Education Material on 3 Outdoor Activities/ Environmental Education

Interreg
Greece-Bulgaria
European Regional Development Fund

EUROPEAN UNION

CB WATER GEOPARK

"Let the rivers talk, the rivers run, Once more and forever"

"Let the mountains talk, the rivers run. Once more and forever"

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Municipality of Hadjidimovo

ЦУРП
Center for Sustainable Development of the Mountain

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Interreg Greece-Bulgaria
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Beneficiary of the project entitled
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Municipality of Hadjidimovo

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Within the framework of the WP5 D5.2.2 deliverable, entitled "Material on 3 Outdoor Activities (Greek area)" and in charge of Mr. Trigonis, the following have been realized: Collection of the necessary scientific literature on the organization of recreational leisure activities. This material will be used to train and implement the three (3) recreational motor activities. In particular, articles and book chapters have been collected that have to do with the following:

Specifically, the material under construction refers to the recreational activities that can be implemented in the Geopark. Activities that can be attended by tourists, that are environmentally friendly, and that can make the area even more attractive. The most suitable activities are canoeing, climbing and archery. These are motor recreational activities that can be participated by people even with moderate physical condition, as well as from a wide age range. At the same time, the above actions do not burden the river and the environment, as they need minimal interventions to be implemented.

Canoe

Canoe was originally used by the North American Indians to move in lakes and rivers, hence the name Canadian Canoe, and was made from tree trunks. Kayaks were used by the Eskimos of Greenland, who were originally made of leather. The use of boats in both cases was intended to move goods and find food. In 1865 the Scotsman John McGregor embarked on a lake and river cruise with a canoe he named "ROB ROY" became the inspirer of the sport. Finding many supporters, the sport develops and evolves, ending up in June 1924 being presented as a demonstration sport at the Olympic Games in Paris.

At the same time, the first International Federation was created under the name "Inernationalla Representantskapet for Kanot-Idrott" (IRK). In 1933 the 1st European Calm Water Championship is organized in Prague and is part of the program of the Olympic Games in 1934. The first official premiere of Canoe-Kayak Flatwater takes place in 1936 at the 11th Olympics in Berlin with the participation only in the men's categories while in 1948 it takes place. the entry of female categories. In the same year we have the renaming of IRK to ICF "International Canoe Federation". Canoe-Kayak Slalom while taking its first steps in 1932 in Switzerland the outbreak of World War II delays its development. He reappeared in the spotlight in 1949 with the organization of the 1st World Slalom Championship in Geneva. It was first included in the Olympic Program in 1972. After a 20-year absence from the official Olympic program, it reappears at the Barcelona Olympics in 1992 at the La Seu d 'Urgell artificial track and has since been established as an Olympic Sport.

Types of boats and equipment

Canoes and kayaks today are made from a variety of materials and have many different uses. The construction materials are usually plastic and fiberglass. Their length ranges from 2 ½ to 4m. and are mainly used for leisure and sports. The oars are the main tool in the kayak canoe and can be single or double. They are made of different materials (wood, aluminum, plastic) and combinations (eg, aluminum for the main oar (trunk) and plastic for the fins). They can be one-piece or split. The latter can be assembled and disassembled into two or three pieces, which makes them more convenient to transport and store. Split oars usually play the role of backup paddle that we should have with us and not the main

paddle, for security reasons. The paddle is under constant pressure and must be or become compact and durable. The oars are 1.5 meters long for oars with a spoon up to 2 2 meters for oars with two spoons whose fins can be symmetrical or asymmetrical.

Asymmetrical are the fins whose edge at its end is oblique. They give a smoother rhythm to the rowing pulse because, when immersed in the water, the twisting of the paddle in our hands is reduced. Another element of oars is the parallelism of the fins. In the old classic oars, the fins were parallel to each other. This type of oars has a disadvantage: if the wind blows, the fin that is out of the water shows resistance, and thus reduces efficiency and increases fatigue. For this reason modern oars have their fins at an angle that can reach 90 degrees, that is, when one fin is in a horizontal position, the other is in a vertical position. Thus, when one paddle is in the water, the other fin does not resist the wind. Paddles of this type are called feathered. But they need some practice because the rower has to rotate the paddle for the next one with each movement of the wrist.

Canoe Boat where the athlete is kneeling on a special pillow. It uses a paddle with a ladle, which is proportional to its height and paddles only on one side. The Canoe has no rudder, the course is held with the oar. Canoes are light, elongated boats without keel, which move with the muscular strength of one or more rowers. Flatwater boats use a rudder with which the athlete steers the boat with his foot. The symbol used internationally for Kayak is Kayak. Kayaks are smaller in size than canoes, with a pointed bow and stern and usually with a single opening. There sits the rower who uses a double one-piece paddle, with his legs spread out and tucked in front. Thus, its body from the middle and above seems to be an extension of the boat.

Literally kayak means "hunting boat". The rower wears a waterproof spray skirt around his waist which is attached to the kayak, covering the opening and preventing water from entering the boat. The kayak due to construction is very light and flexible. But it "swells" easily. The rower in this case has two options: he can make a rotation in the water (eskimo roll), using the hips and the paddle and come back to the surface, or get out of the kayak, return it to its normal position, to empty it of water and get back into it. The basic equipment in both sports is boat, paddle, apron. In Slalom, athletes wear helmets and life jackets. FLATWATER Races The Canoe-Kayak Flatwater is a very exciting race of speed, strength and endurance in which athletes compete face to face in natural calm water lakes (lakes-seas) or artificial. The aim of a Canoe-Kayak Flatwater race is to cover a predetermined distance without any obstacles, in the shortest possible time, according to the regulations. The track consists of 9 runs 200, 500 and 1,000 meters long and with a net width of at least 9 meters. Canoe-Kayak Slalom is an exciting sport that takes place on specially designed natural (river) or artificial slopes.

The purpose of a slalom race is to cross a rapidly flowing wild river on a route defined by doors, without errors, in the shortest possible time. The length of the track is 250-400 meters and consists of 18-25 numbered doors, 6 of which must be upstream. The doors in the direction of the current are green and white while the doors in the direction of the current are red and white.

How are canoes different from kayaks?

Although rowing is one of the oldest activities in the world, one rarely hears in a group of phrases such as "I can not tomorrow, I have rowing" or "should we go kayaking in S / K?" In a country like Greece, surrounded by water and full of beautiful beaches, rowing and exploring coasts, caves and small islands is an amazing experience. Rowing in a canoe or kayak has some differences and the choice of one or the other depends mainly on your personal preferences. The main differences between a canoe and a kayak are 3 and are listed below.

Design

The design is probably the most obvious difference. The canoe is open at the top while the kayak is closed covering the rider's legs. This makes it harder for water to get inside a kayak. This difference is an advantage for the kayak because it can move more comfortably in the foamy waters of a river or the sea. The kayak has as many openings as the rowers for which it is designed. The canoe is completely open at the top, a feature that creates more storage space. Also, the kayak has a lower profile, which significantly improves its aerodynamics. This makes the kayak easier to navigate in cross winds. The same is true of side currents: the kayak, because it usually has a small keel, has better buoyancy than a canoe that usually does not have a keel.

Paddles

The oars in a canoe are single with a flat spoon, while in a kayak they are double with a concave spoon. This difference is due to the lower rowing position of a kayak. The rower in a kayak sits lower than in a canoe and the single paddle is not very easy to use in this position. Double oars are generally easier to use and are suitable for beginners. They are also suitable for fast rowing, compared to single oars which are not as fast to use. This is one of the main reasons why kayaks are faster than canoes. Another feature of double oars is that they rest on the water at a greater distance from the axis of the boat than single oars. Indeed, in single rowing, the paddle falls into the water right next to the boat. In double oars this distance is greater. The longer distance results in a small zigzag in each paddle, which is a waste of energy for the rower. In a canoe, the zigzag is much smaller and the course is more stable.

Rower position

The position of the rower in a canoe is a little higher than in a kayak. This position also determines the different rowing technique in a canoe than in a kayak. As mentioned above, single rowing in the canoe creates less zigzagging. The course is therefore more accurate, while the energy loss due to zigzags is greatly reduced. Rowing in a canoe also trains more rider muscle groups thus sharing the fatigue that would otherwise burden less muscles.

General remarks - Safety

Rowing a canoe or kayak is a real pleasure and at the same time a great exercise, as many muscle groups work out. But in addition to having fun, it is important to follow all safety rules such as the use of a life

jacket, the use of a hat and sunscreen even when it is cloudy and constant hydration. Because the use of a lifebuoy is considered by many to be "exaggerated" and "annoying", it is worth mentioning a few reasons why it is necessary.

1. The life buoy is not to save you because you do not know how to bathe. You know fine swimming and you do fine longboats. Most drownings involve experienced swimmers rather than beginners and occur mainly due to exhaustion, abrupt change of weather and overconfidence. The life buoy keeps you afloat so you can get ashore.
2. It is more rare to hit (eg from falling on rocks due to a sudden wave or some other involuntary blow to the head) and lose consciousness even for a few seconds. Even in such a case, however, the life buoy will keep you afloat.
3. The life buoy reduces heat loss and protects from the sun, increasing the endurance and fun time of the rower.
4. The life buoy protects the body from hitting rocks, stones, etc. that could injure it.

The sport in Greece

In Greece, the history of the sport actually begins in 1987 with a ministerial decision entrusting the development and supervision of the sport to the Hellenic Rowing Federation (EKOFNS) with the establishment of the special Canoe-Kayak committee. From 1987-1990, an effort was made to develop the Canoe-Kayak Flatwater by training coaches-technicians in cooperation with the developed sports countries, receiving the first boats through transnational agreements-exchanges and Greece's participation in International Regattas. In 1990, the Balkan Championship is organized in Ioannina with complete success. In 1991, the Mediterranean Games are organized in Ioannina as well as the 1st Panhellenic Canoe-Kayak Flatwater Championship. At the same time, the National Flatwater Team is formed and the Greek presence in major international events with continuous success begins with timid steps. In September 1998, by decision of the GGA, the Hellenic Canoe-Kayak Federation was recognized and the sport acquired its own home. The second Olympic Sport, the Canoe-Kayak Slalom, begins at a rapid pace. The organization of the 1st Panhellenic Canoe-Kayak Slalom Championship in December 1999 at the National Training Center of Evinos is a milestone in this effort while the participation of athletes exceeds all expectations.

Canoe-kayaking in ecotourism

Canoe-kayaking is used by tour operators for their customers to cross lakes, rivers or even sail on the sea. The equipment used is the boat, the paddle (with one or two spoons), the life buoy, the helmet. The clothing that is usually needed in winter is neoprene suit, neoprene shoes, neoprene gloves, fleece long-sleeved blouse and special waterproof with neoprene finishes. Customers place their things in barrels that close airtight and can have different dimensions. Escorts carry extra pharmacy, rescue rope, multi-tool, intercom system and wear different colors from customers' clothes to stand out.

Paddling Equipment

Canoes and Kayaks

Before getting started, it is important to become familiar with common boating terminology. This will help you choose a craft appropriate for your program and teach the essentials of paddling.

Basic Paddling Terms

aft back part of craft

amidship back part of craft center of craft

ballast weight that lowers center of gravity and adds stability ahead; toward the front of craft

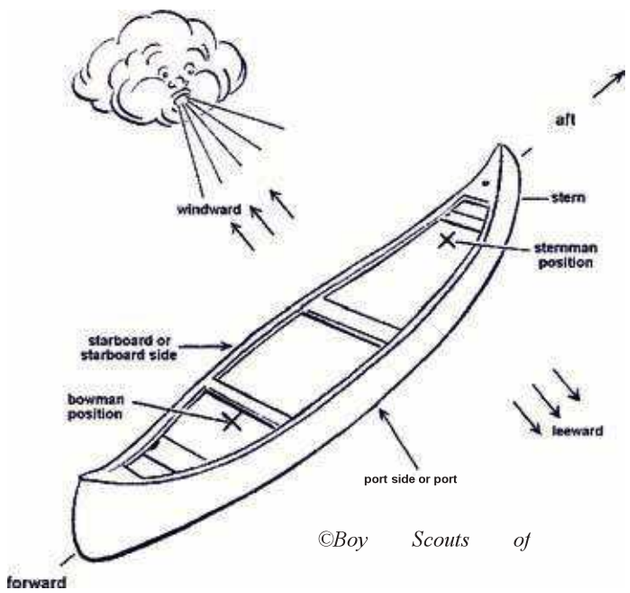
forward

onside the craft away from the wind direction

port of a maneuver in which the craft moves away from the bow; designated paddling side

powerface direction of a maneuver in which the craft moves toward the bow; designated paddling side

starboard left side of craft when facing the bow



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side of paddle blade pressed against the water during a forward stroke

right side of craft when facing the bow

back part of craft balanced from end to end and side to side; center of gravity over keels, below gunwales, and as near bottom as possible

windward toward the wind

Parts of Canoe and Kayak

Canoe

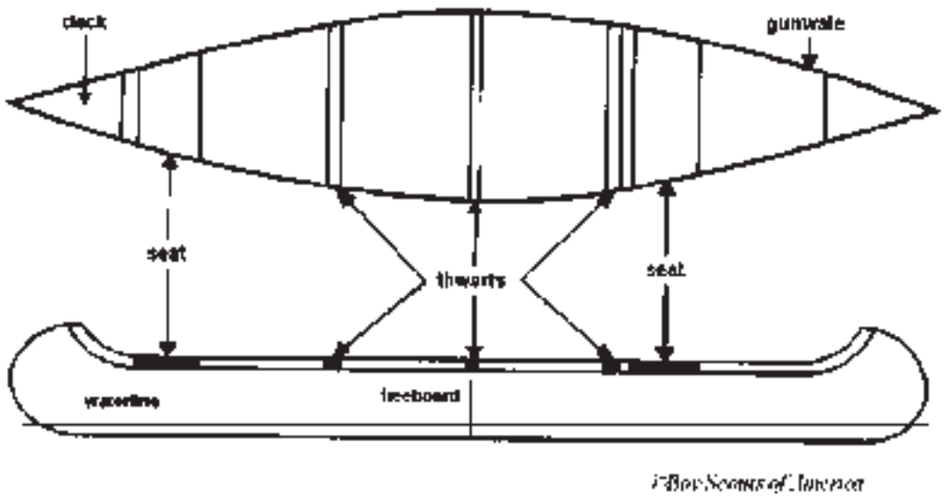
deck panels at the front and back of the canoe

freeboard distance between surface of water and gunwale at the middle of the canoe

gunwale (pronounced "gunnel") - top edge/outside rim

keel reinforcing fin that runs along the centerline of the bottom; may be inside or outside

thwarts (pronounced "thorts") - braces that reach across top



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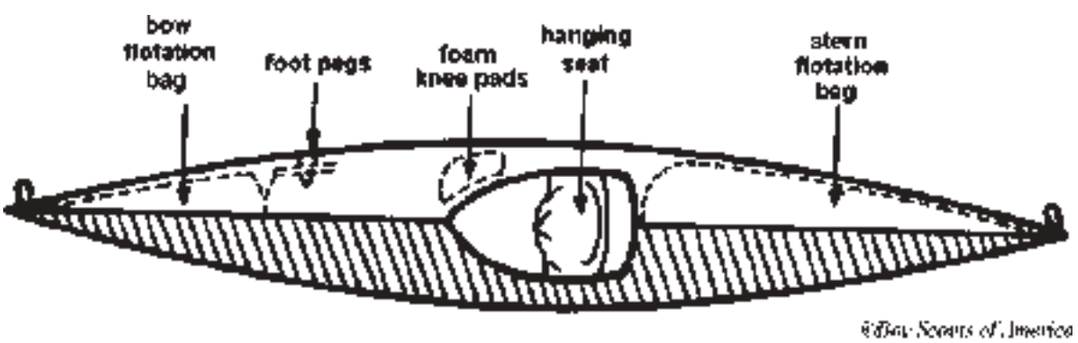
Kayak

braces/support walls	made of waterproof foam; keeps deck from collapsing onto legs from pressure
floatation bag	buoyant material that prevents kayak from filling with water
foam knee pads	protect your knees and keep them from sliding around
foot peg	used to place feet; may be adjusted to brace knees under side of deck



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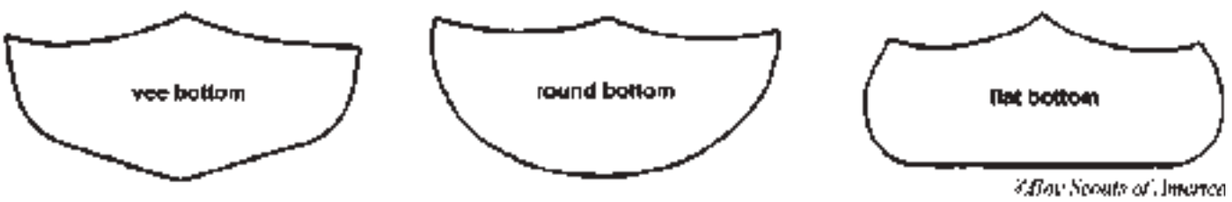
Characteristics of Crafts

Flare and Tumblehome

Flare and tumblehome refer to the shape of the craft above waterline. The gunwales of canoes with flared sides are curved outward to maximize stability. Canoes with tumblehome have gunwales that curve inward. This increases efficiency. Kayaks with a flared bow prevent waves from rolling into the craft. Modern kayaks typically do not have tumblehome.

Vees, Roundbottoms, and Flatbottoms

Vees, roundbottoms, and flatbottoms refer to the shape of the bottom of the craft. Flatbottom crafts feel stable upon entry, but may capsize easily in waves. Round and vee-bottom crafts are less stable initially, but become more predictable and controlled than flatbottom crafts. They also are easier to propel.



Types of Canoes & Kayaks

There are three basic types of paddling: sea, flat water, and whitewater. Generally, Iowa's waters are flat water (lakes/ponds or slower rivers and streams).

There are four types of canoes for flat water paddling: recreational, touring, racing, and freestyle. Flat water kayaks can be split into three types: recreational, touring, and racing.

Type	Canoe Description	Kayak Description
Recreational	designed for a variety of purposes; stable, maneuverable, durable; lower performance than specialized crafts; low maintenance; can handle a moderate amount of gear; used by most educational programs; lengths vary	designed for a variety of purposes; stable, maneuverable, durable; lower performance than specialized crafts; low maintenance; can handle a moderate amount of gear; used by most educational programs; typically >15 feet long
Touring	faster, longer, & more narrow than recreational canoes; not as maneuverable; can carry a large amount of gear; typically 17 -18 feet long	can carry large amounts of gear; handle well; most have good stability; typically 16 - 18 feet long
Racing	longer & more narrow than other canoes; more streamlined; less maneuverable & stable; used by skilled canoeists for fitness and/or racing	built for speed; asymmetrical, widest point is just behind the cockpit; most have little stability; designed for skilled kayakers
Freestyle	used in freestyle paddling (strokes and maneuvers used to create a series of acrobatic moves);usually shorter than other types; often have more secondary stability to perform difficult moves	

Materials used in Canoes and Kayaks

Today's canoes and kayaks are more specialized than in the past. Both crafts now are available in natural and synthetic materials. The creation of Kevlar® and other plastic composites have increased

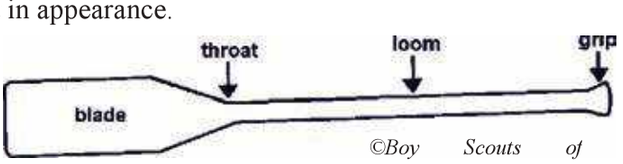
Material	Comment	Advantages	Drawbacks
Royalex®	thermoplastic laminate with plastic core	tough; excellent memory (pops back in shape if hits rocks); withstands severe impact	expensive; doesn't handle repeat abrasion (scratching) well
Kevlar®	tire cord fabric; used in bulletproof vests	very strong; lightweight	expensive; limited interior strength
Fiberglass	combinations of materials (Kevlar® included); much depends upon how built	durable; strong; lightweight	can be expensive
Aluminum	commonly used in education programs	lightweight; inexpensive; takes abrasion	shorter than 17' may paddle sluggishly; tends to "hang up" on rocks
Polyethylene	plastic; recent design includes foam core to make more durable	good durability; tough & forgiving to impact; more abrasion resistant than Royalex®	heavier than Royalex®; expensive (although less than Royalex®)
Wood Canvas	many educational programs use for historical purposes	appreciate in value; maneuverable	expensive (may be less expensive than plastics)

Cedar Strip light; attractive; strong expensive; less maneuverable

maneuverability, lightness, and durability. Paddlers can choose from a variety of materials. The following chart compares materials used in canoes and kayaks.

Paddles

Paddles are made of wood, aluminum, plastic, fiberglass, or combinations thereof. They should be light and strong. Canoe and kayak paddles are quite different in appearance.



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Canoe Paddles

Canoe paddles are single bladed. The **blade** ranges from five to eight inches wide, and from 18 to 24 inches long.

tip _

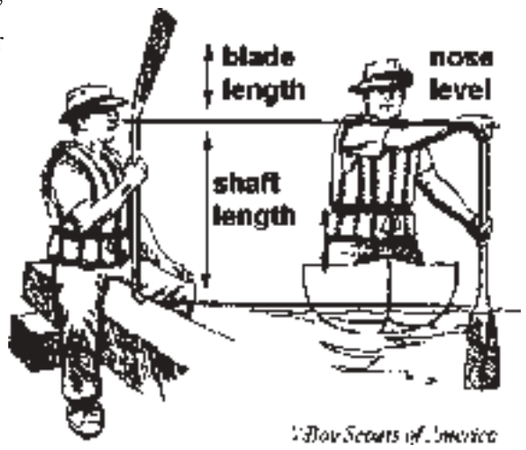
There are two types of **shafts** (a.k.a. **looms),** straight and bent. Straight shafts are easy to manipulate. Bent shafts are more efficient and powerful due to the built-in angle. This module assumes a straight shaft is used.

The **grip** of the paddle should fit smoothly and comfortably in your hand. There are two types of grips: T-grip and palm grip. The T-grip allows a firm grasp with precise control that can be used in all waters. The palm grip creates a better platform for hands and typically is used only on flat water.

The end of the blade is the **tip.** Tips sometimes are made of a stronger material than the rest of the paddle because it comes into contact with rocks, stream bottoms, snags, etc. The **throat** is where the blade attaches to the shaft.

Sizing the Canoe Paddle

Paddles should fit their handler. The American Canoeing Association (ACA) recommends the following method for sizing an appropriate canoe paddle.



On the water:

- Sit comfortably in a canoe.
- Place the paddle perpendicular to the water surface with the blade submerged to the throat. The top of the paddle grip should reach between eye and nose level.

Without water:

- Sit upright on a flat surface.
- Place paddle grip between legs (on lap) and extend the blade upward.
- The throat of the paddle should reach the top of the head.

Kayak Paddles

Kayak paddles are long and double bladed. There are two types of kayak paddles: touring and whitewater. Whitewater paddles have a rigid shaft, wide blades, and typically are feathered (blades set at an angle to each other). This allows the paddler to have control while traveling through rapids. Touring paddles are designed for efficiency and comfort and are good for traveling Iowa's waters. They have a more narrow and smaller blade. Blades may be cupped (spoon) or flat. Flat blades are better for beginners.

Kayak paddles have either **right-hand** or **left-hand control.** This allows a designated hand to maintain a firm grasp on the paddle while controlling the angle of the blades. It also allows the shaft to rotate within the other hand between strokes and maintain a firm grasp during the stroke. Hand control is determined by the powerface of the blade. For example, if the power stroke is on the right side of the kayak, and the powerface of the opposite blade is facing up, then it is a right-hand control paddle. Most paddles sold are right-hand control.

Straight and bent **shafts** also are available in kayak paddles. Most beginners use straight shafts. There are two **throats** and **tips** in a kayak paddle because they are double bladed.

Sizing the Kayak Paddle

When sizing a kayak paddle, consider the type of paddling you will be doing, the width of the kayak, and your torso length. A general rule is that an average size paddler (5'2" - 6'2") in an average sized solo boat can use a 200-220 cm (80-88 inches) paddle.

Clothing

Dressing appropriately for paddling can mean the difference between a fun-filled float trip and a completely miserable experience. Paddlers should always dress for water temperature, not mid-afternoon air temperature. Dress includes both clothing and accessories. The following chart lists items needed for paddling.

Dressing for Paddling

Item	**Benefits**
personal flotation device (pfd)	keeps you afloat following unexpected accidents
loose layers of clothing	keep in heat in cold weather; can be shed or added as temperature changes
wool and synthetic clothes	good insulation, even when wet; dry much more quickly than cotton
light-colored cotton clothes	reflect sun's rays in warm or hot weather & absorb perspiration
hat	keeps in heat in cold weather; protects head from sun's rays in hot weather; shades eyes
sunglasses	block reflected sunlight, protect eyes, & help vision
sunscreen	partially blocks sun's rays, especially ultra violet (U-V); helps prevent sunburn
shoes	protect feet from rocks and other obstructions; help prevent slipping
helmet	protects head from hitting rocks & other obstructions while kayaking or canoeing rivers
wet suit	keeps body warm and dry when kayaking

Miscellaneous Equipment

Item	**Description**
spray skirts	attached to the cockpit in kayaks; prevent water from flooding the craft; made of nylon or neoprene; fit around the paddler's waist; a quick-release tab allows a quick bail out
painters	ropes that may be tied to the bow or stern of the craft; should be made of nylon to hold up in water; should be secured somewhere in the boat while not in use (e.g. tied to the nearest thwart, coiled and secured to the breastplate) to ensure safety of the paddler
bailers	used to take water out of the bottom of a canoe; can be buckets, the bottom of a gallon plastic jug, or a large sponge; should be tied to a thwart in case of capsize
knee pads	may be used when paddling in the kneeling position; rest on the bottom or

	are secured to paddlers' legs; should not slip on the bottom or soak up water; may be purchased or made
duct tape	may be the paddler's best friend; can be used to repair tears, holes, or splintered paddles or secure painters
waterproof containers	all gear should be stored in these; may be plastic bags closed with a gooseneck (twist and bend over the top, wrap with a rubber band) or specialty purchased canoe packs; gear should be kept in the center of the canoe with its weight distributed evenly; in case of capsize, gear tied to a thwart will be easier to recover

Canoe Paddling

One or two people (solo or tandem) can paddle a canoe. Most instructors feel tandem canoeing should be mastered before trying to paddle solo. For this reason, this module focuses on tandem paddling.

In tandem paddling, one person is in front (bowman) and the other is in back (sternman). Each paddler has duties she is responsible for. The bowman reads the immediate route on the water, makes necessary commands or maneuvers to avoid hitting obstacles, and sets the pace for strokes.

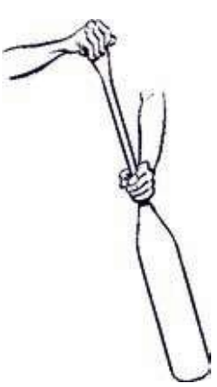
The sternman matches the timing and speed of the bowman's strokes to make paddling more efficient and easier to control. She follows the general course of the river/lake, maintains or changes craft alignment, and maintains adequate spacing between other crafts.

Positions

There are two basic positions for paddling in a canoe, sitting and kneeling. When kneeling, the paddler wedges his knees against the sides and rests his weight against the front edge of the seat. When sitting, the paddler sits on the seat, bracing his knees against the gunwales.

Both positions have benefits and drawbacks. Kneeling increases the canoe's stability by lowering the center of gravity. It allows paddlers to use thigh and trunk muscles more efficiently in conjunction with their arms and shoulders. It also allows paddlers to get a wider reach and a more powerful stroke. However, kneeling may not be comfortable, making paddling less enjoyable.

Sitting is more comfortable and is good on quiet water. Sitting raises the center of gravity and reduces the canoe's stability. When sitting, paddlers primarily use their arm and shoulder muscles and have a harder time using muscles in their thighs and trunk. Most of these disadvantages can be overcome by practice and paddling correctly. For the purposes of this module, paddling will be taught in the sitting position.



Holding the Paddle

- One hand goes on the grip, the other on the shaft near the throat.
- To hold the grip, lay your hand on top with palm down and fingers

outstretched. Close your hand so fingers are on one side, the base of your hand is on the opposite side, and your thumb wraps around.

- To hold the shaft, open your other hand, with palm down and fingers spread. Lay the throat of the paddle between thumb and index finger and close your hand. Hands should be shoulder width apart.
- To paddle on the port side, place your right hand on the grip and your left hand near the throat. To paddle on the starboard side, do the opposite.

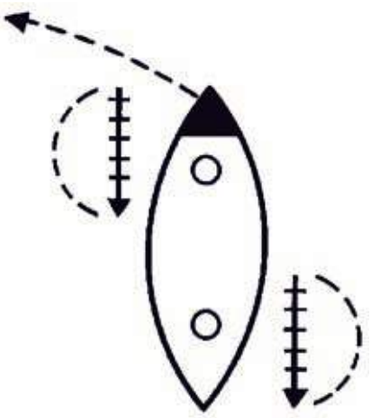
Parts of a Stroke

The ACA recognizes three parts to every stroke:

1. **Catch -** blade is first inserted into the water, power has not been applied
2. **Propulsion -** working part of the stroke that should accomplish the objective (makes progress, performs the maneuver); paddler uses her torso more than her shoulders or arms
3. **Recovery -** the blade exits the water and is moved to the catch position of the next stroke; paddlers should feather the blade (twist the wrist to align the blade with the surface of the water) to minimize resistance

Basic Strokes

The basic concept of a stroke is simple. When the paddle is planted in the water and the paddler pulls, he is pulling self and canoe to the paddle. Many strokes may be performed to move the canoe in the proper direction.



Forward Stroke - moves the canoe forward; should be kept short to maximize power; paddle should be parallel to keel and as close to keel as possible; if done properly, canoe will go the opposite direction of the side the sternman paddles

Catch: paddler rotates torso 45° offside; both arms forward and hands across gunwale; shaft arm should be outside gunwale with shaft vertical; paddle should be two feet in front of onside knee with full length of blade in water

Propulsion: paddler uncoils his torso to face forward; lower arm pulls paddle while upper hand pushes; stroke kept parallel to keel, not gunwale

Recovery: stroke ends at paddler's hips; blade taken out of water and feathered; paddler gets ready for next catch position

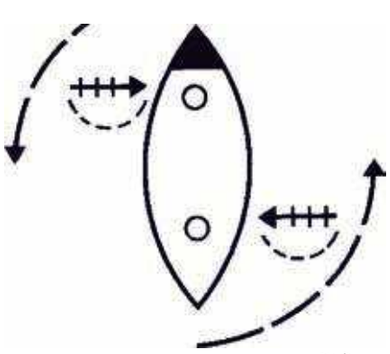
Back Stroke - stops forward motion and/or moves canoe backward; essentially the opposite of forward stroke; stern paddler should be able to steer canoe as it moves backward

Catch: paddler rotates 45° onside; paddle placed in water just behind her hip; shaft vertical and both arms slightly bent

Propulsion: paddler uses her torso to drive backface of paddle forward toward bow; stroke is parallel to keel, not gunwale

Recovery: stroke ends at paddler's knees; blade is left in the water for recovery; turn paddle by rotating thumb to slice through water back to catch position

Draw Stroke - moves craft sideways toward paddle; has a righting effect which makes it hard to capsize the canoe; basically forward stroke done perpendicular to keel (not parallel); when teaching, have students imagine paddle as a broom sweeping water underneath the canoe



Catch: paddler turns onside, lining shoulders with centerline of boat; both arms extended away from body at paddler's hips; blade parallel to keel, powerface toward canoe

Propulsion: paddler uses torso to pull onside hip toward paddle; lower arm pulls paddle and upper arm pushes

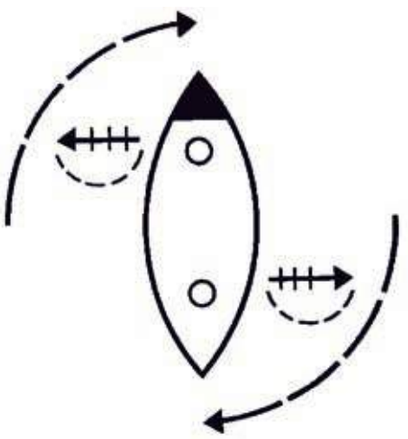
Recovery: stroke ends before paddle touches canoe; blade may either be left in or out of water

Pry Stroke - moves canoe forcefully away from paddle; essentially the opposite of draw stroke; should not be used in shallow water because paddle may catch on rocks, capsizing the canoe

Catch: paddler turns onside, lining shoulders with centerline of boat; both arms slightly bent; paddle kept close to canoe; blade parallel to keel and shaft angled under canoe

Propulsion: paddler uses torso to push onside hip away from paddle; lower arm pushes away from, while the upper arm pulls toward paddler; canoe pried away from blade

Recovery: stroke kept short with shaft nearly vertical throughout; ends away from canoe; blade may either be left in or out of water



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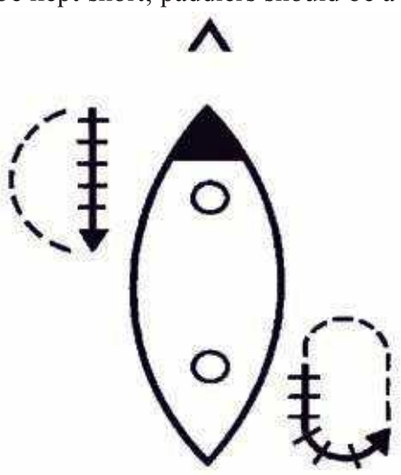
J-Stroke - performed by sternman; used to keep canoe going straight during forward movement; similar to forward stroke with a variation at end of propulsion stage; should be kept short; paddlers should be aware it will slow their momentum a bit; sometimes more difficult for students to learn *Catch:* paddler rotates torso 45° offside; both arms forward and hands across gunwale; shaft arm outside gunwale with shaft vertical; paddle approximately two feet in front of onside knee with full length of blade in water



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Propulsion: paddler uncoils his torso to face forward; lower arm pulls paddle while upper hand pushes; stroke kept parallel to keel, not gunwale; when paddle reaches paddler's hips, he twists upper hand so his thumb points forward; shaft hand pushes blade away from boat; makes shape of the letter "J"

Recovery: blade lifted out of water

Minnesota Switch or Hut Stroke - used by both paddlers to maintain a straight course; paddlers switch sides every six to eight strokes while performing forward stroke; remove paddle from water, reverse hand positions, (shaft hand goes to grip and grip hand goes to shaft) and place paddle on other side of canoe; stern paddler calls the switch because she can see better and more quickly the canoe's changing course; sternman also can see if bowman has heard command and switched

Stern Rudder - another way to keep canoe going in a straight line; sternman places paddle in water parallel to canoe and angled back; turn grip hand in direction canoe should go

Kayak Paddling

Like canoe paddling, each stroke has three parts; catch, propulsion, and recovery. However, there are many differences with paddling a kayak:

- Kayaks are typically solo crafts.
- The kayak paddler must assume responsibility for duties of both tandem canoeists.
- Kayaks are more likely to tip.
- The double blade of the kayak paddle allows kayakers to paddle on both sides without having to switch.

Paddling Positions

Paddlers should sit straight when kayaking. This allows a broader range of movement and an increase in strength to perform strokes and maneuvers.

Boat lean helps kayakers feel the stability of their craft. It occurs when a paddler pulls one knee up, while simultaneously pushing down with the opposite hip and keeping his body weight above the kayak. This transfers weight to the hip and allows the paddler to balance on that hip. This will move the craft underneath him.

Paddling a kayak involves a push-pull action against the paddle (similar to boxing). When going forward, kayakers punch out with their upper arms and pull back with their lower arms. This creates a need for kayakers to rotate their body, while keeping their trunk and shoulders facing their hands.

Holding the Paddle

Grip the paddle in the palm of your hands rather than your fingers. This makes it easier to cock your wrists and gives you better control over the paddle. Your hands should be at a greater width than your shoulders. Your elbows are at a 90° angle to your forearms, which are approximately a 70° to 90° angle to the paddle shaft. An easy way for beginner kayakers to remember their hand position is to tape their proper grip location on the paddle.

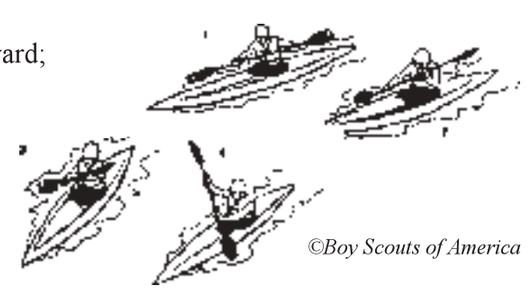
Basic Strokes

Kayak strokes follow the same basic concept as canoe strokes: when the paddle is planted in the water and the paddler pulls, she is pulling self and canoe to the paddle. The power in kayak strokes comes from the push of the upper hand, twist of the torso, and pull of the lower hand. The use of all three will provide smooth, quick, strong strokes.

Forward stroke - moves kayak forward; blade should be completely in water and paddle parallel to centerline; paddler's upper hand should not cross center line or stroke will be too long; craft will naturally turn, so beginners need to practice timing and power

Catch: paddler's torso rotates with right shoulder forward; blade inserted in water close to kayak

Propulsion: upper hand punches out toward grab loop on bow while lower arm pulls, rotating paddler's body; upper hand continues to punch out to full extension of her arm while upper body



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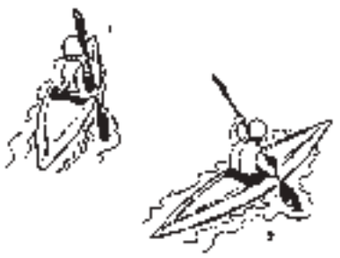
follows through to	full rotation; lower arm comes to paddler's hip
Recovery:	paddle blade removed from water by quickly lifting wrist and elbow to shoulder level allowing a clean exit and quick recovery; torso rotated with left shoulder forward and ready for catch position on opposite side

Back stroke - slows/stops moving kayak and/or moves it backward; essentially the reverse of forward stroke; beginners should look back over one shoulder to ensure paddle stays parallel to centerline



Catch: paddler's torso rotates with left shoulder back; upper hand in front of head with arm bent approximately 90°; lower arm at paddler's hips; left paddle blade in water close to craft

Propulsion: lower hand pushes forward while upper hand simultaneously pulls back; left shoulder rotates to forward position; right arm moves to paddler's shoulders

Recovery: paddle blade removed from water by quickly lifting wrist and elbow to shoulder level; torso rotated with right arm at paddler's hips and ready for catch position on opposite side

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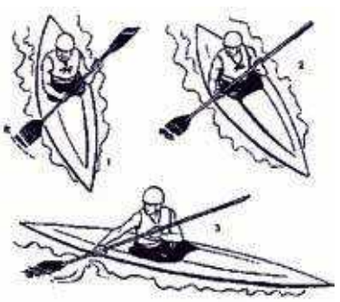
Forward sweep stroke - turns bow of kayak to opposite direction paddled while maintaining forward movement (e.g. a sweep on the right turns the bow to the left); paddle moves in an arc from bow to stern; paddle blade should be fully submerged throughout propulsion; useful for moving around obstacles; encourages paddlers to use good boat lean



Catch: paddler's torso rotates with right shoulder forward; blade inserted in water close to kayak; lower (right) arm more straight than upper arm, making torso "wound up"

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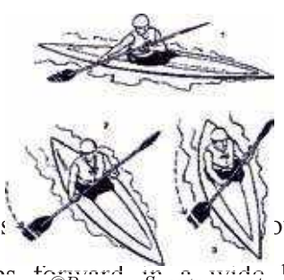
Propulsion: the upper hand pushes forward while lower simultaneously pulls paddle back in a wide half circle; shoulders face paddle shaft while maintaining a parallel position

Recovery: paddle removed from water similarly to forward stroke

Reverse sweep stroke - slows forward motion of kayak as it turns craft toward side on which stroke performed; essentially the reverse of forward sweep stroke



Catch: paddler's torso rotates with left shoulder back; left blade inserted in water close to kayak and behind paddler; beginners should look over their shoulder to see where blade is inserted

upper hand pulls ower simultaneously pushes forward in a wide half

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Propulsion:

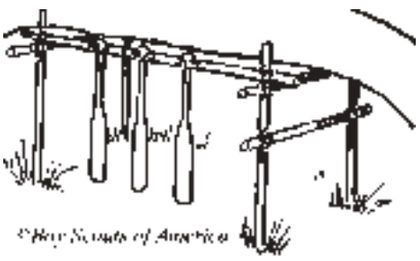
Recovery: paddle removed from water similar to back stroke

Draw stroke - pulls boat sideways without slowing forward momentum; done at midship

Catch: both of paddler's hands extended over water; upper hand reaches farther out, making paddle nearly perpendicular to water; blade face turned toward kayak before it is inserted in water

Propulsion: paddler pulls boat to blade using both arms, keeping paddle nearly vertical; lower hand applies most of the force

Recovery: stroke ends when blade is near craft; blade feathered out of water and placed in catch position



Launching and Landing the Craft

Canoes and kayaks often are brought to the launching site on trailers with racks.

Trailer Safety Tips

Before leaving home

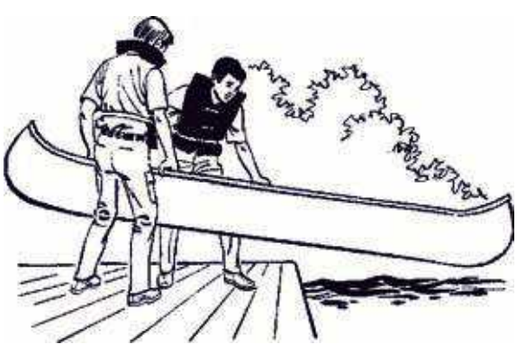
S Make sure the craft is secured properly on the trailer. *S* Inspect all lines and tie-downs. Tighten as necessary and replace any that show signs of damage. *S* Make sure all trailer lights are operating correctly. *S* Test the brakes. *S* Inspect the hitch and safety chain. *S* Check tire pressure and lug bolts. **While on the road**

S Drive carefully, allowing for the extra length of the car and trailer when turning and passing. *S* Allow more time for stopping. *S* Watch speed limits.

S Pull off the road periodically to check tires and wheel bearings for overheating. Test the tie-downs and check any gear carried in the craft.

Taking crafts off the rack

1. Make sure there are no obstructions on the ground.
2. Two people (one at each end) should lift the craft off.
3. Hold the deck and keel securely.
4. Step sideways until the craft is clear of the rack and there is open ground under it.
5. Carefully turn the craft upright and set it on the ground.



Transporting the craft to water

1. Stand on opposite sides of the deck or at the first thwart from the bow and stern.
2. Grasp it under the deck, or at the thwarts, and stand together.
3. Lift the craft with your legs, keeping your arms straight.
4. Place the craft in approximately six inches of water with few rocks underneath to prevent scratching.

Most upsets occur during launching or landing. Always wear a PFD when paddling. To prevent capsizing, keep your weight bearing foot on the centerline and balance the craft from side to side by

transferring your weight to your hands. Maintain three points of contact while entering or exiting a craft, one hand and two feet or two hands and one foot.

Launching a canoe from shore

1. Place paddles in the canoe.
2. One paddler (A) should hold the canoe steady while the other (B) gets in. To steady the canoe, sit on the breast plate with legs on either side bracing it or kneel at the bow or stern with one knee on either side and grasp the canoe with your arms across the breast plate.
3. Paddler B places her hands on the gunwales for support while entering. She must keep her weight centered and low (keep your bottom down) while moving.

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4. Once Paddler B enters, she holds a paddle against the river/lake bottom to steady the canoe.
5. Paddler A places his hands on each gunwale and climbs aboard. He enters the canoe the same as Paddler B. Paddle away from shore.

Launching a canoe from a dock

1. Partners place the canoe gently into the water parallel with the length of the dock (one gunwale against side of dock).
2. Paddler A kneels/sits on the dock and holds the canoe steady while Paddler B puts the paddles in.
3. Paddler B puts his feet in the canoe. With one hand on the dock, he grabs the gunwale on the opposite side and moves to his position.
4. Once Paddler B is in the canoe, he holds the dock to steady the canoe.
5. Paddler A gets in following the same procedure.
6. Push off from the dock.

Launching a kayak

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1. Place the paddle across the back of the cockpit with one blade on shore or dock.
2. Grasp the center of the paddle and back edge of the cockpit with one hand and ease into the kayak.
3. If the kayak has a spray skirt, attach it to the lip.
4. Paddle away from shore/dock.

Reverse the launching steps to land a craft. Approach docks/shores carefully, looking for obstructions so you don't run aground.

Float Plan

Good planning and preparation can help your trip run more smoothly and provide alternatives in case of an emergency. Float plans are a good idea for all trips, but they are essential for longer trips or group trips. Some things to consider include:

* Obey all state and local regulations.
* If your travel route includes private property (only for non-navigable streams), get written permission before crossing and minimize impact on the land. (See "Paddling Ethics - Taking Care of the Resource" in the **Regulations and Ethics** section.) According to Iowa Code, all members of the public may float on any stream that is navigable and fish, swim, and wade in its waters. Navigable waters include all streams capable of floating a craft with one person aboard during six months in one out of ten years. Paddlers cannot be prosecuted for criminal trespass if they are boating, fishing, or wading in the bed of a navigable stream. However, land on either side of the stream is private property. Obtain permission from the landowner if you want to exit the river.
* Find optional take out points (places to take the craft out) in case of emergency, bad weather, or slower than expected progress. Place a vehicle with first aid equipment, dry clothing, and food at each location.
* Drop off and take out points must accommodate transport vehicles. Include current maps and information about waterways to be traveled. Mark the planned course and label drop off and take out positions.
* Give a generous estimate of travel time.
* Review the completed plan with others who have traveled the course recently.
* Give a copy of the (written) plan to someone not traveling along with whom you can check you're your return.
* The day of the trip, check the route (for changes) and the local forecast (for severe weather). If weather becomes rough or dangerous river conditions arise, get off the water immediately.

River Reading Skills

Water flows downhill. The steeper the terrain, the faster the water current (velocity). A large volume of water and narrow river width also increase velocity.

In their natural state, streams and rivers meander (turn or wind), changing their course over time. Meanders create pools, runs, and riffles. Pools are deeper with slower water. Runs are more shallow with faster current. Riffles are the most shallow with the fastest current. The water surface in a riffle is broken up from flowing over rocks. Different sections of rivers and streams have varying speeds. Water in meanders flows faster and is deeper on the outside of a bend. On straight sections of rivers, water moves fastest in the middle.

River paddling involves different skills than paddling a lake, pond, or wetland. You must handle your craft in current and avoid hazards such as rocks or overhanging trees. There are many potential hazards in a river.

Potential River Hazards

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low head dam constructed river hazard; recognized as a horizontal line; creates a hole when water flows over an obstacle and lands on the water's surface; downstream surface water rushes upstream to fill the depression, creating a vertical whirlpool (hydraulic) which often is inescapable; portage around to avoid its dangerous hydraulic downstream

overhanging obstacles trees, cables, brush, etc. that can trap debris while allowing water to pass through; the force of water rushing through can pin people and canoes under

large submerged boulders natural river hazard; may have a hydraulic similar to low head dams

fences in Iowa, owners of a navigable stream bed have a right to erect a fence across the stream to keep livestock in, while affording boaters safe passage

River Paddling Hints:

- Look down river as far as possible before it flows out of sight. Find the best channel and follow it back to the craft.
- Follow downstream "V's" (point away from you) on the water surface. Upstream "V's" (point toward you) indicate rocks and should be avoided.
- Scout potentially hazardous sections on land. If unsafe, portage around them.
- Always travel a river or stream before taking a group on it.

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Safety

Selecting the Right Water

When selecting a water for beginning paddle trips, safety should be the first priority. Avoid traveling on large rivers due to faster current and more potential hazards. Avoid windy days due to potential capsizes caused by waves. Also avoid high waters because of the increase in current and debris floating in the water.

Personal Floatation Devices

Personal Floatation Devices (PFDs) are a must for every paddler. Iowa law mandates a U.S. Coast Guard approved wearable PFD in good condition be available to every person in a canoe or kayak. Not only is it the law, it makes good sense. Paddlers are more likely to go into the water than any other type of boaters. Accidents can happen at any time without warning and life-threatening accidents often

occur in seemingly shallow water.

For more information about Iowa requirements see the *Iowa Boating Regulations.*

Wearing a PFD

A PFD is only effective if it is worn correctly and fitted properly. All PFDs should be worn with the label on the inside and belt straps adjusted so it fits snugly. A simple way to tell if it fits is to try the PFD on and close the zipper and/or cinch the ties. Have a partner grasp the vest by the shoulders and pull as high as they can. If the PFD rides up over your ears, it is too big and should not be worn.

Care and Storage

Improper care and storage of PFDs can quicken their demise. They should be dried off the ground and out of sunlight. Direct sunlight causes fabric to fade and dry out. All buckles, zippers, and ties should be maintained and repaired and labels should be readable. If floatation material or fabric is damaged, throw it out and replace. PFDs should not be used as seat cushions or kneeling pads. Do not leave them in places that get extremely hot (e.g., car trunks).

Other Safety Tips

Helmets: Iowa law does not require paddlers to wear a helmet. Helmets protect your head from hitting rocks or other obstructions in case of capsize or rolling and should be worn when paddling rivers or using kayaks.

Paddle in Groups: Never paddle alone. Check in with someone at specific intervals during an extended trip. Stay on the planned route/path. If an injury occurs, help can arrive faster if they know where to look.

Weather: Lightning, strong winds, hail, and heavy rain make trips miserable and can be dangerous. If lightning or other dangerous weather approaches, get off the water and seek shelter. Always paddle into wind and waves. This makes the craft more stable and allows you to see approaching waves.

Swimming Ability: It is a good idea to know how to swim, but the best protection in the water is a PFD.

Map Reading Skills: It is important to be able to read a map, especially when you are on unfamiliar water or an extended trip.

Hypothermia: The body can be chilled beyond its ability to re-warm itself. The first symptom is shivering. Later symptoms include blue lips, loss of feeling in extremities, and eventually the absence of

Hypothermia Chart

Water Temperature (measured in degrees Fahrenheit)	**Exhaustion or Unconsciousness Occurs**	**Expected Survival Time**
32.5	under 15 minutes	under 15 - 45 minutes
32.5 - 40.0	15 -30 minutes	30 - 90 minutes
40 - 50	30 - 60 minutes	1 - 3 hours
50 - 60	1 - 2 hours	1 - 6 hours
60 - 70	2 - 7 hours	2 - 40 hours
70 - 80	3 - 12 hours	3 - indefinitely
over 80	indefinitely	

shivering and extreme fatigue. If not checked, it can cause death. Contrary to popular belief, hypothermia can occur at almost any temperature once the body is chilled by wind or wetting.

To prevent hypothermia...

- Dress for water temperature, not mid-afternoon air temperature.
- Wear clothes that dry quickly (see "Clothing" in the **Paddling Equipment** section).
- Positions to reduce heat loss: *S* Heat Escape Lessening Posture (H.E.L.P) - single swimmer; cross legs at ankle and pull toward chest; cross arms at chest (protecting the area under the arms) or hold neck with hands; keep head above water at all times.

S Huddle position - more than one swimmer; swim together to form a circle; wrap arms around one another and keep legs together; keep heads above water at all times.

- The best treatment for hypothermia is to remove wet or cold clothes and replace with warm, dry clothing or blankets. Immediately call for an ambulance or other medical help (even if the condition is in early stages).

Rescue Techniques ©*Boy Scouts of America*

Do not panic if your craft capsizes. A canoe probably will eject both paddlers on the same side. A kayak probably will turn over without releasing the paddler. If your craft overturns, fall out. Your PFD will keep you afloat.

Swim Craft to Shore

Canoes and kayaks have built in floatation. Even if they fill with water, they float. After being ejected from the canoe or bailed out of a kayak, swim back to the craft. If it is an overturned canoe, position one paddler on each side. Work together to turn it upright. If it is a kayak, hang on to the boat and pull it along side or wade back to shore.

In moving water, stay on the upstream side of the craft to prevent entrapment between a rock and the craft. If possible, stay with the craft because of its floatation

and visibility to other boaters and rescuers. If others are not available to throw a line, ride the river until you can swim to shore.

Float to Safety

If you can't stay with the craft and the water is too deep to stand, float on your back with your *feet pointing downstream.* This will protect your head from hitting obstacles. Do not stand unless water is less than knee deep to prevent being caught in underwater snags or obstacles.

Re-entering a Canoe

Swim or wade back to the overturned canoe. Position one paddler on each side. Work together to turn the canoe upright. To get back in, one person should be just forward of midship, the other just aft of midship. If you are in deeper water, move at the same time and kick sharply to pull yourself up on the gunwale until your arms are straight and the gunwale is below your waist. If one person falls off, the other should too to prevent capsizing again. When the gunwale is below your waist, lean into the canoe and roll over so you fall in bottom first. To eliminate confusion, one person commands while the other responds.

If you are unable to get in at the same time, take turns. One person stays in the water and adjusts his weight on the gunwale to balance the canoe. Once the first person is in, the second person gets in. The person in the boat can lean to the side to balance the weight.

When both are in, paddle to shore. If the canoe is full of water it will be hard to get going. However, once it gains momentum, it is hard to stop due to the weight of water. When you reach a stopping point, get out slowly and walk, swim, or tow it to shore.

Righting a Kayak

Righting a kayak involves a maneuver called the Eskimo roll. This maneuver is difficult for beginners. For this module, if a kayak rolls, the paddler should exit. For more information on Eskimo rolls and other advanced kayak techniques,

refer to the *Boyscouts of America Fieldbook* or the ACA *Canoeing and Kayaking Instruction Manual* in the *Additional Resources* section.

Assisted Rescues

Assisted rescues are more challenging than self rescues. Swimmers occasionally become frantic and capsize their rescuers. Approach capsized swimmers cautiously. Keep your canoe between you and them. Make sure everyone is safe before attempting to recover canoes or equipment.

Listed below are easy assisted rescues. Rescue techniques change constantly. To keep up to date or to learn more methods contact the American Red Cross, American Whitewater Association, or the ACA.

Tow to Shore

The simplest way to rescue swimmers is tow them back to shore. Swimmers return to the overturned canoe and wait for rescuers. When rescuers approach, swimmers hang on to a painter attached to the stern to be towed to shore.

Activities: Background

A Look Back - The History of Canoeing and Kayaking

Overview:

Students are acquainted with the history of canoeing and kayaking through a brief discussion or research. ***Associated Objectives:***

□ Students will be acquainted with the history of canoeing and kayaking. ***Time:***

15 minutes; time for research if included

Materials:

If research is included - access to library and/or Internet ***Directions:***

Refer to **Paddling Then...** and **Paddling Now...** sections of the *Background Information* to learn more about the history of canoeing and kayaking. Ask students what they know about how these boats originated and how they might have been used in earlier times. Discuss their knowledge and share the brief introduction included in this module.

Alternate: Have students share their knowledge of canoes and kayaks in history. Assign pairs to research these crafts through print media and/or the Internet. Students can share what they learn through written or oral presentations. (Note: For best results for Internet searches type in specific key words [e.g., history, canoe, kayak, North America, Native Americans] depending on the craft/culture/geographic area you want to know about. Also, make sure students check out the source of any web sites to verify accuracy of information.)

Overview:

Students decide what to wear paddling based on various conditions.

Associated Objectives:

- Students will become familiar with basic safety and dress guidelines for canoeing or kayaking.
- Students will become familiar with terminology and equipment associated with canoeing and kayaking.

Time:

20 - 45 minutes

Materials:

Different styles of clothing (socks, shorts, jeans, wet suits, cotton shirts, fleece jackets, sandals, boots, waders, etc.) made of various materials (cotton, rayon, fleece, etc.), slips of paper describing weather and water conditions (one for every group)

Directions:

Copy and cut the "Paddling Conditions" handout. Split students into small groups (2-3) and give one condition slip to each group. Tell students they are going paddling. Optional: Provide copies of "Dressing for Paddling" from the **Paddling Equipment** section of the *Background Information.* Have students select the most appropriate clothing for the situation. Each group should present their choices and explain them.

Ask students:

What would you wear on a warm, early spring day for a picnic? Should you wear the same outfit paddling? Why or why not?

Is water temperature the same as air temperature? Which should you dress for when paddling? Why is it important to dress appropriately for paddling?

Evaluation:

Students will select clothing appropriate for paddling conditions and be able to justify them.

Extensions:

Have students select PFDs and equipment for the given weather conditions also. Include faulty and good equipment for students to choose from.

Have one student per group "model" the appropriate clothing and/or equipment.

Evaluation:

Students should be able to identify information to be included in a float plan. Students should realize the importance of completing a *written* float plan before paddling.

Directions:

Using examples of paddling equipment, name and describe parts of a canoe or kayak, and their respective paddles. Refer to the **Paddling Equipment** section of the *Background Information* for an overview of terms.

Have students form a circle around one piece of paddling equipment. Elect one student as "caller," and one as "grabber." The "caller" names a part of the craft or paddle.

After a part is called out, the "grabber" grabs the part and hangs on to it until the end of the game. The student to the right of the "caller" becomes the next "caller" and the original "caller" becomes the "grabber." Each "caller" must name a different part. "Grabbers" must hang onto parts until there is no one left in the circle. (Instructors will have to name a part for the last "grabber.")

Parts of a...

Paddle: grip, throat, shaft/loom, blade, tip

Canoe: keel, ribs, gunwale, thwarts, freeboard (Optional terms: amidship, bow, stern, starboard, port, forward, aft, trim)

Kayak: floatation bag, braces/support walls, foot peg (Optional terms: bow, stern, starboard, port, forward, aft, trim)

Evaluation:

Students should be able to successfully name the parts of a canoe or kayak and paddle.

Extensions: Have students draw equipment and label parts.

Create flash cards with the term on one side and a drawing or description of the part on the other. Students may use these to quiz each other or play "Memory" or "Go Fish."

Basic Strokes

Overview:

Students practice basic paddling

strokes. ***Associated***

Objectives:

□ Students will become familiar with basic strokes for canoeing or kayaking and demonstrate their ability to use them.

Time:

30 - 45 minutes

Materials:

Canoe or kayak paddles, canoes or kayaks, PFDs

Directions:

Line students up in rows spaced at least five feet apart. Demonstrate each stroke as described in "Basic Strokes" in the **Canoe Paddling** or **Kayak Paddling** section of the *Background Information.* Have students repeat your actions after you perform each stroke until they have mastered it. (Optional: If you have experienced paddlers in the group, pair them with novices, so they can help coach them.)

Have students correctly don their PFD's. (See the activity, "Sinkers and Floaters.") Then have them load their crafts (See the activity, "All Aboard!: Boarding and Launching the Craft.") Now they can practice the strokes on water. You may wish to demonstrate each stroke again so students can repeat your actions.

Evaluation:

Students should be able to correctly demonstrate basic strokes. ***Extension:***

Go paddling orienteering. Set up a course on the water and do it in boats. Do the activities found in the *Paddling Exercises* at the end of this unit.

All Aboard!: Boarding/Launching the Craft

Overview:

Students practice boarding, launching, and landing the craft. ***Associated Objectives:***

□ Students will demonstrate appropriate techniques for entering, launching, and exiting a canoe or kayak. ***Time:***

15 - 30 minutes

Materials:

Canoe or kayak paddles, canoes or kayaks, PFDs

Directions:

If crafts are on a trailer, demonstrate correct unloading procedures. If age/ability appropriate, have students help unload remaining crafts. Demonstrate how to correctly carry a canoe or kayak to shore or dock. Refer to the **Launching and Landing the Craft** section of the *Background Information.* Have students correctly carry their canoes or kayaks to shore or to a dock.

Demonstrate how to properly launch/land the craft. Point out common mistakes and possible consequences. Have student pairs launch their crafts one at a time, making sure they follow correct procedures. Have students practice landing their crafts following the reverse procedure for launching. (Optional: If you are pressed for time, you can have students complete practicing basic strokes in the water, then demonstrate landing the craft at the end of your session.)

Evaluation:

Students should demonstrate how to correctly launch and land a canoe and/or kayak.

Reading the River

Overview:

Students recognize river hazards and ways to overcome them by scouting a section of river and deciding the best course of action.

Associated Objectives: □

Students will practice

river reading skills.

Time:

20 - 30 minutes

Materials:

A section of river/stream that may be walked on shore and has potential hazards, paper, pens/pencils, copies of "Potential River Hazards" and "River Paddling Hints" from the **River Reading Skills** section of the *Background Information*

Directions:

Have students work in pairs or small groups to look for potential hazards paddlers may encounter. Students should walk the shoreline of a local river or stream and write down anything that might cause problems while paddling. Students should brainstorm in pairs or small groups on how they would overcome the obstacle if they were paddling. Have students share their ideas. Discuss these, as well as other potential hazards students might encounter.

Evaluation:

Students should recognize potential river hazards and be able to overcome them. ***Extensions:***

Have students role play their course of action.

Activities: Paddling

***Exercises* Water**

Obstacles

Modified from *Kayak and Canoe Games, Laurie Guillion, Menasha Ridge Press*

Overview:

Students practice different paddling strokes to get through an obstacle course. ***Associated Objectives:***

□ Students will become familiar with basic strokes for canoeing or kayaking and demonstrate their ability to use them.

Additional Resources

About Paddling - paddling terminology, launching and loading tips, tips for paddling with kids American Canoe Association - basic information about equipment and clothing, safety tips, buying a

canoe/kayak, where to paddle American Canoe Association's Beginner's Guide - information about choosing a craft, equipment, and

basic paddling skills American Red Cross - water

safety information including rescue techniques

American Whitewater Association - safety information including river hazards, universal river symbols,

rules of the road, and

guidelines for river rescues

Boat Iowa: online Iowa

Boating Safety course

Canoe & Kayak Magazine - basic information about buying a canoe/kayak or paddle and where to paddle Canoe Sports Outfitters - information on where to paddle, water levels, and rentals Des Moines River Water Trail - float trips with maps, access points, driving directions, and GPS coordinates

Fighting Invasive Species (Iowa DNR) - information about aquatic nuisance species

Introduction to Outdoor Skills in Iowa: A Teaching Module -basic information about recreating in the

out

doors

Iowa

Boating

Regulat

ions

Iowa Whitewater Coalition - safety tips, free paddling clinics

Kayak Online - information on kayaks and paddles, and where to paddle

Minnesota Department of Natural Resources - *Let's Go Canoeing* guide for kids along

with a teacher's guide

paddling.net - basic information about canoes, kayaks, paddles, and safety

Professional Paddlesports Association - information about types of kayaks and paddling basics

U.S. Geological Survey - current streamflow of Iowa rivers

Iowa Department of Natural Resources - information about paddling instruction/safety and water trail maps

Recreational archery

Archery began as an attempt by man to impose himself on his environment and to survive. In historical times, it prevailed as a method of hunting, military art and at the same time a sport of skill and technique. Nowadays, archery is an Olympic sport but above all it is a special activity for many people to whom it offers hours of pleasure and sports. It is a mild sport that does not require special physical condition or special abilities but the possibility of mental concentration, acquisition of excellent technique and imposition of the mind on the body. It is aimed at any age, as a child can start at the age of 12 and an adult can expect to struggle (and with claims) even after 70 years.

Also, the fact that archery is an "all-weather" sport should not be overlooked, as there are separate competitions for open and closed space so that one can engage in training and competitions throughout the year. Depending on the type of bow used, different types of archery are distinguished. So we have:

1. The Olympic bow (or reverse, due to its shape) consists of the handle (riser) and the two ends (limbs) that are joined together by the string. The bow can be divided into its individual parts for easy transport. It is the only type of bow used in archery as an Olympic sport. The handle is made of metal for racing bows and plastic or wood for training bows. The ends are plates made of superimposed sheets of wood, fiber and carbon, depending on the type and the required strength of the bow.

2. The compound arose as an evolution of the bow to meet the special requirements that existed for hunting (smaller size, greater force, lower holding force of the string when aiming, etc.). It has been used in recent years as a sports bow and participates in all games (except the Olympics) in a separate category.

Its characteristic feature in relation to the Olympic arc, is the existence of two eccentric pulleys at its ends, which with a system of cables pulled by the string, reduce the required holding force of the string by a large percentage (40-60%). There is also the possibility of using shotguns with magnification and a special trigger to release the string.

Archery safety rules

Archery is a very safe sport as long as you follow the basic safety instructions listed below. We must always keep in mind that the bow is a weapon and therefore we must handle it with special care and logic. These instructions are intended to protect equipment, athletes and spectators. Warm-up and stretching exercises should always be done before training or leisure exercise to avoid muscle injuries. The regular exercises should be repeated at the end of the training. When assembling the bow, the special armrest for the string should be used to avoid distortion of the limbs or injury of an athlete. After assembly, the equipment must be thoroughly inspected before being used for firing. Any problems or possible abnormalities should be reported to the coach or assistants for correction.

The bow must not be used if it does not meet safety standards The main control points are: a. the handle (riser) for cracks and loose screws, b. the limbs for distortions or cracks, c. the string for heavy wear or broken threads, d. cracking arrows, broken nock, detached noses, etc. The clothes of archers must be comfortable to facilitate it, but not too wide to create the risk of being swept away by the string and diverge the arrow. Long hair should be held behind the head. We must never release the string from the maximum opening of the bow without an arrow (dry firing) because there is a risk that the bow will break and cause injury. Also, we never place an arrow on the bow except on the shooting line and as long as there are no people in

front of us. The string should not open more than the length of the arrow because there is a serious risk of injury. If this can happen, larger arrows must be used. We do not shoot an arrow until we make sure that there is no person, animal or other obstacle in front of the firing line. The arrows are fired only at the target that corresponds to us (straight ahead) and not in other directions. We also make sure that the paths of the arrows do not intersect by two or more archers towards a common target (risk of shooting arrows). We do not shoot arrows upwards and generally do not aim higher than the target height.

We do not shoot arrows if we do not control what is behind the target. In general, archery must be performed in a completely controlled area and all attendees, participants and not, are responsible for this. Stop the shot with the slightest chance of moving between the shot line and the target. After the end of the shot we wait for a sound signal from the Physical Education teacher or the person in charge of the action before we start for the collection of the arrows. We are not running towards the goal. Arrows nailed to the target are just as dangerous as their backs. Each archer-participant collects his arrows from the target in turn without approaching at a distance of less than two (2) meters as long as there is another athlete in front. When we remove the arrows from the target we make sure that there is no one too close behind us to be injured by the back of the arrow.

Recreational archery

The customers of the companies that offer archery can easily be introduced to this sport as it can very easily set up a field for fun. Thus, in a natural environment that is located with a protected area, the area behind the target in order to avoid the risk of injury to one of the arrows thrown by the practitioners, everyone can exercise with the appropriate equipment. Properly sized bows and arrows as well as correctly placed targets can be a cause for hours of enjoyable employment. We always make sure to mark the area where the shots start so that no one can pass in front of the shooting area and thus put himself in danger.

There are five main types of archery, they are target archery, field archery, hunting, traditional archery and 3D archery, respectively. What types of bow you'll want will depend on which of these styles you'll be shooting. The styles do tend to overlap a bit, many archers that shoot target archery may also shoot field archery and so on. So it's best to buy a bow that mainly suits your primary style, but is also at least decent for shooting any other types of archery you're interested in. Target archery is shot both indoors and out at, you guessed it, targets. These are the typical circle within a circle type targets that you've probably seen a million times over the years. In target archery, competitors shoot in a straight line at the targets, and are then scored by a judge. Field archery is similar to target archery in that archers shoot at (three or four different types of) targets. In field archery, you always shoot outdoors and the targets may be up a hill above you or in a valley below you – they're not in a straight line like target archery. There may also be tree branches, brush, or some other type of obstruction partially blocking your view of the target. Archers tend to shoot in small groups, walking a course or path through the woods, stopping to shoot at each target. Traditional archery is not a standard type of archery with guidelines, rules and regulations like target or field archery. Traditional archers shoot longbows or solid body, wooden recurve bows, just like archers have for thousands of years before. Traditional archery is more about getting back to the historical styles of shooting, rather than a scored game. There are no fancy bow sights, stabilizers or other modern technology in traditional shooting.

3D archery is similar in some ways to field archery, as you typically walk a course through the woods. The difference being that you are instead shooting at real life sized 3D versions of animals. You'll walk the path in a small group, and stop to shoot at each target. There are also 3D shoots and tournaments that offer prizes for the top shooters. The type of bow that you'll want to buy will be determined largely by which of these styles you intend to shoot. Let's quickly cover them now:

Modern Recurve Bows

The ‘modern’ in modern recurve bows refers to bows that are made from more than one material and / or have several detachable parts. Unlike one piece wooden recurve bows, modern bows will have limbs made from fiberglass or carbon, while the riser (the center part of the bow that you hold with your bow hand) could be made of wood. Many modern recurves are also take-down bows, meaning that the limbs are detachable, which makes them much easier to store. Plus, being able to change the limbs means that you can change the draw weight of the bow you’re shooting. Let’s say that you’re currently shooting a thirty pound bow, but you want to move up to shooting a forty five pound bow. It’s far cheaper to buy a set of new limbs for your bow, rather than having to buy a whole new bow!

They’re Used For: Modern recurves are possibly the most versatile type of bow, as they’re great for almost every style of archery. They’re used in target, field and 3D archery alike. You can also use recurve bows for hunting if you want to, just be sure that you get a bow with a draw weight of at least forty or fifty pounds.

Compound Bows

Compound bows were designed for hunting. Their main benefit being that once you’ve drawn the bow back completely, you only have to hold back a small portion of the bows total draw weight. Unlike other bows, the cam (gears at each end of the bow) and pulley system supports most of the draw weight of the bow. This allows an archer to hold the bow back for longer periods of time with little effort. Compound bows are also used in target archery and field archery, but not quite as much as recurve bows, which are the only type allowed in Olympic target archery.

They’re Used For: Compound bows are mainly used for hunting, but they can be used in other types of archery.

Longbows and Wooden Recurve Bows

Longbows and one piece wooden recurve bows are the go to bows for traditional archery. They can also be used in target, field and 3D archery as well.

If you're mainly interested in traditional archery, a longbow or wooden recurve would be the right types of bows for you. You can still shoot them in other types of archery, but they're not quite as advanced as many of the more modern bows.

They're Used For: Great for traditional archery, but can be shot in other types of archery.

Once you've figured out what styles of archery you're interested in as well as the type of bow you'll need, you'll need to find the right arrows for your bow.

Today arrows are made from many different types of materials, each one having their own strengths and weaknesses. Arrows are now made from fiberglass, carbon, aluminum, an aluminum-carbon composite and wood, respectively.

Proper Shooting Form

There are two factors in archery that nearly all archers will agree are the most important: **Form and Accuracy**. Proper form is crucial in any type of archery. Being that it's far easier to learn a good habit than it is to replace a bad one, it's important to concentrate on having good form from the beginning.

If you're new to archery, be sure you don't start out with a bow with a draw weight that's too heavy for you. It's a much better idea to start low and work your way up.

Form is especially important to recurve bow archers, as the limbs of a recurve bow are lighter and bad form could torque the bow – causing arrows to veer off target.

Your Shot Sequence

A shot sequence is just another way of saying "everything you do when you shoot each arrow". So for example: Standing up straight, nocking your arrow, drawing your bow back, aiming and finally releasing the arrow – is the shot sequence.

The following is a beginner shot sequence to get you started shooting today, you can always change it up later on, as you get more experienced at shooting.

Proper Stance

If you're right handed, your bow should be held in your left hand and you should stand at ninety degree angle to the target. Meaning that the outside of your left foot should be facing the target in a straight line.

Stand with your feet shoulder width apart, focusing on your posture as you draw the bow back. Your eyes should both be open, and should stay focused on the target from before you draw the bow back – until the arrow has hit the target.

Nocking the Arrow

The nock is just the part of the back of the arrow that hooks onto the bow string. Nock the arrow underneath the nocking point (the metal ring on the bowstring). Make sure that you hear an audible click as the arrow nocks onto the bow string.

The index feather (the odd colored feather or vane on your arrow) should be facing away from the bow for most setups. This can vary for compound bows with drop away arrows rests, or other setups.

Bowstring Grip

There are a few different ways to grip the bowstring when you draw back the bow and release the arrow, we'll cover a couple of them here.

First off, you shouldn't be holding the arrow at all. If the arrow is properly nocked on the arrow, the nock should hold on to the bowstring by itself. Your fingers should only grip the bowstring itself.

Grip the bow string with the index, middle and ring fingers. Use only the meaty part of your fingers, past the fingertips but not so far that it's in the first joint of your fingers.

You can either have the index finger above the arrow with the other two fingers underneath the arrow, or you can have all three fingers under the arrow. The first is referred to as shooting split finger, while the other is known as shooting 'three under'.

Just use whichever one of these feels more natural and comfortable to you. You could also use a release aid if you don't want to hold the bow with your fingers. A release aid is simply a little gadget that holds the bowstring and releases it by using a trigger.

Drawing the Bow

To draw the bow, draw back the string along your bow arm (your left arm if you're right handed). You should draw the bow in a straight line back to the anchor point on your face.

Your anchor point is where you hold your draw hand at full draw while you're aiming at the target. This is normally the chin, nose or upper cheek for most people.

When you draw the bow back, try to concentrate on using the muscles in your back. Your shoulder blades should move towards each other.

Anchor Point

Use whichever anchor point as described above feels most comfortable and natural to you.

If you're using a bow sight, the bow string should touch both your chin and your nose, this will help when aiming with your sight.

In this anchor point, the index finger is placed just under your jaw bone. Your mouth should be shut with your teeth together. You shouldn't have anything getting in the way, which means no gum in your mouth.

Ideally, your bow hand, elbow and your draw hand should all be in a straight line when you have the bow back at full draw. Keeping both your shoulders lower than this line, while still keeping a relaxed posture.

Take Aim

Aim at the target. You can use a bow sight or use other aiming techniques if you're shooting your bow without a sight.

Release the Arrow

Release the arrow by continuing to pull your shoulder blades towards each other, keeping the fingers of your draw hand relaxed enough so that the arrow almost releases on it's own once you get to the right point.

Follow Through

It's important to follow through properly with each shot. Don't be in a hurry to drop your bow down to see how well you shot!

After you release each arrow, wait until you hear the arrow hit the target before you move. Your bow hand will naturally allow the bow to drop if you're holding the bow properly.

If you're having trouble with this, you can get in the habit of counting to five before you move after each arrow is shot.

Climbing

Climbing and descending belong to the largest family of mountaineering. I usually climb or descend after a route in the mountains where I encounter an "obstacle" which we must overcome either going up or down, using the appropriate equipment. The above sports can be done in artificial fields, in open or closed spaces. I always carry out the above activities under the supervision of a specialist since special knowledge and skills are required. One can also attend classes at various levels through the local mountaineering clubs of the country and then be able to practice and have fun through these sports. All the necessary instruments for one or the other sport, in order to be sure of their users, are certified by the International Climbing and Mountaineering Federation (UIAA) as well as the European Union (CE) since for each imported species in it the certification is required of.

These certifications must be present in all institutions without any omission and this must be considered an axiom so that there are no exceptions. Also on the materials are written specialized data on what weight the materials lift, what size the material has, etc. The equipment that is necessary for a beginner in climbing is the mountaineering helmet, the appropriate straps (boulders) and the mountaineering rope.

EQUIPMENT:

The helmet is the first equipment that any climber must wear as soon as he is in the field in order to avoid the danger of a rock or stone that may come off and fall. The helmet consists of the outer shell which is hard but also malleable, withstanding at least 5 kgr on the upper side and 1.5 kgr on the sides. Internally it consists of straps that fit opening and closing on all the heads of the practitioners. The straps end in front of the practitioner's neck in a clip to secure the helmet and adjust so that it does not come out and shake when worn. Belts (boulders) are divided into two categories: the straps that tie at the waist and legs of the climber (middle boulders usually adults) and those that include straps that pass through the back and shoulders of practitioners except the waist and legs (full body boulders, usually children). The straps have sizes,

usually from XXS, XS, S, M with opening from 50 to 75 cm and bigger leg opening 55 cm, M, L with opening 75 to 100 cm and bigger leg opening 70 cm and XL, XXL with opening 100 and 125 cm and a larger leg width of 85 cm.

They are adjustable by opening and closing the straps at their ends and weigh about 380-440 grams. We wear the adult straps and tighten them over the extremities, hips and waist, and then tighten the straps for the legs. The straps must be securely attached to the practitioner's body so that they are comfortable and do not tighten the climber and on the other hand they are tied to provide safety to the practitioner. The rope we use for climbing has special characteristics such as length, weight, thickness and construction materials. The usual length of ropes we use in climbing is 60 meters, its weight is about 60 grams per meter and its thickness from 8.5 to 10.5 millimeters. The ropes are divided into single, double and twin.

USE OF MATERIALS: The above "instruments" are used after applying some techniques and after learning some knots. We start the learning by teaching the helmet dress. We explain to the participants that they can ask for the help of the other members of the rope company to wear their helmet properly. Then we continue showing how we wear our dress. And here we can use the help of our team members for the correct application of the boulder on their body.

TECHNIQUES: The first and most important knot that a climber must learn is the knot of eight. With this knot we secure the rope on our boulder and then we can start, after someone takes care to secure us, the climb. The way we make the knot of the octave is: We hold the rope with our left hand, leaving the very rope to our left and right • we leave about 1.5m of rope (we practically measure the distance with the opening of our hands which is corresponding to our height). We grab the end of the rope and pass it behind the long rope and lead it again • back and into the knot that was created. WE HAVE ALREADY CREATED THE OCTOBER KNOT. The excess rope in front of the eight-knot knot is passed from bottom to top through the position of the leg strap (next to the female, in the central "flow"), and through the position of the waist belt (next to the female , in the mainstream). We pull the rope

until the knot approaches near the boulder and then we start to pass the rope, following the rope that we put in the boulder, in the opposite direction and we create essentially a second octave.

After we fit the knot of the octave well, we pull and tighten the knot (tightening the ropes two by two above and below the knot. Then we tighten twice and one by one the 4 ropes we have in our hands). After we put on our equipment properly, we take a simple rope (in order to practice without the need for special equipment) and make the knot of the octave. We practice making the knot of the octave and tying it on our boulder.

The person responsible for the creation of the training material for participants in motor recreational activities, in cooperation with the scientific manager of the project, has fully fulfilled to date his obligations arising from his contract.

References

1. Association of Experiential Education (AEE). 2003. Definition of experiential education. www.aee.org/ ndef.html (accessed February 2005).
2. Beard, C., and J.P. Wilson. 2002. The power of experiential learning: A handbook for trainers and educators. London: Kogan Page Ltd.
3. Brannan, S. 2003. Outdoor programs and persons with disabilities. In Including youth with disabilities in outdoor programs, ed. S. Brannan, A. Fulllerton, J. Arick, G. M. Robb, and M. Bender, 3-18. Champaign, IL: Sagamore.
4. Dewey, J. 1938. Experience and education. New York: Touchstone.
5. Ewert 1989 Ewert, A. 1989. Outdoor adventure pursuits: Foundations, models, and theories. Scottsdale, AZ: Publishing Horizons.
6. Ewert, A. 1990. Wildland resource values: A struggle for balance. Society and Natural Resources 3: 385-393.
7. Gilbertson, K., Bates, T., Ewert, A., & McLaughlin, T. 2006. *Outdoor education: Methods and strategies*. Human Kinetics.
8. Hammerman, D.R., W.M. HAmmerman, and E.L. Hammerman. 2001. Teaching in the outdoors. Danville, IL: Interstate.
9. Hellenic Federation of Mountaineering & Climbing. http://www.eooa.gr/
10. Kaplan, R., & Kaplan, S. 1989. Toward a synthesis: The experience of nature: A psychological perspective. Cambridge University Press.
11. Kolb, D. A. 1984. *Experiential learning: Experience as the source of learning and development* (*Vol. 1*). Englewood Cliffs, NJ: Prentice-Hall.
12. Miettinen, R. 2000. The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education*, 19(1), 54-72.
13. Olson, S. F. 2012. *Reflections from the north country*. Knopf.
14. Oskamp, S. 2000. Psychology of Promoting Environmentalism: Psychological Contributions toAchieving an Ecologically Sustainable Future for Humanity. *Journal of Social Issues*, *56*(3), 373-390.
15. Priest, S. 1986. Redefining outdoor education: A matter of many relationships. *The Journal of Environmental Education*, *17*(3), 13-15.
16. Priest, S. 1990. The semantics of adventure education. *Adventure education*, 113-117. Venture State College, PA

17. Raffan, J. 1995. The experience of place: Exploring land as teacher. In Experiential learning in schools and higher education, ed. R.J. Jraft and J. Kielsmeier, 128-136. Dubuque, IA: Kendall/Hunt
18. Roston, H. 1985. Valuing wildlands. Environmental Ethics 7(1):23-48
19. Roth, R. E. 1969. Fundamental concepts for environmental management education (K-16). *Environmental Education*, *1*(2), 65-74.
20. Roth, R.E. 1969. Fundamental concepts for environmental management education (K-16). Doctoral dissertation. The Ohio State University, Columbus.
21. Stapp, W.B. 1969. The concept of environmental education. *Environmental Education* 1(1):30-31.
22. Tamir, P. 1990. Factors associated with the relationship between formal, informal, and non-formal science learning. *Journal of Environmental Education* 22(2):34-42.
23. U.N.E.S.C.O. (éd.), *Conference intergouvernementale sur 1'education relative à l'environnement, Rapport final* (Tbilissi, 14-26 oct. 1977), Paris 1977, ED/MD/49.

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ΔΗΜΟΣ ΔΡΑΜΑΣ

ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ

Municipality of Hadjidimovo

ЦУРП
Center for Sustainable Development of the Mountain