened food particles, grease, tarnish, and stains. They are found in cleansers. Sandpaper, plastic and nylon meshes, and steel wool also are abrasives. Some metal cleaners contain a fine abrasive like silica.

**Caution**

Coarse abrasives feel rough and gritty. Regular use of harsh abrasives scratches shiny finishes of sinks, bathtubs, and kitchen appliances. When surfaces are dull and rough, they soil faster and stain deeper. Coarse abrasives also damage plasticware, glass, some nonstick finishes on cookware, painted woodwork, and plated and highly polished metals. Then you must continue to use a harsh abrasive to remove imbedded dirt and stains.

Mild abrasives – or liquid cleaners – are available for fiberglass bath fixtures and other shiny finishes.

**Acids**

Some acids remove hard water deposits. Some remove rust stains. Others take away discoloration from aluminum, brass, bronze, and copper.

**Very Mild Acid**

Vinegar removes hard water deposits from glassware, rust stains from sinks, and tarnish from brass and copper. It also counteracts alkaline oven cleaners.

Lemon juice has much the same use as vinegar.

Cream of tartar sweetens coffee makers and brightens aluminum.

**Very Strong Acid**

Oxalic acid is an effective rust remover.

Hydrochloric acid, sulfuric acid or sodium bisulphate (also known as sodium acid sulphate) are contained in some toilet bowl cleaners (Table 1).  

**Table 1. Acids in Household Cleaners**

<table>
<thead>
<tr>
<th>Product</th>
<th>Possible Acid Ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet bowl cleaners</td>
<td>Sodium bisulphate, oxalic acid, dilute hydrochloric acid, dilute sulfuric acid</td>
</tr>
<tr>
<td>Rust removers</td>
<td>Oxalic acid</td>
</tr>
<tr>
<td>Metal cleaners</td>
<td>Weak acids</td>
</tr>
</tbody>
</table>

**Caution**

Oxalic acid, hydrochloric acid, sodium bisulphate and sulfuric acid are all poisonous. They also can injure skin and eyes. They may also damage clothing, leather, and some metals.

Dispose of cloths and brushes used to apply oxalic acid. Otherwise, the acid could be transferred to kitchen utensils and dishes, from which this poisonous substance could be ingested.
Damage can occur when two or more different kinds of metals are treated together with acid. For this reason, avoid soaking a metal in a container made of another metal.

**Alkalies**

Alkalies remove oily dirt without rubbing and vary in strength (Table 2).

**Very Mild Alkali**

Baking soda mixed with water cleans glass, wall tile, and porcelain enamels. This solution also removes coffee and tea stains from china and plastic dishes.

**Moderate Alkalis**

Household ammonia – containing 5 to 10 percent ammonia gas in water – cleans kitchen range burners and ovens, windows, and mirrors.

Sudsy ammonia has soap or detergent added. Sudsy ammonia cleans garbage pails, kitchen range burners, and sinks.

Borax is a cleaner for woodwork, walls and sinks.

**Strong Alkalies**

Trisodium phosphate (TSP) cleans walls, woodwork and resilient floors except linoleum.

Washing soda – also called sal soda – can be used in cleaning kitchen range burners with heavy grease.

**Very Strong Alkali**

Lye – also know as caustic soda – is an ingredient in home drain and oven cleaners.

<table>
<thead>
<tr>
<th>Table 2. Alkalies Found in Household Cleaners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
</tr>
<tr>
<td>All-purpose cleaners such as Spic and Span, Ajax, “409”</td>
</tr>
<tr>
<td>Oven cleaners</td>
</tr>
<tr>
<td>Window cleaners</td>
</tr>
<tr>
<td>Drain cleaners</td>
</tr>
<tr>
<td>Scouring powders</td>
</tr>
</tbody>
</table>

**Caution**

Most alkalies are toxic (poisonous). Some are corrosive; others irritate skin and eyes. Lye can burn skin severely.

Alkalies remove oil from skin, so wear gloves. Alkalies also take oil from linoleum and oil-based paints, making them crack or peel. They can darken aluminum. Damage to surfaces can be prevented by using a mild alkaline solution and by rinsing well to remove all the cleaner.

**Bleaches**

Bleaches remove stains. Chlorine bleaches are also disinfectants.

If a product contains bleach, the label may say “contains bleach,” “bleaches as it cleans” or “chlorinated.” Sodium hypochlorite may be among the list of label ingredients.

**Caution**

Never use bleach with a toilet bowl cleaner or rust remover because a harmful gas is produced. Under some conditions using bleach and ammonia together forms dangerous chemical compounds that could ignite.

Chlorine bleach can dull shiny finishes on sinks, bathtubs and other porcelain enamel surfaces. This bleach is an alkali and will darken aluminum and make linoleum brittle.

**Detergents**

Some laundry detergents may be used for house cleaning jobs. Detergents also are one of the ingredients in many home cleaning products. Usually, a detergent is present if suds appear.

Detergents help loosen dirt. If a builder of complex soluble phosphate has been added, it removes oily dirt better. When a builder is present, the product is marked “heavy duty” or “all-purpose.”

**Sanitizers**

Sanitizers (Table 3) kill bacteria, which cause skin, respiratory, intestinal and kidney infections. By killing bacteria, they also destroy odors.
Sanitizers are used when cleaning tubs, showers, toilet bowls, bathroom sinks, and ceramic or plastic bathroom tile. They also are used in laundering and hand dishwashing.

### Table 3. Some Common Sanitizers by Trade Name

<table>
<thead>
<tr>
<th>Sanitizers</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid chlorine bleach</td>
<td>Clorox, Purex, Texize Bleach</td>
</tr>
<tr>
<td>Quaternary</td>
<td>Lephrin, Roccal</td>
</tr>
<tr>
<td>Pine oil disinfectants</td>
<td>Fyne Pine, Texize-O-Pine</td>
</tr>
<tr>
<td>Phenolic disinfectants</td>
<td>Pine-Sol, Lysol Brand Disinfectant, Al-Pine</td>
</tr>
</tbody>
</table>

**Caution**

Never use chlorine bleach with a toilet bowl cleaner or rust remover because a harmful gas is produced. It is possible that harmful chemical compounds will be produced by combining chlorine bleach and ammonia.

Check the product label for limitations on the use of a sanitizer.

### Spirit Solvents

Spirit solvents remove oily dirt.

Many waxes and polishes for furniture and floors and floor wax removers contain spirit solvent. They also are found in some all-purpose cleaners, sanitizers and drain cleaners.

Examples of spirit solvents are paint thinners, turpentine and kerosene.

**Caution**

Most spirit solvents are flammable and must be kept away from heat, sparks and open flame. By law, the label must indicate that the product is flammable. Extremely flammable products also may say “harmful or fatal if swallowed...if swallowed, do not induce vomiting. Call a physician immediately.”

If solvent is spilled on clothing, don’t wear it near a heat source. Since clothing also is flammable, serious burns may result. Be careful when disposing of empty solvent containers. Even a small amount of solvent left in the container can cause an explosion and ignite, if left in a warm place or sunlight.

Carbon tetrachloride, once used for spot removal, is a spirit solvent considered too dangerous for home use. Swallowing carbon tetrachloride or inhaling its fumes can be fatal. Carbon tetrachloride also can injure the liver, kidneys, brain, and nervous system.

A spirit solvent wax for floors cannot be used safely on asphalt or rubber tile, because they are softened by solvent.

Not all floor waxes are spirit solvents. Some are water-emulsion waxes, which damage wood and cork. These waxes may be recognized by the statement: “Keep from freezing.”

### Safe Handling of Cleaning Products

Most cleaning products used in homes today are dangerous only when misused. The most frequent misuse is accidental swallowing by curious children. Never transfer cleaners into soft drink bottles or other containers that may seem harmless to children.

Regulations require that all hazardous substances be labeled with this statement: “Keep Out of the Reach of Children.” Under the kitchen sink is the worst place to store household cleaners.

Keep products, such as strong acids and alkalies, away from skin and eyes. Wear protective clothing such as gloves and an apron. Wash off immediately any products that is splashed or spilled on your skin.

Products containing flammable liquids should never be used near an open flame – a pilot light on a kitchen range or gas clothes dryer, lighted cigarettes or furnaces.

Do not leave an aerosol (pressurized) container on a kitchen range, radiator, furnace, in direct sunlight, or near other heat sources. Never puncture an aerosol container. Before discarding this type of container, hold the valve open until all the contents and gas have escaped.

Never discard an empty aerosol container into a fire or incinerator because some gas usually remains even in an apparently empty can. Heat causes the gas to expand and may lead to an explosion.
If an accident occurs in the use of a hazardous substance, refer to the label on the product for the correct first aid procedures. Follow the directions carefully. If it is necessary to take a child or adult to the hospital or a physician’s office because of an accident, be sure you take with you the container of the product that caused the injury. The information on the label will assist the physician in giving prompt and proper treatment.

THIS TELEPHONE NUMBER CAN SAVE YOUR LIFE

Toll-free nationwide 1-800-222-1222
Your call will be directed to the appropriate center for your area code.
Arkansas Poison Control Center
4301 West Markham Street, Little Rock
(501) 686-6161

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Shopping for a television (TV) doesn’t have to be stressful. You don’t have to be an expert to get a great deal on a TV. It just takes a little time and patience, and you need to know what you want in the product before you can make a wise decision.

**Key Terms**

- **3-D Capability** – A feature which allows for content to be viewed in 3-D. For example, a DVD that is in 3-D could be viewed properly if this feature is included in that TV model.

- **Anti-Burn-in Features** – A feature on plasma TVs that prevents static images from permanently etching into the TV’s phosphor coating. Examples include screensavers and motion adaptive technology where the picture shifts on the screen every few seconds when the program is paused.

- **Anti-Glare Screens** – Generally on a plasma TV, a screen that reduces the reflectivity on the viewing area, improving the picture quality.

- **Component-Video Inputs** – Connections that allow for other devices to be hooked up to the TV. Examples include DVD player, video games, or other such items. The inputs are usually color coded as green, blue, and red.

- **Digital Tuner** – A feature that enables the TV to receive free digital TV signals, including high-definition programming via an over-the-air antenna. This feature has been required on all televisions since March 2007.

- **Extended Warranty** – A warranty that can be purchased when a TV is bought that will extend beyond the factory warranty on the item. Extended warranty coverage varies depending on the policies offered, the number of years the policy will last, and more.

- **Film Mode** – This feature improves the appearance of movies converted from film to video. Other terms used to describe this feature include 3:2 pull down, motion compensation, or brand-specific names such as CineMotion and Film Mode.

- **Flat Screen** – A type of television that is only 4 to 6 inches thick that can be put on a stand or mounted on the wall like a picture.

- **Front Projection** – A projector that is used with a screen to project movies or television onto a larger surface. Front projection systems require additional equipment, such as speakers, cables, and a screen, to work properly.

- **HDMI Inputs** – Connections on a TV that allow for HD-capable input devices to be connected to cable and satellite boxes, Blu-ray DVD players, or other HD equipment.

- **High Definition** – Refers to video having a resolution substantially higher than traditional television systems and is sometimes referred to as “HD” or “HDTV.”

- **Internet-Enabled** – Televisions that provide a broadband Internet connection without using a computer. Internet-enabled TVs can be used to subscribe to services such as movie rentals (Netflix, Blockbuster, or Amazon on Demand), music from services such as Pandora, YouTube, Twitter, Flickr photos, and more. Also known as “web services.”

- **LCD** – The use of lights behind the display screen to help illuminate it. These are typically fluorescent bulbs, or some new sets use LED (light-emitting diode) backlights. LCD stands for “liquid crystal display.”
• **LED-Lit** – LED means “light-emitting diode.” This refers to backlights used behind the display screen to help illuminate it.

• **Picture-in-Picture (PiP)** – This feature allows the viewer to watch two channels at once. One channel is in a small window while the other is shown on the full screen.

• **Plasma Screen** – A type of TV that has many tiny cells between two panels of glass that holds a mixture of noble gasses. The gas in the cells is electrically turned into a plasma, which emits ultraviolet light to create the picture.

• **Rear Projection** – The technology used in large-screen TVs to generate the image on the screen from behind the viewing monitor. The technology uses a series of lenses and mirrors to direct the image toward the screen.

• **Resolution** – The degree of sharpness or clarity of a displayed image. Resolution is defined as a matrix of “pixels” per inch. For example, a screen resolution of 1920 × 1080 means that the first number is the number of horizontal rows of pixels on the screen and the second number is the number of vertical rows of pixels on the screen. Some models may list only one number such as 1080p. This number references the vertical rows of pixels.

• **Screen Size** – The dimension of the screen on a TV measured on the diagonal and includes only the display area, not binet or housing.

• **Viewing Angle** – The maximum angle at which a display can be viewed with acceptable visual performance.

• **Wall Mount** – The installation of a TV on the wall similar to a picture frame or mirror.

### Shopping for Televisions

When shopping for televisions, there are a number of considerations that may need to be reviewed before a decision is made. Below are brief explanations of some of the important aspects to take into account in selecting a TV.

### Price Range

It is important to know how much money is budgeted for this purchase. This type of product is not an expendable item or something that is replaced often. There will be several choices of products, depending on how much money is available to spend.

### TV Type

There are several different types of TVs on the market today. Most models are now flat screens, but there are different types of flat screens. The most common types are plasma or LCD. They look very similar, but the technologies are different. There are also front projection models available. A front projection TV is a good choice for a large home theater but not very practical for everyday use.

• **LCD TV** – This type of TV is lightweight, comes in a range of sizes, and is well suited for viewing in a bright room. Screen size can range from 23 to 60 inches from most manufacturers, but a few offer screens as large as 100 inches. Most LCD TVs are only 4 to 5 inches thick. Prices vary, depending on screen size and other features. There are more companies selling LCD TVs than plasma TVs, but LCD TVs generally cost more than plasma sets. The gap is narrowing. Many LCD sets 40 inches or larger have 1080p resolution.

• **Plasma TV** – This type of TV is 42 inches or larger. Most common sizes are 42 to 58 inches. Most models have a depth of 6 inches or less, and some ultra-slim models are available. Prices vary, depending on the screen size and other features. There are more models with 1080p resolution.

• **Front Projectors** – This type of TV is best for a theater-like experience at home. The projector is a separate piece from the screen and is usually mounted on the ceiling. The screen area is typically 70 to 200 inches. Price begins at $1,000 and goes up from there. Screens are an additional cost of several hundred dollars, depending on the size. The size of the picture can be altered, depending on the distance the projector is from the screen, if the projector is not mounted on the ceiling. Other items that must be purchased separately include speakers, TV tuner, cables, mounting brackets, and possibly other items.

### Screen Size

*Televisions 2*
In order to determine what size TV to purchase, it is important to know how big the space is where the TV is going to be placed. This will impact the size of the screen that is chosen. If the TV is going to be placed in a cabinet, be sure to measure the opening, allowing for a few inches of clearance to be able to insert the TV. If the TV is going to be mounted on the wall and there is a limited amount of space, be sure to measure the wall space.

Screen size is measured on the diagonal of the TV viewing area. It will be important to take a tape measure when looking for TVs so that the actual width and height can be measured on the TV, if those dimensions are not provided on the product information or box.

Another consideration is the size of the room. It is recommended that for an average-sized room, such as a living room, a 37-inch screen is recommended. For smaller rooms, such as a bedroom or a kitchen, smaller screens are recommended.

The distance that seating is from the TV may also impact the screen size. It is recommended that seating be at least 5 feet from a 40- to 47-inch screen or 6 feet for 50-inch or larger screens. The larger the screen, the farther from it the viewer should be. When viewing a TV up close, the picture may not be as clear, look “snowy” or lines may be visible on the screen.

**Screen Resolution**

This refers to the number of pixels, or picture elements, a screen contains. The higher the resolution, the better the picture. The resolution may be given in a set of two numbers, such as 1920 × 1080. This means that the first number is the number of horizontal rows of pixels on the screen and the second number is the number of vertical rows of pixels on the screen. Some models may list only one number, such as 1080p. This number references the vertical rows of pixels.

The screen resolution chosen will determine if specific other features will be available. In order to be able to access HD signal formats or use Blu-ray DVD players, the screen resolution must be at least 1080p.

**Features**

What are the features that are most appealing to the buyer? Are those features available within your budget? Features may include, but are not limited to, the items listed below. Be sure to review the Key Terms for additional features.

- Flat screen
- High definition
- Rear projection
- Video conferencing capabilities
- Wireless connectivity

**Brand**

Research the different brands of TVs, and choose brands that provide the features that are wanted. How well a brand is rated could have bearing on the decision.

**Customer Reviews**

There may be helpful information that can be gained from customer reviews about specific products or brands. Take the time to read customer reviews, if they are available, and take that input into consideration.

**References**

http://www.consumerreports.org
http://www.ehow.com/how_5624856_shop­tv.html
http://hometheater.about.com/cs/television/a/aarearprotv.htm
http://www.pcmag.com

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**4-H Consumer Judging Guide**

**Toys**

Toys bring a great deal of joy to children, and they also can be valuable learning tools. Exploring, pretending, and sharing are just a few of the important skills children develop when they play. Toys don’t have to be expensive. A variety of toys for children exist. Some of them are safe and some of them are dangerous. How do you know which is which? The main idea is to pick the right toy for a particular child at the right time.

Here are a few helpful suggestions related to purchasing toys in general.

<table>
<thead>
<tr>
<th><strong>Acceptable Toys</strong></th>
<th><strong>Unacceptable Toys</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Are safe.</strong> Any toy can be unsafe if given to the wrong child, to a child at the wrong age, or when it is misused. A child’s safety depends on the types of toys selected, the way they are maintained, and the amount of safe handling taught and practiced in the home.</td>
<td><strong>Are dangerous.</strong> Unsafe toys have sharp corners, edges, and protrusions; are flammable; have easily lost or broken parts; are painted with toxic paint; might give an electrical shock; use glass instead of plastic in toy vehicle windows; have detachable parts that can be put into mouth, ears, nose; have fluffy trimmings that can be pulled off and swallowed; or are stuffed with toxic or unclean materials.</td>
</tr>
<tr>
<td><strong>Are durable.</strong> Toys are mauled, hugged, dropped, stood on, chewed on, washed and dried. They need to stand up to all this normal wear and tear.</td>
<td><strong>Are poorly constructed.</strong> Do not have proper labeling.</td>
</tr>
<tr>
<td><strong>Work like they’re supposed to.</strong> Nothing causes loss of interest as readily as a toy that fails to perform. It often results in frustration, anger, and discouragement.</td>
<td><strong>Cause anger or frustration by not working properly.</strong></td>
</tr>
<tr>
<td><strong>Are appropriate for the child’s age.</strong> Toys should suit the physical, mental, and emotional abilities of the child. For example, an infant cannot play with a two-wheeled bicycle; a school-aged child does not need a mobile for a crib. Many toys can be used by children at different stages, like blocks and modeling dough.</td>
<td><strong>Are too mature for a particular child related to their physical, mental, and emotional abilities.</strong></td>
</tr>
<tr>
<td><strong>Stimulate creativity.</strong> The toy can be used in several ways and leaves room for imagining and learning.</td>
<td><strong>Have only one purpose and can be used only one way.</strong> Foster values the parents do not have. Cost too much.</td>
</tr>
<tr>
<td><strong>Capture the child’s interest and are fun.</strong> Children are drawn to appropriate toys and play with them spontaneously. Toys should reflect the child’s interests.</td>
<td><strong>Appear to contribute to misbehavior.</strong> They may stimulate too much excitement, aggression, or dangerous play.</td>
</tr>
<tr>
<td><strong>Involve interaction with others.</strong> Encourages or even requires others like friends, siblings, or adults to play along.</td>
<td><strong>Offer little chance of interaction.</strong> Wind-up or automated toys do not allow the child to be in control. The child merely becomes a passive observer of the toy’s repetitive actions. These toys are often easily broken and irreparable, dangerous, and expensive.</td>
</tr>
<tr>
<td><strong>Can be easily kept clean.</strong></td>
<td><strong>Cannot be cleaned with soap and water.</strong></td>
</tr>
</tbody>
</table>
Read the Label

The U.S. Consumer Product Safety Commission requires toy manufacturers to meet stringent safety standards and to label certain toys that could be a hazard for younger children. Look for labels that give age recommendations, and use that information as a guide. Labels on toys that state “not recommended for children under three...contains small parts,” are labeled that way because they may pose a choking hazard to children under three. Toys should be developmentally appropriate to suit the skills, abilities and interests of the child. Effective January 1, 1995, products that are manufactured in or imported into the United States must comply with the Child Safety Protection Act. Look for this symbol on toy packaging:

/\ WARNING:
CHOKING HAZARD—with a description of the actual hazard
Not for children under 3 yrs or
Adult Supervision Required

When purchasing art materials and supplies, including crayons and paint sets, look for the designation “ASTM D-4236.” This means the product has been reviewed by a toxicologist and, if necessary, labeled with cautionary information.

When purchasing electronic toys, look for the Underwriter’s Laboratories (UL) seal. This means the toy has been tested for safety. The labeling requirements specify that certain precautionary information should be listed on labels on children’s electrical products. The labeling is designed to help buyers choose the right toy for the right age and to warn the user of potential hazards. The package of every such product must carry a cautionary message and a minimum age recommendation. No item with a heating element may be recommended for children under 8 years of age. There are some hobby items, such as wood burning kits, that reach very high temperatures and have been exempted from certain maximum surface temperature regulations. These items cannot be recommended for, and should be kept out of reach of, children under 12 years of age.

Certain areas of electronic products must also be labeled:

- accessible surfaces that exceed certain specified temperatures must carry a warning of the danger
- toys with replaceable electric lights must carry a warning of the maximum safe wattage for a replacement bulb and a notice to disconnect the plug before changing the bulb
- products with non-replaceable lights will be so marked
- products not designed to be immersed in water must carry a notice to that effect

Storing and Caring for Toys

Toy safety involves choosing the right toy, checking it regularly for damage, and storing it safely. One of the greatest dangers in toy storage is the toy chest with a free-falling lid. Children are injured when the lid falls on their head, neck, or arms. Upright lids in trunks and footlockers pose this kind of hazard. Open chests or bins, chests with lightweight removable lids, or chests with sliding doors or panels do not present the hazard of a falling lid. Low, open shelves where toys can be reached easily and put away are a safer alternative and are often preferred by children. Caring properly for toys will extend their usefulness and avoid accidents and injuries. Don’t leave indoor toys outdoors overnight. Rain or dew could damage them, making them unsafe. Store toys in a special closet or shelf so they won’t be tripped over or broken. Train toddlers to put their toys away. Throw away broken toys; they are hazardous.

Think Toy Safety

More than 120,000 children are taken to hospital emergency rooms each year for treatment of toy-related injuries. Evaluate toys for your children from the standpoint of safety. The following are some guidelines:

- Choose toys appropriate to the child’s age. Some toys intended for children more than three years old may contain small parts, which could present a choking hazard for infants and toddlers.
- Toddlers should never play with any object that is smaller than a half dollar.
- Think BIG when selecting toys, especially for children under age 3. Big toys without small parts can be enjoyed by youngsters of different ages. Keep toys intended for older children, such as games with small pieces, marbles, or small balls, away from younger children.
• Keep uninflated balloons out of reach for children under age 6, and discard pieces of broken balloons because of the choking hazard.

• Explain and show your child the proper use of safety equipment such as bicycle helmets. Studies show that helmets can reduce severe injuries from a fall.

• Check all toys periodically for breakage and potential hazards. Damaged toys can be dangerous and should be repaired or thrown away immediately.

• Store toys safely. Teach children to put toys away so they are not tripping hazards. Periodically check toy boxes and shelves for safety. Visit the Web sites listed for more information.

• Some toys require adult supervision. Supervise children when playing with pull toys with long cords because a child could be strangled by the cord. Check toys with moving parts for safety. Make sure the child is mature enough for the toy.

• Follow instructions carefully and supervise children using any electronic toys. Failure to follow manufacturer’s instructions may result in injury.

• Give outdoor play equipment and toys such as gym sets, skates and bikes to children old enough to use them safely.

• Teach children not to use bicycles, tricycles, or sleds where there is traffic and to use them carefully in areas where other children play.

• Have children take off roller skates or in-line skates before crossing the street. They should always wear a helmet and other safety gear.

Age-Appropriate Toys

There are many toys to choose from, but most can be grouped into specific developmental categories: physical or muscle; sensory (sight, sound, hearing, touch); social; and intellectual or creative development. Finding age-appropriate toys for children enables them to grow and develop at a level suitable for them. Refer to the table on the next two pages for information on which toys are best for which ages.

Web Resources for More Information on Selecting Toys

American Academy of Pediatrics
http://www.aap.org/

Toy Manufacturers of America
http://www.toytma.org/consumer/parents/safety/4toysafety.html

U.S. Consumer Product Safety Commission
http://www.cpsc.gov

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Understanding Children – Toys, by Lesia Oesterreich, Iowa State University, University Extension

Buying Age Appropriate Toys, The Nebline, University of Nebraska, Cooperative Extension

U.S. Consumer Product Safety Commission
• Child Safety Protection Act Fact Sheet
• The Dangers of Electric Toys
• Toy Safety Shopping Tips
## Age-Appropriate Toys

<table>
<thead>
<tr>
<th>Age</th>
<th>Toys to Choose</th>
<th>Toys to Avoid</th>
<th>Age</th>
<th>Toys to Choose</th>
<th>Toys to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn to 1 year</td>
<td></td>
<td></td>
<td>1 to 2 years</td>
<td>Investigative Age</td>
<td></td>
</tr>
<tr>
<td><strong>Age of Awareness</strong></td>
<td>Brightly colored objects</td>
<td>Toys with parts smaller than 1¼ inches</td>
<td></td>
<td>Push and pull toys</td>
<td>Small toys that can be swallowed</td>
</tr>
<tr>
<td></td>
<td>Pictures within view but out of reach</td>
<td>Toys with sharp edges</td>
<td></td>
<td>Books with cloth or stiff pasteboard pages</td>
<td>Toys with small removable parts</td>
</tr>
<tr>
<td></td>
<td>Mobiles that have objects attached with cords less than 12” long</td>
<td>Toys with detachable small parts</td>
<td></td>
<td>Nonglass mirrors</td>
<td>Stuffed animals with glass or button eyes</td>
</tr>
<tr>
<td></td>
<td>Unbreakable toys that rattle or squeak</td>
<td>Toys with toxic paint</td>
<td></td>
<td>Take-apart toys with large pieces</td>
<td>Toys with sharp edges</td>
</tr>
<tr>
<td></td>
<td>Washable dolls or animals with embroidered eyes</td>
<td>Toys with cords more than 12” long</td>
<td></td>
<td>Blocks–foam, plastic, or cardboard</td>
<td>Flammable items</td>
</tr>
<tr>
<td></td>
<td>Stacking ring cones</td>
<td>Stuffed animals with glass or button eyes</td>
<td></td>
<td>Nested boxes or cups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tapes or CDs with gentle music</td>
<td>Balloons</td>
<td></td>
<td>Musical and chime toys</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flammable items</td>
<td></td>
<td>Floating tub toys</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pounding and stacking toys</td>
<td></td>
</tr>
<tr>
<td>2 to 3 years</td>
<td>Play dough</td>
<td>Toys with sharp edges</td>
<td>3 to 4 years</td>
<td>Imitative Age</td>
<td></td>
</tr>
<tr>
<td><strong>Explorative Age</strong></td>
<td>Large crayons</td>
<td>Toys with removable parts</td>
<td></td>
<td>Learn by doing</td>
<td>Electronic toys</td>
</tr>
<tr>
<td></td>
<td>Pegboards with large pieces</td>
<td>Small objects such as beads, coins, or marbles</td>
<td></td>
<td>Becoming more social</td>
<td>Flammable costumes</td>
</tr>
<tr>
<td></td>
<td>Low rocking horses</td>
<td>Electronic toys</td>
<td></td>
<td>Enjoy realistic toys</td>
<td>Toys with sharp edges or small, removable parts</td>
</tr>
<tr>
<td></td>
<td>Sandbox toys</td>
<td>Tricycles with seats more than 12” high</td>
<td></td>
<td></td>
<td>Riding toys used in hilly or inclined driveways</td>
</tr>
<tr>
<td></td>
<td>Soft balls of different sizes</td>
<td>Riding toys</td>
<td></td>
<td></td>
<td>Heavy toys</td>
</tr>
<tr>
<td></td>
<td>Cars or wagons to push</td>
<td>Flammable items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simple musical instruments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simple dress-up items like hats, scarves, and shoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sturdy riding toys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Books that rhyme</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 to 4 years</td>
<td>Dolls with simple clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balls, any size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-electrical trucks, trains</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building blocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toy telephone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dress-up clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sturdy tea sets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic interlocking blocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blunt scissors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Play dough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Washable markers, large crayons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sewing cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simple board games</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Books</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Toys to Choose</td>
<td>Toys to Avoid</td>
<td>Age</td>
<td>Toys to Choose</td>
<td>Toys to Avoid</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4 to 5 years</td>
<td>• Building blocks</td>
<td>• Toxic or oil-based paint sets</td>
<td>6 to 8 years</td>
<td>• Construction sets</td>
<td>• Kites made of aluminized polyester film</td>
</tr>
<tr>
<td>Beginning of</td>
<td>• Simple construction sets</td>
<td>• Flammable costumes or ones that can be easily tripped over</td>
<td></td>
<td>• Sled, roller skates</td>
<td>• Shooting toys and toys with loud noises like cap guns</td>
</tr>
<tr>
<td>Creative Age</td>
<td>• Modeling clay</td>
<td>• Kites made of aluminized polyester film</td>
<td></td>
<td>• Sewing materials</td>
<td>• Fireworks of any kind</td>
</tr>
<tr>
<td></td>
<td>• Non-electrical trains, battery-operated toys</td>
<td>• Electronic toys (unless battery-operated)</td>
<td></td>
<td>• Printing and stamp sets</td>
<td>• Sharp-edged tools</td>
</tr>
<tr>
<td></td>
<td>• Puppets and puppet theater</td>
<td>• Shooting toys and darts with pointed tips</td>
<td></td>
<td>• Paints, colored pencils</td>
<td>• Electronic toys that plug in</td>
</tr>
<tr>
<td></td>
<td>• Finger paints</td>
<td>• Fireworks of any kind</td>
<td></td>
<td>• Sketch pad</td>
<td>• Bikes or skateboards without helmets</td>
</tr>
<tr>
<td></td>
<td>• Stencils</td>
<td></td>
<td></td>
<td>• Kites</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Board and card games</td>
<td></td>
<td></td>
<td>• Battery-powered electronic toys</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Simple musical instruments</td>
<td></td>
<td></td>
<td>• Jigsaw puzzles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Small sports equipment</td>
<td></td>
<td></td>
<td>• Dominoes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Books</td>
<td></td>
<td></td>
<td>• Board games</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bicycles with 20” wheels and training wheels</td>
<td></td>
<td></td>
<td>• Simple toy sets</td>
<td></td>
</tr>
<tr>
<td>8 to 12 years</td>
<td>• Hobby materials</td>
<td>• Fireworks of any kind</td>
<td></td>
<td>• Dolls</td>
<td></td>
</tr>
<tr>
<td>Specialization of</td>
<td>• Arts and crafts materials</td>
<td>• Air rifles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tastes and Skills</td>
<td>• Musical instruments</td>
<td>• Chemistry sets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sports equipment</td>
<td>• Darts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Camping equipment</td>
<td>• Skateboards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Construction sets</td>
<td>• Arrows</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Electronic toys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Construction sets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Non-electrical trains, battery-operated toys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Puppets and puppet theater</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Finger paints</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stencils</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Board and card games</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Simple musical instruments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Small sports equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Books</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bicycles with 20” wheels and training wheels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Acknowledgment to Mindy Turner, 4-H Youth Development Specialist, New Mexico State University, for the original manuscript.

Prepared by Laura J. Connerly, Instructor - Family Resource Management, University of Arkansas Division of Agriculture, lconnerly@uaex.edu.

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.
Umbrellas are available in a wide range of colors, styles, and designs. They are used as protection from rain or sun. The word *umbrella* comes from the Latin word *umbra*, meaning shade or shadow.

**Parts of the Umbrella**

Umbrellas are composed primarily of three sections: the canopy, the shank and the handle.

The **canopy** is that part of the umbrella that spreads and protects the user from rain or sun. The material from which the canopy is made is stretched over metal **ribs**, which form the frame for the canopy. These ribs arch radially and impart the desired shape to the canopy. The ends of the canopy are stitched to rounded tips that slip over the ends of the ribs and hold the canopy in place. A tape attached to the canopy may be wound around it and fastened or a sheath may be slipped over the umbrella. **Spreaders** or **stretchers** are attached at the center of the ribs to enable the canopy to be opened or closed.

Between the canopy and the handle is a **shaft** (if wood) or rod (if metal). Over the shaft is a metal sleeve that slides up and down and enables the spreaders, to which it is attached, to be opened or collapsed. Two small springs, which can be depressed into the shaft by slight finger pressure, hold the sleeve in position. Some umbrellas have push-button, self-opening spreaders that operate with a hidden spring. A metal or plastic cup that fits over the tips of a closed umbrella may be affixed to the shank.

A rigid **handle** enables the user to hold the umbrella. Straps or cords are frequently attached to umbrellas so they can hang over the wrist or shoulder. Many umbrellas also have carrying cases, pouches, or loops.

**Special Construction Features**

The number of ribs in an umbrella differs, depending on the size of the umbrella, its construction, and its shape. The sturdiness of the ribs determines the quality of the umbrella. Self-opening umbrellas usually have 7 to 8 ribs; folding umbrellas usually have 8 ribs; umbrellas for young people usually have 8 ribs; slim umbrellas usually have 10 ribs; and other styles may have 16 ribs.

To stand up to the wind, umbrella frames must be strong yet flexible. The same rib material should be able to give but spring back to its original form.

**Materials Used for Umbrellas**

The canopy is made from fabrics or plastics that are water-repellent. Cotton is frequently used; it must be closely woven and may or may not have a plastic finish to increase its protective qualities. Teflon, a lightweight, quick-drying coating, is common. Gloria, originally a cotton and worsted combination but now a silk or rayon and cotton fabric, is a tightly woven, plain weave material commonly used in men’s black umbrellas.
Drill, a twill-weave cotton, is often used for beach umbrellas. These materials are often colorfully dyed or printed.

Silk, acetate, rayon, and nylon make rain- and sun-resistant fabrics for umbrellas. Transparent umbrellas may be made from vinyl plastic. Outer sheaths may be made from the same material as the canopy or from leather or plastic.

The larger the canopy, the more susceptible it is to the wind. The fabric in a parasol, which is used to provide protection from the sun, does not have to be water-repellent and may be organdy or lace.

The ribs and spreaders are usually made of grooved metal. Steel is most commonly used for these parts. Better umbrellas have very sturdy steel ribs and spreaders. Brass plating for inexpensive umbrellas and chromium plating or enameling for more costly umbrellas keep the steel from rusting. Solid brass ribs and spreaders add to the sturdiness of the frame.

The shaft is made from wood; if made from metal (aluminum), it is called a rod. Shafts are often reinforced with fiberglass for strength and lightness. The tips are made from metal or plastic. Handles are made in a wide range of materials, such as woods, plastics, bone, horn, cane, bamboo, leather, or metal. They may be carved, studded with jewels, engraved, or hand painted. The most common shapes for handles are the crook (shaped like a question mark), the straight, the golf, and the opera. Umbrellas may have braided cord, leather, or plastic straps; beads; or chains that permit easy carrying.

Some Types of Umbrellas

Descriptions of various types of umbrellas follow:

Ballerina or Parasol: Dainty looking with ruffled edge that resembles a ballerina’s skirt.

Beach: Made from waterproof materials. Usually has gaily colored stripes or figured patterns. Center pole is usually made of wood, plastic, or aluminum and is pointed on one end to fit easily into sand or soil. Size varies from 5 to 8 feet in diameter.

Bubble Shape: Deeply domed to cover the head and shoulders. Must be made of transparent material.
**Folding:** Ribs fold to permit umbrella to be reduced in size for ease in carrying or packing.

**Golf or Sports:** Large, colorful umbrellas with 8 ribs. Usually has alternating color panels in the canopy. The ribs are 27 to 35 inches long, and the handle is correspondingly longer.

**Child’s:** Approximately 15 inches in length with 8 ribs. Often made in clear plastic or is colorfully decorated.

**UV:** Some umbrellas have sun protection ratings. A good sun umbrella has a UV rating of 50 or more.

**Self-Opening:** Push button works a hidden spring that releases sleeve, pushing ribs into place. When closed, tip ends of ribs are held in place in metal or plastic cup.

**Windproof:** Can be snapped back into shape if blown inside out and will not break when pulled back into shape. Regular or folding style.

**Wind-Resistant:** Built for strength against the wind and can withstand fairly high winds without breaking or turning inside out.

**Care of Umbrellas**

It is desirable to open a wet umbrella after use to allow it to dry thoroughly. This keeps the fabric from spotting and from wrinkling excessively. When dry, the umbrella may be rolled neatly and fastened shut or encased in a sheath. On a windy day, the top of the umbrella should be directed into the wind to avoid its being blown inside out.

**Price**

Umbrellas range in price from $3 to over $200, and for the most part, the price reflects the quality of the umbrella. Although some people prefer to buy cheap and replace the umbrella when it breaks, those who’ve had to deal with a cheap umbrella in a rainstorm often choose to pay a little more to avoid having their umbrella flip inside out, drip water on their head, or fall apart just when they need it most.

Still, not many people are willing to spend more than $50 or $75 for an object that is easily lost or misplaced. Fortunately, there are quite a few reasonably good-quality umbrellas available in moderate price ranges. Umbrellas are also available in various styles, and choosing an umbrella may mean compromising one advantage for another.

The right umbrella is a balance between cost and quality, as well as convenience and durability. Spend the time to find a good-quality, reasonably priced umbrella, and it will serve you well for years to come.

**Some Overall Considerations**

- Select type appropriate for intended use.
- Select size in relation to use.
- Closed size is important for some usage.
- Folding (travel size) is ideal for book bags, briefcases, riding buses, travel.
- Shape may be important for use.
- Plastic canopies may puncture.
- Color may be selected to match raincoat, briefcase, etc.; to be easily identified; to not show soil; to add color to dreary weather.
- Strong, sturdy ribs are more durable and wind resistant.
- Number and closeness of ribs may be indicator of durability.
- Cost should be evaluated in relation to funds available, predicted loss, and intended use.

Acknowledgment to Cheryl R. Varnadoe, Extension 4-H specialist, The University of Georgia, for the original manuscript.

Prepared by Laura J. Connerly, Ph.D., Assistant Professor - Family and Consumer Economics, University of Arkansas Division of Agriculture, lconnerly@uaex.edu.
What is Yogurt?

Yogurt is a cultured dairy product that can be made from whole, lowfat or skim milk, including reconstituted nonfat dry milk powder. The Food and Drug Administration (FDA) describes yogurt as a food produced by culturing one or more of the basic ingredients (cream, milk, partially skimmed milk, skim milk, or the reconstituted versions of these ingredients may be used along or in combination) and any of the optional dairy ingredients with a characterizing bacteria (live and active) culture that contains the lactic acid-producing bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*). Yogurt is made by inoculating certain bacteria (starter culture), usually *Streptococcus thermophilus* and *Lactobacillus bulgaricus*, into milk. After inoculation, the milk is incubated at approximately 110°F ± 5°F until firm; the milk is coagulated by bacteria-produced lactic acid. Yogurts may have additional cultures, sweeteners, flavorings, color additives, stabilizers and emulsifiers and preservations add to it. Yogurts may be heat-treated after culturing to extend the shelf life of the food. Most yogurts in the United States is made from cow’s milk, any type of milk can be used. In other countries, yogurt is made from the milk of water buffalo, yak, goat, horses and sheep.

Because of yogurt’s is made with live and active cultures, it has become a healthy lifestyle favorite. Yogurt comes in many flavors and varieties which appeals to everyone’s taste buds.

Health Benefits

Yogurt is a nutrient-dense food that meets a wide variety of nutritional needs at for everyone. Yogurt is a good source of protein—an average 8-ounce serving contains between 8 and 10 grams of protein, or 16 to 20 percent of the Daily Recommended Value (DRV). Because yogurt is cultured the amount of protein often succeeds liquid milk. Yogurt is also an excellent source of calcium. Yogurt may contain up to 35 percent of the Recommended Daily Intake (RDI) for calcium. Yogurt is low in fat and high in certain minerals and essentials vitamins, including riboflavin B2, Vitamin B12, phosphorus and potassium.

The words “live and active cultures” refer to the living organisms—*Lactobacillus bulgaricus* and *Streptococcus thermophilus*—which convert pasteurized milk to yogurt during fermentation. Researchers are currently exploring how live and active culture yogurt may have a beneficial effect on the immune system, the potential to lower cholesterol, and how it may combat certain types of cancer-causing compounds, particularly in the digestive tract.
Health Benefits of eating yogurt:

- May help reduce osteoporosis risk
- Yogurt can be eaten by people who are lactose intolerant
- Diets rich in calcium may help reduce hypertension
- May enhance the immune system of certain individuals
- Versatile and convenient – use as a substitute for mayonnaise, sour cream and cream cheese to lower calories
- May reduce the risk of colon cancer
- Excellent source of calcium
- Yogurt is considered a meat alternative because of high protein content
- Large variety of flavors and styles that can be used to reduce calories

Protein
An average eight-ounce serving of live and active culture contains approximately 20 percent of the Daily Value for protein.

Recommended Dietary Allowances (RDA) of Protein for Children

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

Source: Food and Nutrition Board, Institute of Medicine of the National Academy of Science

Calcium

Calcium is needed at every stage of life and yogurt with its live and active cultures are a great source. Calcium is critical for bone growth, development, and maintenance at every age and stage of life. Toddlers have an increased need for dietary calcium to support growth and skeletal development that takes place rapidly in the early years of life. Calcium needs continue into the teenage years and is particularly crucial for adolescent girls who need to stock their calcium supplies to prevent osteoporosis later in life. The need for calcium increases at the body matures. Adults achieve their peak bone mass at age 35 and after that bone loss begins to take place. Calcium intake is critical in helping reduce bone loss, especially for postmenopausal women.

Yogurt is rich in calcium, high in protein, tolerated by lactose-sensitive children and adults, convenient, versatile and tasty.
Dietary Reference Intake:

<table>
<thead>
<tr>
<th>Age Groups (years)</th>
<th>Adequate Intake (mg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>500 mg</td>
</tr>
<tr>
<td>4-8</td>
<td>800 mg</td>
</tr>
<tr>
<td>9-18</td>
<td>1300 mg</td>
</tr>
<tr>
<td>19-50</td>
<td>1000 mg</td>
</tr>
<tr>
<td>51+</td>
<td>1200 mg</td>
</tr>
</tbody>
</table>

Source: Food and Nutrition Board, Institute of Medicine of the National Academy of Sciences

Calcium is an essential part of any balanced diet and is found in a wide variety of foods, most people just don’t get enough calcium each day. Use the chart below to ensure that you are meeting your daily calcium quota.

**Quick-Read Equivalency Chart**

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving Size</th>
<th>Calcium (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live &amp; Active Culture Yogurt (plain)</td>
<td>One cup</td>
<td>450 mg</td>
</tr>
<tr>
<td>Calcium-fortified Orange Juice</td>
<td>One cup</td>
<td>300 mg</td>
</tr>
<tr>
<td>Milk, (nonfat)</td>
<td>One cup</td>
<td>300 mg</td>
</tr>
<tr>
<td>Chocolate milk 1%</td>
<td>One cup</td>
<td>285 mg</td>
</tr>
<tr>
<td>Swiss Cheese</td>
<td>One ounce</td>
<td>270 mg</td>
</tr>
<tr>
<td>Cheddar cheese</td>
<td>One ounce</td>
<td>205 mg</td>
</tr>
<tr>
<td>Salmon (edible with bones)</td>
<td>3 ounces</td>
<td>180 mg</td>
</tr>
<tr>
<td>Frozen yogurt</td>
<td>1/2 cup</td>
<td>155 mg</td>
</tr>
<tr>
<td>Turnip greens, cooked</td>
<td>1/2 cup</td>
<td>125 mg</td>
</tr>
<tr>
<td>Dried figs</td>
<td>3</td>
<td>80 mg</td>
</tr>
<tr>
<td>Broccoli, cooked</td>
<td>1/2 cup</td>
<td>35 mg</td>
</tr>
</tbody>
</table>

Source: The Food Processor. Esha Research 7.0, 1998

**Yogurt Varieties**

Yogurt products come in a wide variety of flavors, forms and textures. Here are the common terms associated with yogurt products available today. Some of the definitions were established by the Food and Drug Administration (FDA), while others were determined by the manufacturers.

**Lowfat and nonfat**: There are three types of yogurt: regular yogurt, lowfat yogurt and nonfat yogurt. Yogurt made from whole milk has at least 3.25 percent milk fat. Lowfat yogurt is made from lowfat milk or part-skimmed milk and has between 2 and 0.5
percent milk fat. Nonfat yogurt is made from skim milk and contains less than 0.5 percent milk fat.

**Lite (light) yogurt:** 1/3 less calories or 50% reduction in fat than regular yogurt.

**Swiss or custard:** Fruit and yogurt are mixed together for individual servings. To ensure firmness or body, a stabilizer, such as gelatin, may be added. These products are also referred to as “blended” yogurt.

**Frozen yogurt:** Frozen yogurt is a non-standardized food and, therefore, is not subject to Federal composition standards, as is the case for “yogurt”. In order to qualify for National Yogurt Association’s (NYA) Live and Cultures seal, frozen yogurt must be a product made by fermenting pasteurized milk (can include skim milk and powdered skim milk, plus other ingredients), using traditional yogurt cultures, until the proper acidity is reached. Many manufacturers, according to their unique recipes, will then mix this (the “yogurt” component) with a pasteurized ice cream mix of milk, cream, and sugar, plus stabilizers or other ingredients needed for desired consistency. This frozen yogurt base mix can then be blended with fruit or other ingredients and then frozen. The freezing process does not kill any significant amount of the cultures—in fact, during the freezing process the cultures go into a dormant state, but when eaten and returned to a warm temperature within the body, they again become active and are capable of providing all the benefits of cultures in a refrigerated yogurt product.

Not all products terms “frozen yogurt” actually contain live and active cultures. Some so-called “frozen yogurts” use heat-treated yogurt, which kills the live and active cultures, or they may simply add in cultures to the mix along with acidifiers, and skip the fermentation step all together. To make sure that a frozen yogurt contains yogurt produced by traditional fermentation and has a significant amount of live and active cultures, look for the NYA Live & Active Cultures seal.

**Contains active yogurt cultures:** Yogurt labeled with this phrase contains the live and active bacteria thought to provide yogurt with its many desirable healthful properties. Look for the NYA Live & Active Cultures seal to ensure that the yogurt you buy contains a significant amount of live and active cultures.

**Heat-treated:** Yogurt labeled with this phrase has been heated after culturing, thereby killing the beneficial live and active yogurt cultures.

**Liquid or drinkable yogurt:** Fruit and yogurt are blended into a drinkable liquid.

**Made with active cultures:** FDA regulations require that all yogurts be made with active cultures. Only those that are not heat-treated, however, retain live and active cultures when they reach consumers.
**Sundae or fruit-on-the-bottom:** Fruit is on the bottom, so that turn upside down, it looks like a sundae. Consumers can mix the fruit and yogurt together to make it smooth and creamy.

**Buttermilk:** Buttermilk is reminiscent of yogurt because it made by adding a lactic acid bacteria culture to pasteurized whole milk (skim milk or nonfat milk can also be used). The old-fashioned way to make buttermilk was from the left over liquid from churning butter from cream, i.e., milk from the butter or buttermilk. After the addition of the culture, the milk is left to ferment for 12 to 24 hours at a low temperature. It is usually labeled cultured buttermilk and may be salted or unsalted. Buttermilk is slightly thicker in texture than regular milk but not as heavy as cream.

**European-Style yogurt or stirred curd method:** Yogurt in which the yogurt is cooked in a large vat instead of in individual cups. The curds are stirred in the vat, before they are poured into the cups, resulting in a smoother, creamier yogurt.

**French yogurt or French-style yogurt:** Is the same as custard-style yogurt.

**Greek yogurt:** Greek yogurt is a thicker, creamier version of the regular variety. Greek yogurt is strained to remove the excess whey from the yogurt which in turns gives it a thicker and creamier texture. In Greece, yogurt is made with sheep’s or goat’s milk.

**Yogurt cheese:** Yogurt that has been drained and pressed into a soft cheese form. The consistency of the yogurt cheese will be similar to soft cream cheese. It can be used as a base for dips and spreads, as a topping for baked potatoes. It is a great alternative for regular mayonnaise, sour cream or cream cheese.

**Smoothie:** There are many types of smoothies that contain yogurt or frozen yogurt. These smoothies usually use yogurt as the base and mix in various fruits into the consistency of a milkshake with healthier benefits.

**Liquid Yogurt or Yogurt Smoothie:** Yogurt that has been thinned to make it drinkable and blended with fruit, fruit juice or other flavorings.

**Kefir:** 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 or sheep, coconut, rice or soy. The curd size of kefir is smaller than yogurt which makes it easier to digest. Kefir is rich in Vitamin B12, and Vitamin K. It is an excellent source of biotin, a B vitamin which aids the body’s assimilation of other B vitamins, such as folic acid, pantothentic acid, and B12.

**Yogurt drinks:** A “yogurt drink”, according to Federal Standards of Identity, must meet the requirements for yogurt (the white mass —yogurt portion). It must contain a minimum of 8.25 percent milk solids not fat and 3.25 percent milkfat prior to the addition
of other ingredients. It also must be fermented with Streptococcus thermophilius and Lactobacillus bulgaricus. The processes of yogurt beverages closely resemble that used for stirred-style yogurt. Yogurt drinks usually pass through a homogenizer to reduce the particle size. This assures complete hydrocolloid distribution and stabilized the protein suspension. Flavor may be added immediately prior to homogenization or the white mass may be homogenized and then flavored.

**Costs**

When looking at costs, 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 @ $1.66 = $.05 per ounce

6-ounce store brand flavored nonfat @ $0.60 = $.10 per ounce

Package of eight 2.25-ounce name brand portable yogurt treats (18 ounces) @ $2.95 = $.16 per ounce.

Fruit-flavored varieties may cost more and include jam-like fruit that adds extra sugar. The sweetened fruit replaces some of the yogurt in the carton so you get less of the calcium-rich yogurt. Buy plain or vanilla yogurt and add your own fruit to it.

**Other things to consider:**

Serving size, calories, fat content and price.

**Resources Used:**


Iowa State University Extension: Spend Smart. Eat Smart. Milk, Cheese, and Yogurt: [http://www.extension.iastate.edu/Publications/PM2066AX.pdf](http://www.extension.iastate.edu/Publications/PM2066AX.pdf)

Food and Drug Administration: [http://www.fda.gov/](http://www.fda.gov/)


Nutritional Content of Kefir: [http://www.kefir.net/nutrit.htm](http://www.kefir.net/nutrit.htm)
Yogurt Cheese:  http://lowfatcooking.about.com/od/quicktips/qt/yogcheese.htm


What is Greek Yogurt?  http://www.cookthink.com/reference/257/What_is_Greek_yogurt

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