



Archery

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About the Tutorial

Archery is a bow and arrow game where each player is supposed to shoot arrows from a bow and hit a fixed target. This tutorial explains the basic necessary things for the game and allows the reader to understand a bit about the game and the playing steps. There is information regarding the conditions that are required to participate in professional tournaments while playing the game.

Audience

This tutorial provides guidelines for readers of any age group who would like to learn how to practice archery. The material is suitable for teaching everyone something about the game.

Prerequisites

The only thing required by a player to learn this game is the willingness to participate in the game and a keen interest in knowing its rules.

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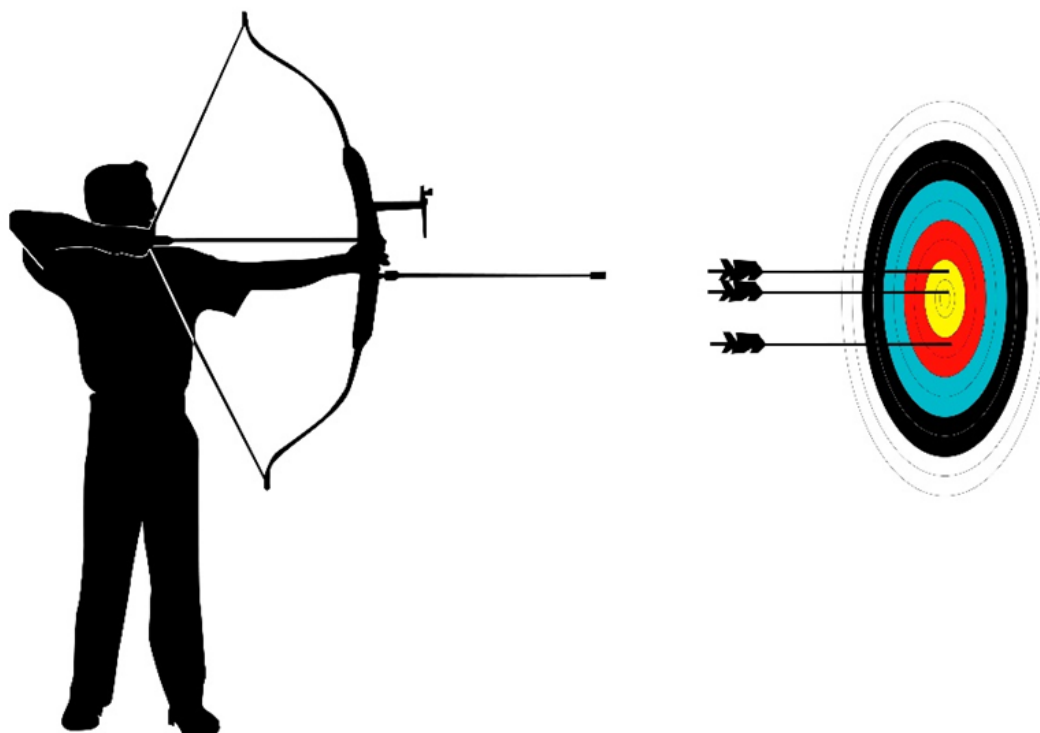
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1. Archery – Overview

Archery is termed as a practice-sport, which means that it is more of a practice-oriented skill of using bow and arrow. Propelling an arrow with force through the air has only recently been considered a sport but it was always a very important hunting practise in olden days.

Historically, archery has been used for hunting and combat purposes. But in modern times, archery had become a recreational and competitive sport. A person who indulges in archery is known as an **archer** or a **bowman**. An expert in archery is known as **toxophilite**.

Archery involves using a bow to shoot arrows at a stationary target. There are ten concentric circles that represent different tracts on the circular disk used as the target. The scores are dependent on the area of the circle where the arrow hits. The objective is to shoot the target with an arrow. The bow string will be stretched after placing the back-end of the arrow for initialising an input force which throws it towards the target.



Team Size

Generally, the game is played alone where individuals practice shooting the target or the concentric circles. However, as per the interest of the event-conducting company, the levels and types are decided and finalized. A team of 5-10 members can be formed, where they will together try to out-score the other teams by making points. The arrows contain a soft material at its tip to avoid causing any injuries to the players.

Participating Countries

When the Olympics started, archery found its position high in the list of sports. Since then, many countries have fought for the world championship, however when it comes to serious contendership, only a few countries fight for the top position. Among all the competing nations, South Korea stands top in the list with 19 gold medals, 9 silver medals, 6 bronze medals and a total of 34 which was the highest of all.

The list of other countries participating in Olympics archery is long and the number includes nearly all the countries in the world-map. The countries having at least one Olympics medal in Archery are: South Korea, United States, Belgium, France, Great Britain, Italy, China, Soviet Union, Finland, Ukraine, Australia, Netherlands, Spain, Japan, Sweden, Chinese Taipei, Germany, Mexico, Poland, Indonesia, Unified Team and Russia.

2. Archery – Playing Environment

Ground Design

Archery is played on various types of fields according to the type of game. Ground archery requires a ground and a target. Well, other types of archery include Bow Hunting, Traditional Archery, 3D Archery, Field Archery, and Target Archery.

- **Bow archery** involves hunting animals using bow and arrow. It is the oldest-known form of archery and one of the most ancient hunting techniques. Long-range grounds are used for this of game play.
- **Traditional Archery** varies from country to country. The type of bow used in traditional archery varies according to the nation, following some ancient techniques. This is the reason this form of archery is called traditional archery.
- **3D archery** tournaments provide for a non-violent version of bow archery with the use of modern technology, where the archers are instructed to train their arrows on 3D form of animals for shooting. The game provides a wooden walk or open course. This ground design is recommended by International Bow-hunting Organization.
- **Field archery** is played on a roving course which was set through the woods. There are paper targets ranging from 20 to 80 yards. It is one of the most exciting forms of archery and gives a feel of the old days of hunting.
- **Target archery** was featured in the Olympics Games. It consists of shooting bull's-eye-style, multi-coloured target at certain distances. Different disciplines of the game has different grounds of play.

Dimensions

The most frequently-specified distance for shooting a target is between 20 to 80 yards. In Olympics, target archery has a length of 18meters, i.e., about 20 yards indoor and between 30 to 90 meters outdoors. It depends on age of the archer and the style of equipment.

3. Archery – Equipment

The basic equipment required for Archery in Olympic Games are as follows:

- **Armguard** - A guard for protecting the arm from bowstring when the arrow is being released.
- **Arrow** - Arrows have maximum diameter of 9.3mm, although most arrows around 5.5mm were used for a faster flight and a lower wind drift.
- **Bow** - The draw weight of the bow for men should be around 22kg and for women it's around 17kg.
- **Bowstring** - It is used for the bow. Mostly, the string is made of high-tech polythene which is generally stronger than steel.
- **Chest guard** - Plastic or leather is preferred, to put clothes away from the bowstring while releasing it.
- **Shooting glove or Finger tab** - Leather cloth for protecting finger while releasing the arrow.
- **Fletching** - To fly straight, a feather type material is put at the end of each arrow.
- **Handle or Hand grip** - The bow handle.
- **Quiver** - A container worn around the waist for holding the arrows.
- **Nock** - The rear end of an arrow is attached with a plastic holder that keeps the bowstring in its position.
- **Sight** - A machine placed on the bow that aids the archer's aim. Other name is bow sight.
- **Stabiliser** - Weight on the bow mounted to stabilise it during and after the shot.
- **Target** - The target provided in the Olympics is 48inch in diameter, at 70meters away from the archer. The centre of the target is 1.3 meters above ground. There are 10 rings of which the centre ring is of 4.8 inches in diameter. Another ring of 4.8inches in diameter which serves as a tie breaker in the qualification of world record is also placed as the target.

4. Archery – Terms

Before taking a bow into the hand and throwing an arrow towards the target, it's mandatory to learn a few terms in the field of archery for grasping little knowledge about the game and its features.

- **Anchor Point** - The point to be touched by the string before releasing the arrow.
- **Archer's Paradox** - The effect generated by flexing of an arrow when it leaves the bow.
- **Bow fishing** - Using archery to catch fish.
- **Bow hunting** - Implementing archery in hunting and the practising of hunting.
- **Broadhead** - A sharp-bladed hunting head attached to an arrow.
- **Bullseye** - The centre of a target, for which hitting scores maximum points.
- **Clout Archery** - A discipline in archery to shoot at a flag. The closer arrow scores maximum points.
- **Crest** - Marking on an arrow used for design or identification.
- **Crown** - The nock end of the arrow where it is coloured.
- **Daikyu** - Term used by Japanese for longbow.
- **Drawing** - The pulling of the bowstring to an extreme stretch.
- **Dry loosening** - To loosen the string without an arrow, causing damage to the bow.
- **End** - A round in which arrows are shot.
- **English Longbow** - A powerful bow during medieval period.
- **Field tip** - Head for practising against the targets.
- **Fistmele** - A good distance or the balancing height between the bowstring and bow handle.
- **Flu-flu arrow** - A short range arrow that was specially designed for practising.
- **Footed arrow** - An arrow along with a shaft of two types of wood.
- **Game** - Wild animals hunted for sport or food.
- **Gungdo** - A practise followed in Korea for the archery game.
- **Hen feather** - Name for shaft feather which was misunderstood for cock feather.
- **Horse archer** - An archer sitting on a horse.

- **Index fletching** - A coloured fletch for indication of proper alignment of arrows.
- **Judo point** - A target and also a small game head designed with springs for a better location.
- **Kisser** - Button indicating vertical distance while a bow is drawn.
- **Limb** - Lower and upper arms of a bow.
- **Longrod** - Rod on the bow attached to sustain vibrations.
- **Mongolian Draw** - To draw a bow using the thumb.
- **Nock** - To set an arrow to a bow.
- **Overdraw** - The situation when the bow is too large for the bow string.
- **Plunger/ Pressure Button** - Device for correcting the flex of an arrow during its release.
- **Poisons** - Toxics added to arrow heads to enhance the hunting impact.
- **Quarrel** - Also known as a bolt, it is a crossbow projection.
- **Recurve bow** - A bow, where the unstrung tips curve farther from the archer.
- **Release** - To relax the drawing hand fingers to free the arrow.
- **Riser** - The section for handling the bow.
- **Safety arrow** - Wide tip or padded head arrow, generally used for re-enactment.
- **Self-bow** - Bow made of single material.
- **Shaft** - The most important of all structural parts in an arrow.
- **Spine** - Stiffness in the shaft of an arrow with flex contraction.
- **Stave** - Wooden material used in making a bow.
- **Tab** - This leather latch is worn for the protection of fingers.
- **Target archery** - From different distances, shooting a steady target.
- **Target shooting** - A competition of using projectile weapons for testing expertise in archers.
- **Tip** - Top end of the bow, differentiated from arrow point.
- **Upshot** - The archery contest's last shot.

- **Vane** - The fin of an arrow that stabilises the motion.
- **Wand shoot** - Event where players shoot arrows at soft wooden slat of 6' tall and 2" wide.
- **Yumi** - A Japanese bow, mostly asymmetric, and consists of both short and long types.

5. Archery – How to Practice?

There are steps to learn archery. Any amateur can easily be proficient in this game but to learn it, play it, and be a better sportsman, archery needs to be practiced regularly and under supervision.

Let us go through the basics of how to play and grasp the joy of archery.

Requirements

Every player who is willing to take part in archery should make sure their vision is sharp and that they can see the target. This has to be the first step to consider for any archer. As the targets are far away and very small, it takes keen observation power to hit the target.

The other things needed are a bow, arrows, and guards for protecting various body parts from hurts and injuries during the game.

Costumes and Equipment

Mostly, the players suffer minor injuries on their wrist areas and fingers when they release the arrow. Hence, protection for arm, fingers and chest must be put on before entering into the game.

Choose a bow that is suitable for you, and is comfortable in your grip. Arrows are prefixed with some length and sizes. Once you select one, get ready to launch the first arrow.

Before You Start

The first step to do before you get started is to stretch the body. Stretching is compulsory to avoid a pull of the muscle. To avoid any injuries that might hurt the arms, elbows, and shoulder muscles and result in severe pain, the players are advised to do some basic stretching before the game.

All dangling objects including earrings, loose clothing should be removed. If the player possesses long hair, it should be tied back for precautions.

The next step is placing the arrow in the dent attached to the string. The string is generally made of synthetic material, so fingers need a tab for protection from minor cuts. The rubber-rest holds the arrow over the bow and it's the responsibility of the player to make sure that it clicks the rest. The arrow must not come loose.

How to Hold the Arrow

While the arrow is on the dent and the string is stretched, make sure that index finger is placed above the arrow, with the middle and ring fingers below the arrow. The little finger and thumb should be placed away. Make sure they never touch the string. This enables the free movement of the arrow without putting any pressure on it.

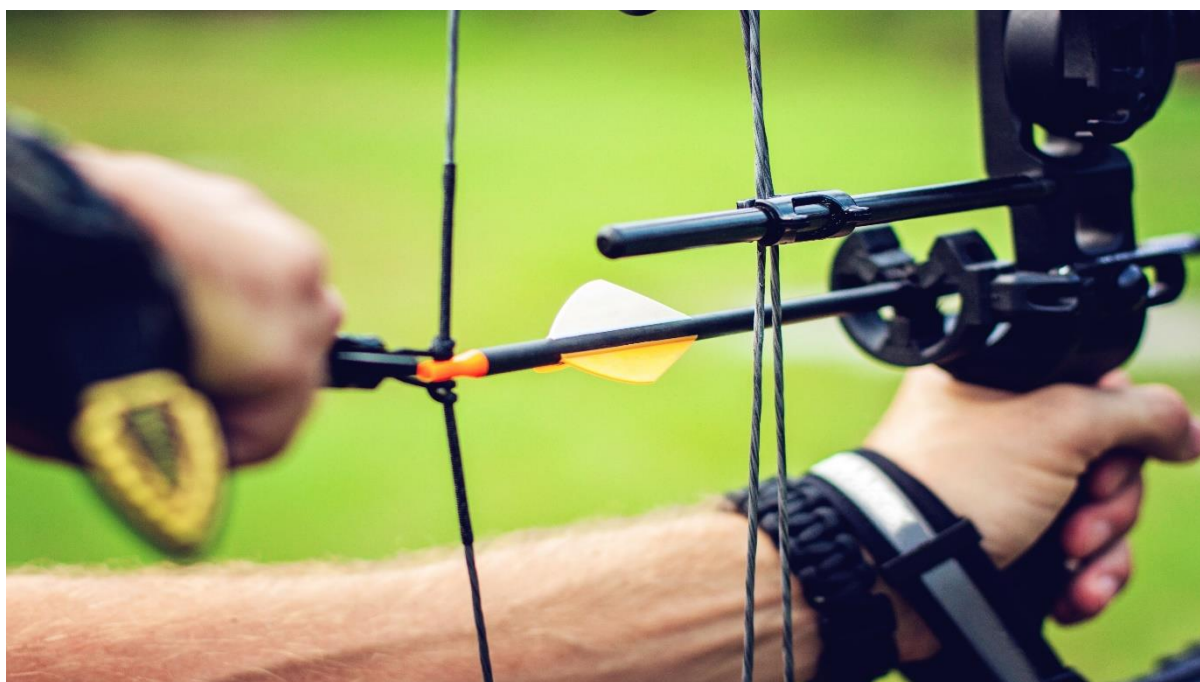
Now it's time to release the arrow. Gently, the string should be pulled back such that it touches the tip of your nose and your hand is below your jaw. If you feel your muscle tensed, then ease it back and make sure to warm up the muscle and your arm.

Aiming

There is a sight located on the bow for aiming the target. Learn to use the red dot that is in the middle, and the picture which is at the centre of the target. Never hold the stretched string for more than 4 seconds.

This may end up in losing the target and stretching a muscle, causing severe pain and shivering in the hand. Try using the back muscle instead of the arm, for holding the bow. Try to close the left eye to avoid any distraction in locking a view on the target.

Now, slowly ease your fingers away from the stretched string, and maintain a stance while the arrow whistles through the air. To loosen the muscle, try to breathe three times after releasing the firm grip.



Make sure that during the first few attempts, your instructor stays beside you to teach you the basic necessary steps. However, some basic steps can be achieved only through practise and personal advice. The best archers were once beginners and would happily tell you that this sport works on the principle of striving for perfection. The attitude must be to learn, rather than compete.

Only after a great deal of practise, the art of archery can be mastered. After going through the basic level training, make sure these skills are practised well, acquainted and applied with every arrow that is shot from the bow.

Scoring and Winning

There are two types of scoring in archery that depend on the level of game conducted. They are 5-zone and 10-zone scoring:

- **5-zone Scoring** – In the former one, the target is divided into 5 different coloured zones and points are awarded according to the level the arrow hits. This method is followed in GNAS rounds and the distances are measured in yards.
- **10-zone Scoring** – The 10 zone is divided into 10 scoring zones, where each colour is split into two parts the inner ring and the outer ring. For world archery,

10-zone scoring method is used. This is used in most indoor archery and the length is measured in meters.

The scoring is in even number order. The image shows the location wise scoring given to the landing of arrows.



5 Zone: GNAS (imperial)
Scoring by colours
GNAS Rounds



10 Zone: World Archery (metric)
Scoring by inner and outer rings
World Archery Rounds

How to Aim the Traditional Bow

The modern bows have sights and other equipment that help the archer to locate the target with ease and deliver the shot better, which results in a better performance. While using a traditional bow, archers find it difficult to target a point as it doesn't allow any of these extra features on the bow.

The instinctive shooter's focus should be especially fixed on the target. We know that peripheral vision can pick up cues that are away from the target, but an intent and focused mind doesn't take a note of them. A reference shooter may explain the aiming reference, but that cannot be expected from an instinctive shooter.

Reference Methods

All reference methods are based on determining the point where the bow setup is placed while shooting. The point on distance is where the trajectory of arrow and the shooter's line of sight shall meet. This point on distance varies from shooter to shooter.

The point on distance has an impact by the following features like arrow length, arrow speed, hold on the string, anchor point, etc. Shooters who love targeting long distances develop longer point of distance to lower the hold on far targets.

Split Vision

The split vision is the awareness of arrow shaft and adjusting to the wind-flow. Referring to many shooters, this split-vision is merely based upon the sight picture. Under a keen observation, the arrow and the riser are aligned in such a way that they line up to the target.

Various Gaps Method

The visual gap actually can be the distance between the shooter and the target itself. This depends on the shooter's knowledge on the arrow's trajectory at various timeframes till the point on distance is reached. Most archers pick up a point either above or below the target to coincide with the amount of trajectory that the arrow needs to compensate for gravity, while taking the arrow to the specific spot.

Pick up a Point

In this system of shooting, the archers select a point on the target and also calculate the trajectory of arrow, how high or low the arrow makes an impact along the path. This is same as gapping the target. The major difference is only the focus which remains constant. In a whole, the shooter tries to hit a certain spot using the point, but the trajectory takes it to a location slightly above or below the point.

Short Gap

In this method, the archer visualizes the target as a spot slightly above, or directly in front of the arrow. It seems like painting while the arrow is actually the brush. This is a bit harder to few people as the brain visualizes in 3D and the target needs to be seen as a picture.

Shaft Gapping

In this method, the archer needs to know how to use the diameter of arrow shaft. The shooter utilizes the arrow shaft to measure the gap towards the target. This is mastered through vigorous practise that includes observation and concentration.

6. Archery – Precautions

Most people have a misconception that because they aren't firearms, bows can be carelessly handled. But like guns, arrows can also be misused and can cause serious damage to the archer himself or people around him. Odds are that most people who are regular users of the bow have been slapped by their bowstring at least a few times, but there are much worse things that have happened.

Some of the potentially lethal mistakes and do-not are listed below:

- The torque in the bow tends to break the string. The string should be in alignment with cams and any twist in the positions can break the string, causing a slap over the wrist and arm. Be careful while stretching the bowstring.
- Be sure the arrows are flexed before they are used. The carbon arrows, especially the new ones should be flexed because the damaged arrows have a greater chance of breaking when they are shot. This may send splinters into the shooters face causing injuries. Some broken arrows may get into the hands and pierce through the skin.
- Improper hold over the release may result in some bruises, so the archers need to make sure that they hold the bow correctly. Also, the draw-length should be maintained with proper calculations, depending upon the string material, the material used for the arrows, etc. and torque on the bow and string.
- Never shoot straight up. It is an obvious observation that should never be ignored. Remember, everything that goes up should come down. And if an arrow is launched straight upward, it may result in hitting you before you run away from the initial position.
- Never dry-fire a bow. Stretching and releasing a bow string without an arrow is one of the worst kinds of act to be performed while holding a string. Not only it damages the string, but also, it may hurt you at places where the bowstring generally doesn't hurt. So be careful and try not to be foolish.

Knowing the target and the environment around it helps you to prevent hurting others. Check the surroundings; especially, what is present behind the target. Safeguarding helps not only yourself, but also people around you.

7. Archery – Variants

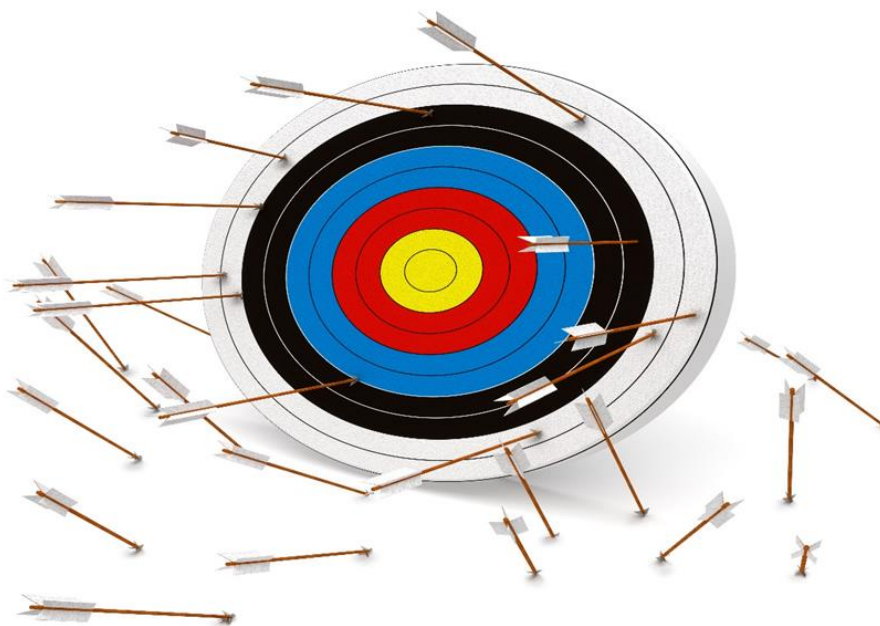
Archery is a sport for shooting a target both moving and stationary based on the type of game, by using bows and arrows. This can be achieved in a lot of ways, but predominantly there are three things that the game provides to its players: challenge, fun, and addiction. It's also a good workout for the upper body and in outdoor shooting, walking to pull arrow towards the target actually provides a good exercise for the cardio.

The types of archery people like to engage themselves and enjoy are:

- Traditional Archery
- Target Archery
- Field Archery
- Bow hunting
- 3D Archery

Target Archery

This kind of game is generally played in the Olympics by shooting at a target with a bull's eye, a variety of coloured targets at a length. The standard length is 18 meters indoor and 30-90 meters outdoor. The length depends on the age of the archer and the equipment style. It has its own championship events and popular world cup series. It is internationally facilitated by World Archery.



Field Archery

For nature lovers, this sport provides a roving course that was been set through woods. The paper targets are 20 to 80 yards away from the shooter. This discipline is preferably chosen by nature lovers, for the benefits of hiking in the game. Indoor field archery is also available as special events in this game.

3D Archery

In this event, the competitors walk on wooden or open course, shooting at some 3D animal shapes at different lengths. These are conducted by International Bow hunting Organization (IBO) and Archery Shooter's Association (ASA).

Traditional Archery

This variant of archery comes in different forms in different cultures. For some, it's basically shooting with a long bow without stabilizers, sights or any other tuning equipment. In this scenario, archers prefer carbon fibre arrows or synthetic strings. Some other choose short bows and arrows made of natural materials like wood, horn and bird feathers, etc.

Some classical traditional bows are as follows:

- Longbow (English)
- Kyudo (Japanese)
- Recurved Composite (Mongolian)
- Flatbow (Native American)
- Selfbows (Africa, Central and South America, Oceania, Australia)

Bow Hunting

It requires a license issued from the state government and is allowed only during few seasons. Mostly, they start in the end of September or beginning of October and may extend from few weeks to four months. Bow hunting seasons have a longer time than gun hunting seasons.

Learning bow hunting can boost your archery skills. Most people take up bow hunting without actually hunting anything. A lion's share of hunters believes bow hunting is a more fun and sporting than actually hunting with a gun. But bow hunting requires pro-level archery techniques, good concentration, patience, and most importantly- being acquainted with hunting.



It isn't a surprising fact that bow hunters subscribe themselves to the rules of hunting and fair chase, and they predominantly hunt for food. It is a very ancient trick to surviving and still exists with several tribes in Africa and other countries. They are not trained professionals but experts in their field of archery.

Hunting generally involves compound bows. In compound bows, strings are wrapped around with the help of cams. The arrows released by a compound bow is much faster and accurate than normal bows. They have sights that aid an archer to visually assist aiming the arrow. The amount of torque released by a compound bow is much higher and the archers should be wearing a protection for both arm and chest.

8. Archery – Tournaments

The world archery rankings is a system developed by the World Archery Federation held for international competitive archery. It is calculated by the total number of points earned by the archer to choose the world champion. The first championship was conducted in 2001 and there were updates in the ranking system during 2010.

Currently, the ranking system is maintained for:

- Recurve Archery
- Compound Archery
- Para archery
- Nations

Other competitions and tournaments were held in the world are Olympics, World Archery Competitions, Continental Championship, and other tournaments.



The ranking is based on the size of team and participation of each player in the team. In India, 8th national mini-competition is going to be held in February, 2016 by the Archery Association of India. This will take place in Visakhapatnam.

9. Archery – Champions

In 2015, the world archery championship celebrated its 48th annual competition. The games were held at Denmark from 26th July to 2nd August, 2015 which were organised by World Archery. This competition has the same rules as those in the former championships that took place under the reign of world archery. It consists of Individual, Team and Mixed team events in the recurve and compound events. A total of 623 archers had participated across these four events.

In the 2015 competitions, for various events the winners are:

- Men's individual – Kim Woo-Jin of South Korea.
- Women's individual – Ki Bo-bae of South Korea.
- Men's team – Kim Woo-Jin, Ku Bon-Chan, Oh Jin-Hyek of South Korea.
- Women's team – Tuyana Dashidorzhieva, Ksenia Perova, Inna Stepanova of Russia.
- Mixed team – Ki Bo-bae, Ku Bon-Chan of South Korea.



The world champions in archery are Kim Woo-Jin and Ki Bo-bae of South Korea. South Korea leads the list with maximum number of winners too.