4-H CONSUMER DECISION MAKING

2018 Study Guides & Sample Classes

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

Healthy Snacks
Toys
Wearable Technology

Reviewed by Members of the North Dakota 4-H Consumer Decision Making Committee: Kayla Carlson, Ellen Bjelland, Amelia Doll, Julie Garden-Robinson, Holly Halvorson, Alicia Harstad, Kari Helgoe, Vanessa Hoines, Debra Lee, Christina Rittenbach, Dena Kemmet, Holly Johnson, and Meagan Scott

North Dakota 4-H Consumer Decision Making
Sponsored by:
North Dakota 4-H Foundation

North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Direct inquiries to the Vice President for Equity, Diversity and Global Outreach, 205 Old Main, (701) 231-7708.
Nutrients are the workers for our bodies. They help us to grow and stay healthy. Snacks are a great way to help our bodies get the nutrients we need throughout our day. They also help us stay full between meals and keep us from overeating.

**Key Terms**

- **Cost per serving** – The cost of one serving of a food item. The cost per serving can be determined by dividing the total cost of a food package by the number of servings indicated on the Nutrition Facts label.
  
  $ \text{cost per serving} = \frac{\text{total cost}}{\text{total number of servings}}$

- **Daily Values (DV)** – The amount of a nutrient needed daily as determined by the Food and Drug Administration.

- **Fiber** – The part of plant foods that cannot be digested. Fiber is beneficial because it reduces the risk of coronary heart disease, reduces constipation and promotes a full feeling.

- **Food Group** – The basic food groups are grains, fruits, vegetables, dairy and protein.

  - **Grains**: bread, rice, oatmeal, etc.
  - **Fruit**: apples, oranges, berries, mangos, etc.
  - **Vegetables**: broccoli, spinach, peppers, carrots, etc.
  - **Dairy**: milk, yogurt, cottage cheese, etc.
  - **Protein**: meat, eggs, seeds, nuts, etc.

- **Nutrients** – Substances the body needs to grow and function. Nutrients include carbohydrates, protein, fats, water, vitamins and minerals.

- **Nutrient-dense foods** – Foods that provide large amounts of vitamins and minerals and few calories.

- **Portion size** – The amount of food eaten at one time.

- **Serving size** – A standardized amount of a food, such as a cup or an ounce, shown on the Nutrition Facts label.
• **Whole grains** – Foods made from the entire grain seed. Whole grains can help with constipation, weight management and reducing the risk of heart disease. Whole grains are often labeled on the package as “100% Whole Grain.” Words to look for on the ingredients list include: whole grain [name of grain], whole wheat, whole [other grain], stoneground whole [grain], brown rice, oats, oatmeal (including old-fashioned oatmeal, instant oatmeal) and wheat berries. Examples of whole grains include popcorn, wild rice, quinoa, oatmeal and whole-wheat tortillas. Watch for misleading labeling.

• **Food allergy:** The body's reaction, such as digestive problems, hives, difficulty breathing or even death, caused by eating a certain type of food. Someone who is allergic to a particular food should not eat the food or foods.

**Reading Labels When Making Snack Choices**

To know what you are getting from your snack, be sure to read the Nutrition Facts label. Try these tips to make smart food choices quickly and easily.

- Keep these low: calories, saturated fats, trans fat and sodium
- Get enough of these: potassium, fiber, vitamins A and C, calcium and iron
- Check for added sugars using the ingredients list
- Use the % daily value (DV) column when possible: **5% DV or less is low and 20% DV or more is high**

Additional items to look for on a Nutrition Facts label include:

- **Serving size:** Look at the serving size and the number of servings per package. Then, determine how many servings you are actually consuming. If you double the servings you eat, you double the calories and nutrients. The serving size provided on the Nutrition Facts label is not a recommended amount to eat. It is a way to let you know the calories and nutrients in a certain amount of food.

- **Calories:** 2,000 calories is the value used as a general reference on the food label. However, the amount of calories you need each day depends on your age, gender, activity level and whether you are trying to gain, maintain or lose weight. Be sure to look at the serving size and how many servings you actually are consuming. If you double the servings you eat, you double the calories.

  You easily can consume your calories on a few high-calorie food items, but you most likely will not get the vitamins and nutrients your body needs. Instead, choose nutrient-dense foods that are packed with vitamins, minerals, fiber and other nutrients but are lower in calories. **Foods that have 400 calories or more per serving are high, while foods with 40 calories or less per serving are low.**

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to trade names, trademarks or service names.
Food packages also contain information about the amount of calories in the food, including various claims, such as:

- **Calorie free** – less than 5 calories per serving
- **Low calorie** – 40 calories or less per serving
- **Reduced calorie or lower in calories** – at least 25 percent fewer calories than the regular version
- **Light or lite** – half the fat or a third of the calories of the regular version

Remember, calories come from both food and beverages, so make your calories count!

- **Sugars:** Look for foods and beverages low in added sugars. Sugars contribute calories with few, if any, nutrients. The Nutrition Facts label lists how many grams of sugar the food contains, but does not list added sugars separately. The amount listed on the Nutrition Facts label includes sugars that are naturally present in foods and sugars added to the food during processing or preparation.

  High-sugar snacks can serve as a quick energy boost but often leave you feeling tired and hungry later due to a drop in blood sugar. Read the ingredients list and make sure that added sugars are not one of the first few ingredients. Some names for added sugars (caloric sweeteners) include sucrose, glucose, high-fructose corn syrup, corn syrup, corn sweetener, honey, dextrose, fruit juice concentrates, lactose, maltose, malt syrup, molasses, maple syrup and fructose. Many foods that contain added sugars often supply calories, but supply few or no vitamins and minerals and no dietary fiber.

- **Fats:** The Dietary Guidelines for Americans (2015) suggests limiting saturated fats and trans fats. The guidelines also recommend that less than 10 percent of calories per day come from saturated fats. Foods that are high in fats are usually high in calories.

- **Sodium:** The Dietary Guidelines for Americans (2015) recommends consuming less than 2,300 milligrams (mg) of sodium per day. Most of the sodium people eat comes from processed foods, not from the salt shaker. Read the Nutrition Facts label to choose foods that are lower in sodium. Use the % DV to determine the levels of sodium in the food product – **5% DV or less is low and 20% DV or more is high**

  Reducing sodium intake can reduce blood pressure. Keeping blood pressure in normal range reduces the risk of cardiovascular disease, congestive heart failure and kidney disease. Claims on the food packaging, such as “low sodium,” also can be used to quickly identify foods that contain less salt. However, it is always a good idea to check the Nutrition Facts label.
Protein-Packed Snacks

The idea of eating more protein has gained popularity in recent years. Some people may think the way to build body muscle is to eat high-protein diets and use protein powders, supplements and shakes. However, most of us get what we need from the foods we eat. Protein is in many foods that we eat, including snacks, and plays a key role in our bodies.

Protein is made up of amino acids which function as building blocks for bones, muscles, cartilage, skin and blood. They help build and repair all body tissue, and form antibodies to fight infection. Proteins are digested more slowly and, therefore, act as longer lasting fuel and help keep us feeling full.

It is good to have higher-protein foods in place of high-sugar foods. For example, choose a glass of skim or low-fat milk instead of drinking a sweetened beverage, and you will take in 8 extra grams of protein. You can add lean protein at any meal, but adding it to your breakfast may be especially helpful.

The Dietary Guidelines for Americans (2015) recommends eating a variety of protein foods, including seafood, lean meats and poultry, eggs, legumes, nuts, seeds and soy products. While meat, in general, is a good source of protein, it can be high in fat. Be sure to check the Nutrition Facts label for the saturated fat, trans fat and sodium content of packaged foods.

Processed meats have added sodium, so choose lean turkey, roast beef, ham or low-fat luncheon meats. Eating peanuts and certain tree nuts (i.e. walnuts, almonds and pistachios) may reduce the risk of heart disease when consumed as part of a balanced diet. Because nuts and seeds are high in calories, eat them in small portions and use them to replace other protein foods, such as meat or poultry, rather than adding them to what you already eat. In addition, choose unsalted nuts and seeds to help reduce sodium intake.

Nutritious Snacking Tips

- Choose foods high in nutrients and low in fat and sugar.
- Eat snacks that include at least two food groups. For example, pair apple slices with cheese or a mini bagel with peanut butter.
- Plan ahead! Plan and pack snacks for when you are on the go so you can avoid less healthful snack choices such as chips and soda.
- Incorporate fruits and vegetables into your snacking plans.
- Aim for whole grain snacks. At least half of your grains should be whole.
- Calories come from both food and beverages. Consider your overall, daily caloric needs when choosing snacks. Water and milk are your best beverage choices.
Sources


Adapted from the 2016-2018 National 4-H Consumer Decision Making Contest Study Guides Manual by Courtney F. Dodd, Ph.D., Assistant State Leader/Assistant Professor & Extension Specialist Texas A&M AgriLife Extension Service – 4-H Youth Development; Reviewed and revised March 2018 by Kayla Carlson, NDSU Family & Community Wellness/4-H Youth Development Extension Agent, and Julie Garden-Robinson, NDSU Professor/Food and Nutrition Specialist

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to trade names, trademarks or service names.
Situation Statement:
Rachel likes to have a nutritious snack when she gets home from school. She tries to get three servings of dairy every day so she would like to have a snack containing dairy. Rachel knows sugar has few to no essential nutrients so she would prefer a snack that is low in sugar, containing less than 5 grams. Rachel will be eating a late dinner so she wants a snack that is high in fiber to help keep her full until dinner. Lastly, she wants to be sure her snack contains 10 grams or more of protein.

Standards:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy food group</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Less than 5 grams of sugar</td>
<td>20</td>
<td>4</td>
<td>1.2</td>
<td>22</td>
</tr>
<tr>
<td>20% or more daily value (DV) of fiber</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>10 grams or more of protein</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>20</td>
</tr>
</tbody>
</table>

Class Items:
1. Chobani Greek Yogurt – 1 serving
2. Great Value Cottage Cheese – 1 serving
3. Hard Boiled Egg – 2 servings
4. Nesquick Chocolate Milk – 1 serving

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

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

I place 2 over 1 because 2 has less than 5 g of sugar having 4 g, while 1 contains 20 g.

I place 1 over 4 because 1 has 10 g or more of protein having 20 g, while 4 contains only 8 g.

I place 4 over 3 because 4 is in the dairy food group, while 3 is in the protein food group.

Grant: 3 has less than 5 g of sugar.
Grant: 3 has 10 g or more of protein.

I place 3 last because it is not in the dairy food group.
It does not contain 20% or more daily value (DV) of fiber.

For these reasons, I place this class of healthy snacks 2-1-4-3.
Sample Class – Junior & Senior Healthy Snacks
Rachel

#1

Chobani Greek Yogurt – 1 serving

**Ingredients:** nonfat yogurt (cultured pasteurized nonfat milk), evaporated cane sugar, water, vanilla extract, locust bean gum, fruit pectin, natural flavor, lemon juice concentrate

Sample Class – Junior & Senior
Healthy Snacks
Rachel

#2

Great Value Cottage Cheese – 1 serving

Ingredients: cultured nonfat milk, nonfat milk, cream, whey, salt, guar gum, carrageenan, cultured dextrose, locust bean gum, citric acid, polysorbate 80, acetylated monoglycerides, natural flavor, enzymes, carbon dioxide (to help protect flavor)

Allergy Warning: contains milk

www.walmart.com/ip/Great-Value-Large-Curd-Cottage-Cheese-24-oz/10315020
Sample Class – Junior & Senior
Healthy Snacks
Rachel

#3

Hard Boiled Egg – 2 servings

Ingredient: egg

Sample Class – Junior & Senior
Healthy Snacks
Rachel

#4

Nesquick Chocolate Milk – 1 serving

![Nesquik Chocolate Milk bottle]

**Ingredients:** lowfat milk with vitamin A palmitate and vitamin D3 added, sugar, less than 2% of cocoa processed with alkali, calcium carbonate cellulose gel, modified corn starch, natural and artificial flavors, salt, cellulose gum, gellan gum, carrageenan

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 do not have to be expensive, and 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.

Choosing the Right Toys for the Right Age
Age recommendations on toys can be helpful because they offer guidelines on the following:
1. Safety of a toy
2. Ability of a child to play with a toy
3. Ability of a child to understand how to use a toy
4. Needs and interests at various levels of a child’s development

<table>
<thead>
<tr>
<th>Age Ranges</th>
<th>Abilities</th>
<th>Appropriate Toys/ Characteristics</th>
</tr>
</thead>
</table>
| 0 – 6 months (Infants) | - Frequently put objects in mouth  
- Large muscle play may include rolling, scooting, rocking and bouncing  
- Gains control of hands | - Bright contrasting colors  
- Soft toys that can be chewed on  
- Hanging mobiles  
- Unbreakable toys that make noise |
| 6 months – 12 months (Infants) | - Crawling begins  
- Can sit up without support  
- Babbles and imitates sounds  
- Likes to grasp and drop objects | - Stackable  
- Large toys  
- Mirrors  
- Picture books |
| 1 year – 3 years (Toddlers) | - More clear speech  
- Starts walking  
- Better at self-entertainment and make-believe; beginning to imitate  
- Manipulation is more exploratory than skillful  
- Enjoys coloring | - Simple ride-on toys  
- Large toys  
- Themed toys (kitchen sets, farm sets, doll houses, etc.)  
- Toys that show cause and effect  
- Large crayons/colors |
| 3 years – 5 years (Preschoolers) | - Running begins  
- Improved speech  
- Attention span is lengthening | - Ride-on toys  
- Puppets/make-believe  
- Simple jigsaw puzzles |
| 6 years – 8 years (School-age) | - Can catch a ball  
- Able to tie shoes  
- Hold and use a pencil easily  
- Coloring becomes more refined | - Balls  
- Coloring sets  
- Dress-up clothes  
- Construction sets |
| 9 years – 11 years (School-age) | - More coordinated and quicker reaction time  
- Enjoys reading simple chapter books | - Bicycles  
- Painting/drawing sets  
- Puzzles  
- Arts and crafts materials |
The Importance of Play for Child Development

Play may seem like something children do for fun or to keep themselves occupied, but play is of more value than just a pastime. Many consider play a child’s job; it is how they learn, grow and develop. It is through play that children develop physically, cognitively, socially and emotionally.

Physical Development

One of the most obvious benefits of play is physical activity. Childhood obesity is becoming more and more prevalent, and there are many health initiatives encouraging children to engage in at least an hour of physical activity each day. However, physical fitness is not the only benefit of play. Children develop motor skills through play, and there are two types of motor skills: large/gross motor skills and small/fine motor skills. Large/gross motor skills require the larger muscles of the body. Infants develop these skills when crawling, sitting up and rolling over. Toddlers and preschoolers show large motor skill development when running, jumping and tossing. Small/fine motor skills involve smaller muscles, mainly in the hands. Without fine motor skills, finger dexterity, writing, typing, playing a musical instrument and more, would be nearly impossible. It is important for children to have opportunities to develop effective use of their hands, and they can do this through play.

Cognitive Development

Have you ever noticed how bright most toys are today, or how many of them make sound or encourage the child to make their own sounds during play? Play is an important part of a child’s cognitive development. They are learning while playing. We use cognitive skills to understand the world we live in, to solve problems and express creativity. The five bodily senses come into play with cognitive development: taste, touch, sound, smell and sight. Infants often put everything they can in their mouths to try and understand what it is. They also enjoy and prefer bright, contrasting colors. Sound association is another important piece of cognitive development. Cats say meow, and dogs bark; cars go vroom. As children grow older, they begin to understand cause and effect and develop better memory. Pushing a button on a toy creating a sound or light is an example of cause and effect.

Social/Emotional Development

Play often is not an individual activity. While it can involve just one child, it more than likely includes siblings, peers and even parents/child care providers. Play teaches very important lessons at an early age. Children begin to understand how to share and take turns using or playing with toys. They also learn how to follow rules and directions. Does the child get upset when another wants to use what he or she is using, or does he or she find something new to play with? This is emotional development. Creating a make-believe game with rules and actions is an activity that aids in social development by learning to communicate and interact with others playing the game.
The Importance of Toy Safety
While toys provide so many benefits for children through play, not all toys are age appropriate or safe for children. The wrong toy can present a wide variety of dangers. 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 3 ... contains small parts," are labeled that way because they may pose a choking hazard to children under 3. Toys should be developmentally appropriate to suit the skills, abilities and interests of the child. Here is more information on what safety factors to keep in mind when shopping for toys.

Choking Hazards
Children under the age of 3 put things in their mouths to help them learn about the world around them. When checking a toy for a baby or toddler, make sure it is unbreakable and strong enough to withstand chewing. Some toys intended for children older than 3 years old may contain small parts, which could present a choking hazard for infants and toddlers. A good rule of thumb is that if a toy or piece of a toy can fit in a toilet paper tube, it is a choking hazard. Small Legos, marbles and some board game pieces are just a few examples of toys that can be dangerous to young children. Keep uninflated balloons out of reach of children under age 6, and discard pieces of broken balloons because of the choking hazard as well.

Electrical Toys
Battery-operated toys should have battery cases that secure with screws so that children cannot pry them open. Batteries and battery fluid pose serious risks, including choking, internal bleeding and chemical burns. Read on the label if the toy can get wet or be immersed in water before doing so. Batteries are not necessarily a bad feature in toys, but consumers need to be aware of the risks involved in having electronic toys.

Keeping Toys Clean
Be sure to keep children’s toys clean. Some plastic toys can be cleaned in the dishwasher, but read the manufacturer's directions first. Another option is to mix antibacterial soap or a mild dishwashing detergent with hot water in a spray bottle and use it to clean toys, rinsing them afterward. Also, some plush toys may be washed in the washing machine or hand washed. Read the toy’s label for care instructions.
Sources


Adapted from the 2016-2018 National 4-H Consumer Decision Making Contest Study Guides Manual; Reviewed and revised March 2018 by Holly Johnson, NDSU Center for 4-H Youth Development Undergraduate Student Assistant; and Meagan Scott, NDSU 4-H Youth Development Specialist

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to trade names, trademarks or service names.
Situation Statement:
Colton has $15.00 to spend. He is looking for a birthday present for his 4-year-old nephew. His nephew loves animals because his parents take him to zoos and parks often. Colton does not want to worry about batteries, so he would prefer a toy that does not require them.

Standards:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15.00 or less</td>
<td>$20.00</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Appropriate for a</td>
<td>$10.00</td>
<td>$12.00</td>
<td>$13.99</td>
<td></td>
</tr>
<tr>
<td>4-year-old</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal toy</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No batteries</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Class Items:
1. Learning Lion
2. My First Tomas & Friends: Thomas Stack-a-Track
3. Brilliant Basics: Lil’ Snoopy
4. Laugh & Learn: Kick & Learn Soccer Ball

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

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

I place 2 over 3 because 2 is age appropriate for a 4-year-old, while 3 is more appropriate for a 1-3 year-old.
Grant: 3 is an animal toy.

I place 3 over 4 because 3 is an animal toy, while 4 is a ball.
3 does not require any batteries, while 4 needs three AA batteries.

I place 4 over 1 because 4 costs $15.00 or less, priced at $13.99, while 1 costs $20.00.
Grant: 1 is age appropriate for a 4-year-old.
Grant: 1 is an animal toy.

I place 1 last because it is not $15.00 or less.
It requires batteries.

For these reasons, I place this class of toys 2-3-4-1.
Sample Class – Junior & Senior
Toys
Colton

#1

Learning Lion

Price: $20.00
Soft and huggable lion is a fun first friend
Over 20 tunes, bilingual sing-along songs and phrases in English and Spanish
Appropriate for ages 18-48 months
Teaches ABCs, 123s, colors, shapes and parts of the body
Requires 2 AAA batteries

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.
Sample Class – Junior & Senior
Toys
Colton

#2

My First Thomas & Friends: Thomas Stack-a-Track

Price: $10.00
Includes stacking frame for engine and 6 pieces that can be stacked to build Thomas
Appropriate for ages 2-4 years
Pieces are numbered 1 through 5 and decorated with popular Thomas & Friends characters
Stacking frame has rolling wheels for push-along play
Batteries not required
5 pieces can be connected to form railway tracks

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.
#3

**Brilliant Basics: Lil’ Snoopy**

Price: $12.00
Approx. 6” H x 6¾” L x 4¼” W
Appropriate for ages 12-36 months
The perfect first puppy for little walkers
Lil Snoopy’s head turns and ears wiggle while in motion
No batteries required
Helps develop fine and gross motor skills as well as the power of imaginative play
#4

**Laugh & Learn: Kick & Learn Soccer Ball**

Price: $13.99
Press, shake or roll for playful songs and sounds
Teaches numbers, counting, colors, opposites, sportsmanship and more
3 interactive play modes: learning, music and imagination
Appropriate for ages 3-36 months
Requires 3 AA batteries (not included)
Machine washable (with electronics removed)
Power/volume control for quiet play
What is Wearable Technology?

Wearable technology describes any electronic device that consumers can wear on their body. Pedometers, fitness trackers, smart watches, smart glasses and action cameras are all popular wearables. Wearables can meet a variety of needs for consumers: fitness trackers, fashionable accessories, communication devices, sources for additional news and social media and more.

How Does Wearable Technology Work?

Wearable gear in the form of watches, eyeglasses and more integrates both the form and function of multiple devices. Most of these work in a similar manner. Multiple sensors capture changes in position, temperature, etc. and translate them into data. Then, microprocessors extract, transform and load data to a transmittable format. Finally, transmitters wirelessly send data to cloud storage for further processing and reporting.

A Variety of Applications (& Apps)

Driven by the healthcare industry, the corporate sector and consumer demand, the wide array and number of applications ranging from health and fitness monitoring to employee monitoring and safety will increase very quickly. According to PricewaterhouseCoopers, over 80 percent of consumers believe that an important benefit of wearable technology is its potential to make healthcare more convenient. Moreover, 68 percent said in exchange for lower health insurance costs, they would be willing to wear employer-provided wearables that streamed anonymous data to an information pool.

How Can Wearable Technology Help Improve Your Health?

Fitness trackers gather in-depth information about wearers’ physical activity that they would not otherwise know, helping them monitor their progress towards or away from their health, fitness and athletic goals. Some fitness wearables sync with apps that help users stick to healthier eating and sleeping habits.

The Future for Wearables

The future for wearables is very bright. The potential to help people get and stay healthy using wearables is huge. The other opportunity is for monitoring people with long-term chronic diseases so that they may be medicated appropriately. We have only begun to see the power of wearables.
Important for All Wearable Technology

1. **Battery Life**
   Battery life often depends on usage of the wearable device. Most devices have rechargeable batteries. Some require a charging cable, while others may charge wirelessly. The more work the wearable device does, the faster the battery will drain.

2. **Water Resistance/Water Proof**
   Depending on where and when you use your wearable device, water resistance may be important to you. Water resistant does not mean water proof. Often, each device’s description will explain how water resistant the device is. Most fitness trackers and smart watches are submergible in up to 5 feet of water. Some action cameras require an additional waterproof case to protect the device from water damage.

3. **Mobile Device Operating System Compatibility**
   Ask the question, "Do I need another device (i.e. - a mobile phone) to make my wearable device have full functionality?" Since the price of wearables can vary depending on the type of device, consumers must be aware of what features they most need in relation to the price for those features. Most devices are Apple iOS or Android compatible. An iPhone is an example of an Apple compatible device, and a Samsung smartphone is an example of an Android compatible device. Some devices may be Windows compatible as well.

**Activity Trackers**
A heart rate monitor, timer, GPS tracker and convenient connectivity are some basic essentials to consider. Although most fitness trackers monitor steps taken, the advanced models take speed and altitude into account.

*Pedometers* are some of the original technology in the industry of wearable technology. While their main feature is only to track movements and steps, pedometers have historically been the most widely available and mass produced type of wearable technology.

*Fitness tracking wristbands* are a more modern and complex device that built upon the success of pedometers. They measure and record data related to the wearer's physical state and performance, such as heart rate, speed and distance traveled, sleep patterns and more.

*Accelerometers* are small motion sensors inside wearables that detect the orientation of the device. By analyzing motion and GPS information, the device can assess if the user is sitting, standing or running. Additionally, accelerometers can be used to interact with apps and/or games. An attractive interface and automatic charting of performance data are both helpful. For example, some trackers convert physical activity to calories burned.
Smart Watches
Smart watches primarily tell time while also displaying information supplied by the wearer’s smartphone, such as email, SMS, call info and media controls. Some smart watches also make and receive calls, take pictures, play games and provide some of the features of a fitness tracker. Consumers must look for a watch that has enough battery life to meet their needs. They may consider: the type of charger needed, the length of time to a full charge and if the device is still useable with a minimal or empty charge. Mobile device compatibility is extremely important to keep in mind with smart watches.

Action Cameras
Action cameras are similar to cameras and camcorders because of their photo and video taking abilities. However, action cameras are designed to be more durable and portable, making them the ideal device to document outdoor activities. Remember to keep these four things in mind when purchasing an action camera:

1. **Video Resolution**
   Paying attention to the resolution specs for your action camera is very important. Currently, 4K resolution is the highest video quality available on most high-end action cameras, followed by 1080p and 720p. 4K uses four times as many pixels to create the same image. The right video resolution for you depends on what you will be using your camera for and on what devices you will view your footage. If you do not own a 4K TV or computer monitor, getting an action camera with 4K may not fit your needs. 1080p and 720p are considered high definition, and 480p is good for TV broadcast. 4K is incredibly sharp and clear, but it does have limitations. 4K footage is harder to edit, and it takes up a lot more room on your memory card. Also, 4K action cameras are often the most expensive.

<table>
<thead>
<tr>
<th>Video Resolution Quality</th>
<th>480 pixels</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>720 pixels</td>
<td>Standard High Definition (HD)</td>
<td></td>
</tr>
<tr>
<td>1080 pixels</td>
<td>Full High Definition (HD)</td>
<td></td>
</tr>
<tr>
<td>4K pixels</td>
<td>Ultra-High Definition (HD)</td>
<td></td>
</tr>
</tbody>
</table>

2. **Field of View**
Field of view (FOV) is the area that your camera can capture at any given moment. It is measured in degrees. Having 180 degree FOV means the camera can record everything in front of the lens. Most action cameras have a wide-angle FOV or an angle of 150 degrees or greater. The larger the number/degree, the wider the FOV.
3. **Frames per Second**

Frames per second (fps) is the number of frames or images the camera can record in a second. Most standard action cameras have a 30fps shooting speed. However, if you are planning to record something that moves very fast, or in slow-motion, higher end action cameras can record up to 240fps.

4. **Memory**

SD cards are the primary storage method for action cameras. Some action cameras include SD cards, while most others must be purchased separately. All SD cards are measured in gigabytes (GB) of memory, so the larger the GB, the more the card will hold. However, the more memory the SD card holds, the more expensive it will be.

---

**Sources**


Adapted from the 2016-2018 National 4-H Consumer Decision Making Contest Study Guides Manual; Reviewed and revised March 2018 by Holly Johnson, NDSU Center for 4-H Youth Development Undergraduate Student Assistant; and Meagan Scott, NDSU 4-H Youth Development Specialist

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to trade names, trademarks or service names.
Situation Statement:
Steve just received $200.00 for his birthday, and he wants to use that money to purchase a new fitness tracker. Steve has a Windows smartphone and wants the fitness tracker to be compatible with his phone. He would like the fitness tracker to have at least a five-day battery life. Steve would also prefer his fitness tracker to be a subtle accessory, so he wants it in the color black.

Standards:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$200.00 or less</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Windows compatibility</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>At least a 5-day battery life</td>
<td>X</td>
<td>X</td>
<td>4</td>
<td>5-6</td>
</tr>
<tr>
<td>Black</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Class Items:
1. Fitbit - Alta HR Activity Tracker
2. Laud Smart Wireless Fitness Wristband
3. Samsung - Gear Fit Fitness Watch
4. Garmin - Approach X40 GPS Watch

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

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

I place 1 over 3 because 1 has a battery life of over five days, lasting seven, while 3 has a battery life of only four days.

I place 3 over 2 because 3 is compatible with Windows phones, while 2 is only compatible with Android devices.

Grant: 2 has a battery life of over five days.

I place 2 over 4 because 2 costs $200.00 or less, priced at $79.99, while 4 exceeds $200.00 with a price of $249.99.

2 is available in the color black, while 4 is not.

Grant: 4 is compatible with Windows devices.

I place 4 last because it is not priced $200.00 or less.
It is not available in the color black.

For these reasons, I place this class of wearable technology 1-3-2-4.
Sample Class – Junior & Senior
Wearable Technology
Steve

#1

Fitbit - Alta HR Activity Tracker

Cost: $149.95
Battery Life: 7 days with a 1-2 hour charging time
Mobile Operating System Compatibility: Apple iOS, Android and Windows
Rain, sweat and splash proof, but not shower or swim proof
Tracks steps, distance, calories burned, active minutes, hourly activity and stationary time
Tracks heart rate and sleep patterns
Tap Screen Display: shows stats, time and notifications on an OLED display
See call, text and calendar alerts on display when your phone is nearby
Colors: Black, Blue Grey, Rose Gold, Fuchsia and Coral

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.
Sample Class – Junior & Senior
Wearable Technology
Steve

#2
Laud Smart Wireless Fitness Wristband

Cost: $79.99
Mobile Operating System Compatibility: Android
Full Activity Tracker: tracks steps, calories burned, sleep and goal updates
Notifications Include: incoming calls, texts and social media updates
Battery Life: 6 days with a 3 hour charging time
Water resistant
Colors: White, Black, Green, Grey and Light Blue

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.
Sample Class – Junior & Senior
Wearable Technology
Steve

#3

Samsung - Gear Fit Fitness Watch

Cost $129.99
Battery Life: about 4 days
Mobile Operating System Compatibility: Android and Windows
GPS tracking capability
Water resistant (no more than 30 minutes)
Tracks steps, speed, heart rate, sleep patterns, calories burned
Receive notifications from apps and respond to calls, texts and more
AMOLED touchscreen
Music player (No headphone jack)
Colors: Black, Blue and Pink

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.
Sample Class – Junior & Senior
Wearable Technology
Steve

#4

Garmin - Approach X40 GPS Watch

Cost: $249.99
Battery Life: 5-6 days
Mobile Operating System Compatibility: Android, Apple iOS and Windows
Waterproof (excluding high-speed water sports)
Tracks steps, calories burned, distance travelled, sleep patterns and heart rate
Receive calls, texts and alerts
Extensively tracks golf game with scoreboard, shot distance, stat tracking and course targets
LCD touchscreen
Colors: White, Mint, Grey and Lime Green