



Rules and Resource Guide

When: June 19-21, 2015

Where: Collin County Adventure Camp; Anna, TX ([Google map](#))

Registration: [4-H Connect](#) - opens May 1 – May 31, 2015

Contest Fee: \$30/per contestant

Lodging & Meals Options:

- \$100/person – two nights + 5 meals
- Lodging is available and encouraged for contestants and non-contestants
- Dorm lodging is for Friday and Saturday night
- 3 meals on Saturday and 2 on Sunday
- Non-contestants must register on 4-H Connect in order to select and pay for lodging and meals (must be selected/paid for in advance)
- Adults choosing to lodge on site, must be actively enrolled on 4-H Connect. Please note that background screenings may take up to 2 weeks, so please plan accordingly.

The Outdoor Challenge committee is not responsible for providing chaperones. If counties are sending any youth without a parent or legal guardian, the appointed chaperone must follow the child protection procedures outlined in the Texas 4-H Youth Protection guidelines, administered by their respective county Extension office. Parents, legal guardians, and/or chaperones will be responsible for youth and must remain on-site through the duration of the Outdoor Challenge.

Major changes for 2015 are highlighted in red below.

General Rules

The 4-H Outdoor Challenge is a contest. Contestants will need to come prepared to compete in each of the events listed below. The contest schedule is very tight; therefore, there will not be time for instruction or training at any of the events.

The contest consists of 10 events that each team will compete in and potentially earn points for their team. A team consists of exactly 2 members (no more, no less) within the same age division and gender class, and will compete in the 10 events listed below. Throughout both days of competition, the team will rotate from one event to the next with an official contest group leader. The lowest scoring event will be dropped from each team's Outdoor Challenge total. Total team score will consist of the sum of the highest nine event scores. If a team chooses not to participate in an event, the team will receive a score of zero for that event.

Throughout the duration of the Outdoor Challenge, all contestants must wear closed-toed shoes (no flip-flops or sandals) except during swimming. All contestants are expected to be at their designated event at his/her scheduled time. In the event the contestant(s) are absent at the specified time, the team will forfeit the event and receive a zero (0) score. Adults and non-contestants are not permitted to directly assist team members nor be located in the immediate contest area at the time of competition. Non-competitors are encouraged to spectate, photograph and even cheer on their contestants. All competitors must abide by rules and instructions provided by contest officials. Any competitor deliberately acting in an unsafe manner or exhibiting unsportsmanlike behavior, will be asked to leave the immediate event area, which may result in the forfeiture of the event and/or contest. The decisions of all contest officials are final and may not be protested.

All firearms, ammunition, bows and arrows used in this contest must be in good condition and safe working order. The shooter and shooting equipment owner assumes full responsibility for the safety of his or her equipment, including the safety of others on and around the range.

Age Divisions and Classes

- Youth must be active 4-H members 8-18 years old as of September 1, 2014
- Three age divisions for this event are:
 - Juniors = 8, 9, or 10 (as of September 1, 2014)
 - Intermediates = 11, 12, or 13 (as of September 1, 2014)
 - Seniors = 14 -18 (as of September 1, 2014); must not have turned 19 by that date
- A team member is allowed to move up an age division in order to complete a team; however, a member may not move down to a younger age division.
- Each age division will be divided into three gender classes:
 - both male
 - both female
 - coed (1 male, 1 female)

Knowledge/Skills Gained

By participating in the Texas 4-H Outdoor Challenge, youth will improve skills in the following:

- Shooting Sports
- Swimming
- Canoeing/Kayaking
- Camping/Outdoor Living Skills
- Orienteering
- Identification of Wildlife and Natural Resources
- Outdoor Safety
- Fishing
- First Aid
- Natural Resource Career Knowledge/Skills
- Teamwork, decision-making and critical thinking



Event Rules and Descriptions for 2015

Shotgun (possible 20 team points)

- Both members of the team will compete in this clay target event
- Ten (10) shots per shooter.
- Regardless of firearm action type, single shot loading is required. Shooters must be able to safely load the shotgun for single shot.
- A broken target is worth one (1) point each.
 - Teams must supply their own ammunition. Shot charge not to exceed 1-1/8 ounces with shot no larger than US 7½ fine or smaller than US 9 fine at velocities up to 1290 feet per second. (1 oz. load 1325 feet per second, 7/8 oz. load 1350 feet per second).
- Teams must supply their own 410, 28, 20, or 12 gauge shotgun(s), eye protection, and ear protection for each shooter. (coaches and spectators must also provide and wear their own eye and ear protection)
- No part of the shooter's body should ever rest against or be covered by the muzzle.
- Refer to Firearm Safety Rules within this document and follow all rules. Failure to comply could lead to team disqualification.

Archery (possible 20 team points)

- Both members of the team will compete in this event, which will consist of 3-D wildlife targets.
- Teams must supply their own bows and arrows (practice points only). Recurves, compounds, and long bows may be used. There are no restrictions on bow types or accessories. Release aids, including mechanical, are allowed. Arrows can be held in a body quiver, bow quiver, or placed in a ground quiver when on the shooting line.
- Each team member will shoot ten (10) arrows for score.
- Points of 0, -1, ½, or 1 will be awarded per shot based upon target kill zones.
 - 0 = miss, -1 = wounding shot (any location on body outside of the designated kill zone), ½ = large kill zone, 1 = small kill zone
- Regardless of negative points awarded (due to a wounding shot), an individual's lowest possible total score will be no less than zero (0).
- Shooting distance is approximately 25 feet for all ages.
- Teams must supply their own eye protection. Eye protection is optional for this event but recommended.
- Refer to Firearm Safety Rules within this document and follow all rules. Failure to comply could lead to team disqualification.

Canoeing (possible 20 team points)

- Both members of the team will compete in this event, which will consist of a timed race of a course approximately 1/8 of a mile in length.
- Teams will be required to begin on foot from a starting line, launch a two-person canoe, traverse course, and return to finish line
- Teams will be awarded points based upon team placing
- All boats must stay on designated course and not touch or interfere in any way with another boat. Any team not following this rule will be subject to disqualification from this event.
- Personal flotation device (PFD) must be worn properly from start to finish
- Canoes, paddles, and PFDs will be provided
- Canoeing Resources:
 - Carrying: [YouTube Video](#)
 - Launching: [YouTube Video](#)
 - Paddling: [YouTube Video 1](#); [YouTube Video 2](#)
 - Kayaking Resources:
 - Launching: [YouTube Video](#)
 - Paddling: [YouTube Video 1](#); [YouTube Video 2](#); [YouTube Video 3](#)
 - Turning: [YouTube Video](#)

Fishing (possible 20 team points)

- Both members of the team will compete to catch, measure, and release as many fish possible within the given time frame.
- The team rank will be calculated by the sum total length of fish caught. Total team points will be awarded according to team rank.
- **To minimize stress on the fish and to maximize survival following release, teams must use barbless hooks.**
 - http://www.agfc.com/fishing/Documents/TP_Barbleless2010.pdf
 - http://www.4hfishing.org/resources/angling_skills_pdfs/6b_barbless_hooks.pdf
- Measurements will be made by a contest official at a designated location.
- A fish must be measured immediately after being caught so that the fish can be released in a reasonable time for survival.
- Fish cannot be kept in any form or fashion to be measured as a group (for example, no stringers, baskets, buckets, etc.)
- An audible warning will be given prior to time expiring.
- Teams must supply their own fishing equipment, tackle, and bait of their choosing.
- The creek-fed pond is approximately 5 acres in size and contains various types of vegetation. It was previously stocked with largemouth bass, sunfish species, and channel catfish.



Biologist Skills (possible 20 team points) NEW - COMBINED EVENT FOR 2015

(combines outdoor ID with biologist skills)

- Members will compete as a team in this event.
- Scoring will be based upon the number of correct/incorrect answers.
- This event will consist of one or more of the following:
 - **Outdoor ID** - identify various species found in the outdoors and possibly answer a follow up question related to it (see below for the complete study list). Test items may be in the form of photos, live or dried plant specimens, whole mounts, tracks, audio calls, and various body parts (wings, feet, antlers, etc.).
 - **Fish Measuring** – given a fish replica and tape measure, correctly measure the length of a fish. (Possible bonus: identify the fish and/or determine if it is a one you can keep based on a given lake’s limits using TPWD’s Outdoor Annual). Study Link: http://www.tpwd.state.tx.us/regulations/fish_hunt/fish/measure.phtml
 - **Antler Scoring** – given a skull mount, string/flexible cable, and tape measure, correctly measure or identify specified parts of the antlers. Study Link: <http://www.dnr.sc.gov/wildlife/deer/scoring.html>
 - **Deer Aging (on the hoof)** – given a photo or sets of photos, correctly determine the age of a deer. Study Link: <http://extension.missouri.edu/explorepdf/agguides/wildlife/g09485.pdf>
 - **Tracks ID** - given an animal track, correctly identify the animal. Study Link: https://tpwd.texas.gov/publications/pwdpubs/media/pwd_lf_k0700_0001.pdf
 - **Park Symbols** - correctly identify park symbols. Study Link: http://www.nps.gov/hfc/carto/symbols/map_symbols.pdf (Map pictographs only; located on the left side of the document)

Knot Tying (possible 20 team points)

- Both members of the team will compete in this event which will test the team members’ knowledge, uses, and abilities of tying four of the following knots: bowline, taut-line hitch, square knot, clove hitch, timber hitch, sheet bend, half hitch, Palomar, and improved clinch. Teams will be given one (1) minute per knot.
- Scoring will be based on the team’s ability to correctly tie the knots, which will be worth 5 points each.
 - Resource: [What Knot Website](#)
 - Resource: [Animated Knots Website](#)

Gear Judging (possible 20 team points)

- Both members will compete individually in this event, which will test each member's individual knowledge of making sound decisions when purchasing outdoor gear.
- Each member will be judge two (2) classes, which will be selected from the following three categories: tents, camp stoves, and sleeping bags (see "Gear Judging Study Guide" section below)
- Products will be numbered 1 to 4, and contestants must rank the products accordingly. Total score for each class will be determined by using a Hormel scoring system and divided by 10. For a further understanding of this type of judging event, please see the [Texas 4-H Consumer Decision Making Guide](#).

Climbing (possible 20 points) NEW for 2015

- Both members of the team will compete in this event.
- Members will be timed climbing a wall to a designated height.
- Individual team member's times will be added together and then ranked among competing teams. Teams will be awarded points based upon the number of teams and their respective placing.
- **All climbing safety gear will be provided by the certified course on-site. Climbing will be facilitated by certified individuals from Collin County Adventure Camp.**

Outdoor Skills (maximum 20 points per team) NEW for 2015

- Both members will compete in this event, which may consist of skills from one or more of the following activities:
 - Camping
 - Compass and pacing
 - Backpacking
 - *"Outdoor Living Skills Program Manual"* (find on Amazon or acabookstore.org)
 - *"Outdoor Living Skills Instructors Manual"* (find on Amazon or acabookstore.org)
 - Hunting
 - [TPWD Hunter Ed Online Manual](#), Chapters 4 & 6. Drag cursor/select from the chapter index on the left; read each page to the bottom and select "Next: xyz" on the right to go to the next page; each chapter ends with a quiz.
- Scoring will be based upon time and/or accuracy and teamwork.
- Equipment and materials needed for this event will be provided.

Outdoor Safety (maximum 20 points per team)

- Both team members will compete in this event, which may consist of a written exam to identify various safety issues provided in the form of a mock scene, a written scenario, or other format.
- Scoring will be based upon the number of correct/incorrect answers. Individual scores will be averaged on a 20-point scale to obtain total team score.

Required Supplies

Counties with multiple teams must have the following required items for each team:

- Bow/arrows
- .410, 20, 28, or 12 gauge shotgun (for one or both team members) **and matching ammunition**
- **Shot charge not to exceed 1-1/8 ounces with shot no larger than US 7½ fine or smaller than US 9 fine at velocities up to 1290 feet per second. (1 oz. load 1325 feet per second, 7/8 oz. load 1350 feet per second)**
- eye and ear protection for both team members
- fishing gear
- closed-toed shoes (no sandals or flip-flops) and appropriate clothing
- Pencils and clipboards for both team members
- Refillable water bottle for each team member and all spectators (bottle refilling stations provided)
- Clothing suitable for the outdoors in June

Suggested Supply List*

- Sunscreen
- Insect repellent (for ticks, chiggers and mosquitoes primarily)
- Lawn chairs for spectators
- Shade umbrellas
- Swimsuit for recreational swimming
- Snacks and drinks for times between meals
- **Wheeled, non-motorized cart or wagon to haul gear to and from event sites**

*** Vehicles are not allowed in the immediate event areas. Parking is limited to areas around the dining hall, dorms, and the Education Building. Walking is required to and from activity sites. A camp shuttle may be available to assist in transporting.**

Supplies for staying at Collin County Adventure Camp

- bedding and pillow
- toiletries
- towel and washcloth

Texas 4-H Outdoor Challenge

2015 Tentative Schedule

(Times are estimated and subject to change)

Friday, June 27

6:00 pm Check-in Begins
7:00 pm Orientation
7:30 pm **Knot-Tying for all age divisions**

Saturday, June 28

7:30 am Breakfast (for paid contestants and guests)
8:30 Events Begin
12:00 pm Lunch (for paid contestants and guests)
1:00 Continue Events
6:00 Supper (for paid contestants and guests)
7:00 Continue Events
8:00 Free Swim (for fun) – swimming pool

Sun., June 29

7:30 Breakfast (for paid contestants and guests)
8:30 Continue Events
12:00 pm Lunch
1:30 Awards
Depart

4-H Outdoor Challenge

Firearm Safety Rules

- Handle all firearms safely while at the Outdoor Challenge, whether on the range or off while in preparation. Maintain safe muzzle control at all times. Typically, the safe muzzle direction when not on the firing line is pointing the muzzle up. Consider others who are near. All participants must know how to safely and efficiently operate all aspects of the firearm they will be using, including single loading rifles and shotguns.
- Firearms should arrive on the event grounds unloaded and remain unloaded until the command to load is given on the firing lines.
- Ammunition should not be carried in the firearm case.
- Arrows should be equipped with practice points only. No hunting broad heads of any type are allowed at the event, even in the bow case.
- Firearms, including bows, should remain in the vehicle until the specific event. Firearms are not allowed in any building of the event grounds.
- All firearms must enter and exit the range unloaded and cased. Cases can be hard sided or soft. There will be no racks for any firearms including bows.
- All rifle and shotgun cases should have the muzzle direction of the enclosed firearm marked on the outside of the case. The exception to this is a case containing a break-down firearm that is carried in pieces. Marking the muzzle end of a case insures a safe muzzle direction (down range) before the case is opened and the firearm is handled. In the situation where two firearms are cased in one case, both muzzles should point in the same direction if possible. Consult the Range Safety Officer (RSO) if this is a problem. Marking the case can be accomplished using tape, markers, paint, or any other means that will remain in place for the duration of the event.
- All firearms must remain cased on the range until shooters are told by range officials to uncased.
- Cased firearms brought onto the range will be placed in a designated safe location out of the way until a shooter is called to the firing line by the range officials.
- Rifles must have an Open Bolt Indicator (OBI) in the chamber while cased and must remain in place until told to load on the firing lines. OBI's can be made with a 10" length of bright colored weedeater line and bright duct tape to add a flag. OBI's assist the RSO in determining quickly that a rifle has no ammunition in the chamber and that the chamber is open.
- Shotguns must have actions open when possible while in the case and when carried on the range.
- All rifles and shotguns must be carried using two hands with the muzzle pointing up. Shotguns may not be carried on the shoulder at any time nor should any part of the body ever rest against or be covered by the muzzle.
- Eye and ear protection must be worn on the range at all times during shooting by shooters and spectators.
- Closed toed shoes are required on all shooting ranges by shooters and spectators.
- Spectators may be limited on the range at the discretion of the range officials.
- Spectators and coaches must remain in a designated area and will not be allowed on the firing lines without permission by the RSO.
- If a problem arises that requires assistance while on the firing line, a shooter should maintain safe muzzle direction down range and raise a hand to catch the attention of the RSO who will assist. A coach will be called to the firing line by the RSO if necessary.
- Follow all range commands. The RSO will review the range commands prior to each line shooting.
- Failure to follow these rules could lead to disqualification from the current event or from the Outdoor Challenge. One team member's disqualification affects the team.

ID Study List for Biologist Skills Event (revised 2015)

BIRDS

- **American Peregrine Falcon**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/amperegrine/>
- **American Kestrel**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/kestrel/>
- **Black-capped Vireo**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/bcv/>
- **Golden-cheeked Warbler**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/gcw/>
- **Eastern Bluebird**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/easternbluebird/>
 - <http://txtbba.tamu.edu/species-accounts/eastern-bluebird/>
- **Great Blue Heron**
 - <http://enature.com/fieldguides/detail.asp?shapeID=962&curGroupID=1&lgfromWhere=&curPageNum=2>
- **Green heron**
 - <http://enature.com/fieldguides/detail.asp?shapeID=962&curGroupID=1&lgfromWhere=&curPageNum=5>
- **Ring-necked Duck**
 - http://www.allaboutbirds.org/guide/Ring-necked_Duck/id
- **Greater Scaup**
 - http://www.allaboutbirds.org/guide/Greater_Scaup/id
- **Greater Roadrunner**
 - <http://enature.com/fieldguides/detail.asp?shapeID=964&curGroupID=1&lgfromWhere=&curPageNum=24>
 - http://www.allaboutbirds.org/guide/Greater_Roadrunner/id

FISH

- **Bluegill**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/bgl/>
- **Channel Catfish**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/ccf/>
- **Flathead Catfish**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/catfish/>
- **Guadalupe Bass**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/gdb/>
- **Longear Sunfish**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/longearsunfish/>

PLANTS

- **Bald Cypress**
 - <http://texastreeid.tamu.edu/content/TreeDetails/?id=121>
- **White Oak**
 - <http://texastreeid.tamu.edu/content/TreeDetails/?id=89&t=O>
- **Mesquite**
 - <http://texastreeid.tamu.edu/content/TreeDetails/?id=82&t=M>
- **Eastern Red Cedar**
 - <http://texastreeid.tamu.edu/content/TreeDetails/?id=60&t=R>
- **Woolly Croton**
 - <http://essmextension.tamu.edu/plants/plant/annual-croton-woolly-croton/>
- **Big Bluestem**
 - <http://essmextension.tamu.edu/plants/plant/big-bluestem/>
- **American Beautyberry**
 - <http://aggie-horticulture.tamu.edu/ornamentals/nativeshrubs/callicarpaamerica.htm>
- **Sideoats Grama**
 - <http://essmextension.tamu.edu/plants/plant/sideoats-grama/>
- **Yellow Indiangrass**
 - <http://essmextension.tamu.edu/plants/plant/yellow-indiangrass/>
- **Maximilian Sunflower**
 - <http://wildlifehabitat.tamu.edu/mgmtplan/appendixw.pdf>
 - http://plants.usda.gov/plantguide/pdf/pg_hema2.pdf

INVERTEBRATES

- **Blue Crab**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/bluecrab/>
- **Fiddler Crab**
 - <http://www.tpwd.state.tx.us/huntwild/wild/species/fiddler/>
 - <http://txmarspecies.tamug.edu/invertdetails.cfm?scinameID=Uca%20rapax>
- **Crayfish**
 - <https://srac.tamu.edu/index.cfm/event/getFactSheet/whichfactsheet/195/>
- **Brown Recluse Spider**
 - <http://texasinsects.tamu.edu/cimg367.html>
- **Southern Black Widow**
 - <http://texasinsects.tamu.edu/cimg368.html>
- **Lone Star Tick**
 - <http://texasinsects.tamu.edu/cimg370.html>
- **Striped Bark Scorpion**
 - <http://texasinsects.tamu.edu/cimg364.html>
- **American snout butterfly**
 - <http://www.butterfliesandmoths.org/species/Libytheana-carinenta>
 - <http://texasinsects.tamu.edu/cimg279.html>

- **Dragonfly**
 - <http://texasinsects.tamu.edu/aimg5.html>
- **Damselfly**
 - <http://texasinsects.tamu.edu/aimg7.html>

MAMMALS

- **Bobcat**
 - <http://tpwd.texas.gov/huntwild/wild/species/bobcat/>
- **Common Raccoon**
 - <http://www.nsrl.ttu.edu/tmot1/procloto.htm>
- **Coyote**
 - <http://www.nsrl.ttu.edu/tmot1/canilatr.htm>
- **Nine-banded Armadillo**
 - <http://www.nsrl.ttu.edu/tmot1/dasynove.htm>
- **Ringtail**
 - <http://www.nsrl.ttu.edu/tmot1/bassastu.htm>
- **Whitetailed deer**
 - <http://www.nsrl.ttu.edu/tmot1/odocvirg.htm>
- **Virginian opossum**
 - <http://www.nsrl.ttu.edu/tmot1/didevirg.htm>
- **Pronghorn**
 - <http://www.nsrl.ttu.edu/tmot1/antiamer.htm>
- **Pallid bat**
 - <http://www.nsrl.ttu.edu/tmot1/antrpall.htm>
- **Bottlenose dolphin**
 - <http://www.nsrl.ttu.edu/tmot1/turstrun.htm>

HERPS

- **Southern Copperhead**
 - <http://www.herpssoftexas.org/content/copperhead>
- **Timber Rattlesnake**
 - <http://www.herpssoftexas.org/content/timber-rattlesnake>
- **Western Cottonmouth**
 - <http://www.herpssoftexas.org/content/cottonmouth>
- **Coral Snake**
 - <http://www.herpssoftexas.org/content/texas-coralsnake>
- **Milk snake**
 - <http://www.herpssoftexas.org/content/milksnake>
- **Common king snake**
 - <http://www.herpssoftexas.org/content/common-kingsnake>
- **Horned lizard**

- <http://www.herpssoftexas.org/content/texas-horned-lizard>
- **Texas spiny lizard**
 - <http://www.herpssoftexas.org/content/texas-spiny-lizard>
- **Pond slider**
 - <http://www.herpssoftexas.org/content/pond-slider>
- **Ornate box turtle**
 - <http://www.herpssoftexas.org/content/ornate-box-turtle>

Gear Judging Study Guide - Tents, Sleeping Bags, and Camp Stoves

In 2011, an estimated 42 million Americans went camping. Those campers spent a staggering 534.9 million days camping! There are many different types of camping experiences, each varying in time, terrain, season, and purpose. Properly preparing for a camping trip is probably one of the most important aspects of making the experience enjoyable. With this many people and time spent in the outdoors, it is important for each person to equip themselves with the best and most appropriate equipment available.

Three essential camping equipment items presented in this study guide are tents, sleeping bags, and camp stoves. With advances in technology over the last century, each item has improved in construction and purpose and is no longer a “one size fits all” product. To ensure a fun camping experience, consumers should become familiar with the many differences in the equipment before making purchases.

TENTS

A tent is a portable shelter constructed of a fabric and supported by poles, with lines securing the structure to the ground. Today’s tents are built in/for a variety of shapes, seasons, sizes, weights, features, and purposes.

Seasons

- Three-Season Tents are designed for spring, summer, and fall. These have a variety of ventilation options and are typically made of thinner, less durable material than four-season. It is best used in mild to hot climates.
- Four-Season Tents are built to provide better protection from snowfall and wind. Venting is minimal and the material is tougher than three-season. The season type is a bit misleading in that these tents are really designed for one season, winter. This type of tent may not be suitable for hot climates due to its limited ventilation.

Size and Weight

One of the biggest factors in selecting a tent is its size. Size is usually quantified by how many people can sleep on the floor. This is typically depicted by a “person” rating. As an example, a tent may be described as capable of sleeping 4 people. Keep in mind, this rating does not take into consideration any gear that may also need to be stored in the tent. An alternative means of determining the best tent size is to estimate the amount of floor space needed by the camper(s) and match that to the floor space (noted by dimensions or square footage on the packaging) of the tent being purchased.

With size also comes weight. Factors that affect weight are the size of the tent itself, the type and amount of material used, and the tent’s features. Weight is an extremely important factor to consider when camping in more remote locations (i.e., backpacking or wilderness camping) and the camper is hauling the gear on foot to the campsite. Weight is less of a factor if the camper is “car camping” (parked close to the campsite) or using a horse or ATV to haul the gear.

Features

Today's tents come with a variety of available features that help make your living space more enjoyable and comfortable.

- Rain fly: a removable, water-resistant outer wall made of cloth that helps protect the tent from rain. Rain fly's come in two categories: full-length and partial. Full-length extends almost completely to the floor and provides the most protection. Partial covers the mesh panels at the top of the tent and offers more ventilation than the full-length.



- Vestibule: a floorless “porch” usually created by an extension of the rain fly. Its purpose is to provide a semi-protected transition area between the tent and the outdoors. It is often used as an area to remove wet or muddy shoes.
- Door: a cloth door panel that is often secured by a zipper. Some tents have multiple doors to allow easier movement in and out of the tent.
- Poles: a rod made of aluminum, fiberglass, or carbon fiber that helps provide shape and structure to a tent. Fiberglass poles are found on inexpensive, light-duty tents (cheaper, heavier, and less durable than the other two). Aluminum poles are strong, light, and inexpensive. Carbon fiber poles are found on high-end tents. These are very light and strong, but are the most expensive to replace.
- Panels/Walls: the inner cloth canopy that is made up of a solid and/or screened (mesh) material. A solid, waterproof wall can provide protection from rain, but provides less ventilation inside the tent. A screened wall allows for better airflow in and out of the tent, but does not prevent rain from entering the tent. A hybrid design that uses a mixture of solid and screened material helps reduce condensation inside the tent. Tent fabrics usually have a waterproof rating associated with its polyurethane-coated fabric. Higher values are associated with better waterproofing capabilities. For example, a rain fly with a rating of 2,500mm is more waterproof than 1,000mm. Keep in mind, the higher the rating (more coating), the heavier the tent will be also.
- Windows: typically made of screened (mesh) material; it allows air to flow in and out of the tent while also minimizing entry of insects or other critters
- Floor: a fabric component of the tent that is made of more durable material than the walls. The floor must hold up against the weight of its occupants and contact with the ground.
- Footprint: a durable material (also called a ground cloth) that is placed under the tent to provide extra protection from abrasion and moisture. A footprint will also help extend the life of the tent.

SLEEPING BAGS

Camping is all about enjoying the great outdoors, but while you're fast asleep in your tent, comfort is probably the number one priority. Having the right sleeping bag can make all the difference in getting a restful sleep. Below are three of the most important factors to consider when purchasing a sleeping bag.

Temperature Rating

The temperature rating indicates the lowest ambient temperature that the average user would still remain comfortable at inside the sleeping bag. For example, a rating of +35°F means that the average person would remain comfortable inside the sleeping bag at 35°F or higher. In selecting the ideal bag, select one that is rated for the coldest temperature expected.

Insulation Type

Most sleeping bags are insulated with either a synthetic polyester fill or goose down.

Type	Advantages	Disadvantages
Synthetic	Insulation when wet Dry fairly fast Easy to clean Less expensive Non-allergenic	Heavier Bulkier Shorter age Doesn't conform to body as well
Down	Warmer ounce for ounce Lightweight Highly compressible Longer age Wicks moisture	Useless when wet Slow to dry Requires special cleaning May contain allergens More expensive

Source: <http://wildbackpacker.com/gear/sleeping/buyingguide.html>

Shape and Size

The most common shapes (in order of largest capacity to smallest) are rectangle, semi-rectangular, and mummy. Of the three, mummy shapes are smaller and typically lighter weight, ideal for backpacking. To compare sizes when purchasing, check the shoulder and hip girth specifications. Lengths come in "regular" or "long". Long is recommended for individuals 6' 6" or taller.

CAMP STOVES

Size and weight

Camp stoves come in a variety of arrangements, fuel types, and accessories. Stoves can range in weight from a few ounces to several pounds. Select a stove that minimizes weight and volume when backpacking. Be sure to factor in the weight of the stove's fuel. If car-camping, size and weight are less of a factor.

Burners

Stoves are designed with single or multiple burners. Single-burners are best for simple meal preparations such as boiling water, or a single can/pot of food. Multiple burners are ideal when preparing large meals that require more than one burner going at a time. Single-burners weigh less, and are the burner of choice for most backpackers.

Fuel Type – Cartridge vs. Liquid Fuel

- Cartridge Stoves use compressed gasses such as propane, butane, or iso-butane that come in their own container. These are typically lighter in weight, require less maintenance, and burn cleaner. Butane does not perform at temperatures below freezing (32°F). Stoves are sold as a burner that attaches to the top of the cartridge, and the cartridge serves as the stove's base. Canisters cannot be refilled.
- Liquid Gas Stoves have a refillable fuel tank that is typically filled with white gas or kerosene. These stoves work better in cold and windy conditions than cartridge stoves; however, they are more difficult to use and require more maintenance. Liquid fuels are heavier than the compressed gas fuels.

Sources:

- <http://www.outdoorfoundation.org/pdf/research.camping.2012.pdf>
- <http://www.dickssportinggoods.com/info/index.jsp?categoryId=13083851&infoPath=222977>
- <http://www.hoac-bsa.org/Data/Sites/1/media/districts/pioneer-trails/documents/PT%20Tent%20Terminology-Oct10.pdf>
- <http://www.backpacker.com/tent-buying-guide/gear/15054>
- <http://www.cabelas.com/product/Tent-Buyers-Guide/531790.uts>
- <http://www.sierratradingpost.com/lp2/tent-guide/>
- <http://www.outdoorfoundation.org/pdf/ResearchParticipation2013.pdf>
- <http://www.rei.com/learn/expert-advice/sleeping-bag.html>
- <http://wildbackpacker.com/gear/sleeping/buyingguide.html>
- <http://www.dickssportinggoods.com/info/index.jsp?categoryId=222944>
- <http://www.consumersearch.com/camping-stoves/how-to-buy-a-camping-stove>
- <http://www.basspro.com/webapp/wcs/stores/servlet/CFPage?storeId=10151&catalogId=10051&langId=-1&mode=article&objectID=33166>