

Lorien Trust
Weapons and Armour
Construction Guidelines

2018 Revision



Introduction

This document is intended to be a guide to both basic construction of Live Roleplaying weapons for use at Lorien Trust events, and an explanation of what kind of things the Weapons Check team are checking for when examining your kit at the gate.

Each item is checked solely on its own merits and flaws in its given state when provided to the Weapons Check team, and so following the information provided herein does not guarantee that your kit will pass - 12mm of foam may be the required padding for a striking surface, but if the core is so large and heavy that it can be felt through the padding, more will need to be added.

If you are interested in becoming a member of the Lorien Trust Weapons Check team, please speak to one of our members and they will be able to direct you to the next available training session.

If you have any queries with regards to this guide, please contact enquiries@lorientrust.com

Melee Weapons

Weapon Lengths

Melee weapons at Lorien Trust events come in three sizes - Small, Medium and Large.

Small weapons are between **7"/17.8cm** and **18"/45.7cm**

Medium weapons are between **18"/45.7cm** and **42"/106.7cm**

Large weapons are between **42"/106.7cm** and **84"/213.4cm**

Oversized weapons should not be used.

Bladed Weapons

Foam Construction

Foam used should be LD45 Plastazote or an equivalent closed cell foam of approximately 45kg/m³ density. Lower density foams may be too soft to sufficiently cushion blows, whereas denser foams may be too hard.

Pommel

A minimum of 0.5"/12mm thick foam, fixed securely to the core. Any solid decoration such as gems must be recessed into the foam and have at least 0.5"/12mm of foam between it and the core, any surface mounted decoration must not be made of rigid materials and have sufficient give (25% of its thickness is a reasonable amount).

Weighting

It is permissible to weight the weapon, however all weighting must be fixed securely to the core and any weighting that extends from the handle into the pommel must be covered by 0.5"/12mm of foam.

Weighting should not extend into the blade.

Handles

The handle must be firmly fixed to the core, but does not necessarily need to be padded. If the handle is longer than two hand spans (approximately 16"/40.6cm) for a one handed weapon or three hand spans (approximately 24"/60.9cm) for a two handed weapon, it has to be padded as if it were a striking surface. Any weighting must be securely attached to the weapon and not extend past the guard into the blade. Any ricasso above the crossguard should be treated as if it is a striking surface and padded appropriately.

Crossguards

Must be made of foam. Any solid reinforcement (i.e. fibreglass/carbon fibre core) must be securely fixed to the core, covered by 0.5"/12mm of foam and not extend more than 10mm past the edge of the blade. Flexible reinforcement such as cloth, thin leather, suede or an equivalent material is permissible.

Blade

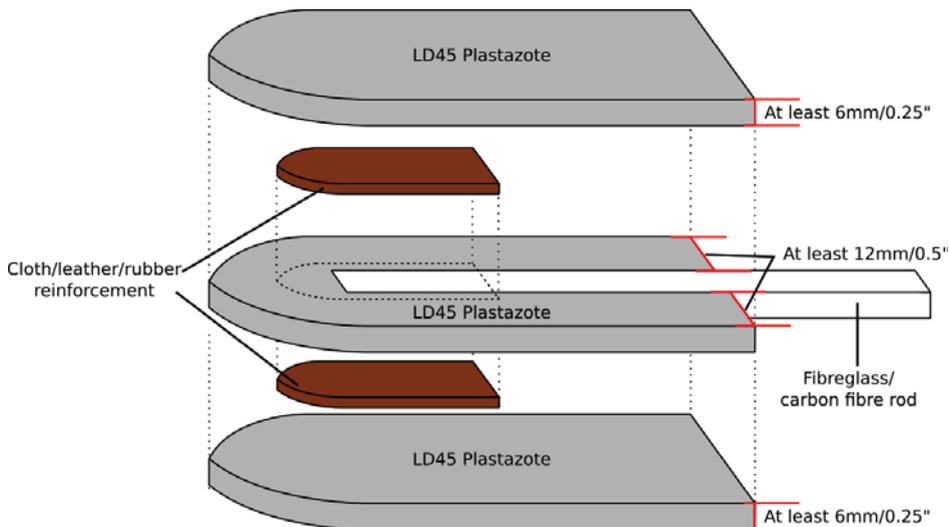
A minimum of 0.5"/12mm deep foam on the striking surface and 0.25"/6mm deep on the non-striking surface *after carving* - 0.25"/6mm thick with a 0.125"/3mm deep blood groove carved into it will not pass. The foam should be securely fixed to the core and layers of foam must be laminated

together firmly with a suitable grade of flexible adhesive, such as a solvent based impact adhesive. This glue should not become rigid under compression. Where possible the tip of the core should be rounded to prevent it working through the foam and be reinforced using cloth, thin leather, suede or an equivalent material. This material must not become rigid after the adhesive attaching it to the weapon has cured.

Flexibility

The core should be stiff, especially with regard to longer weapons so that they do not flex or “whip” more than 20% of the weapon length.

Example construction of a foam sword



Please note that the measurements on these diagrams are for demonstration purposes only and not necessarily a reflection of the actual measurements that each weapon is based on.

Hafted Weapons

Pommel

A minimum of 0.5"/12mm thick foam, fixed securely to the core. Any solid decoration such as gems must be recessed into the foam and have at least 0.5"/12mm of foam between it and the core, any surface mounted decoration must not be made of rigid materials and have sufficient give (25% of its thickness is a reasonable amount).

Weighting

It is permissible to weight the weapon, however all weighting must be fixed securely to the core and any weighting that extends from the handle into the pommel must be covered by 0.5"/12mm of foam.

Handles

The handle must be firmly fixed to the core, but does not necessarily need to be padded. If the handle is longer than two hand spans (approximately 16"/40.6cm) for a one handed weapon or three hand spans (approximately 24"/60.9cm) for a two handed weapon), it has to be padded as if it were a striking surface. Any weighting must be securely attached to the weapon and not extend past the guard into the blade. Any secondary handles above the first should be treated as if it is a striking surface and padded appropriately.

Shaft

The entire distance from the handle furthest from the striking end is considered a striking surface and therefore should be covered by a minimum of 0.5"/12mm of foam after carving and be securely attached to the core.

Hammerheads/Maces

Minimum of 0.5"/12mm of foam. Standard weapon foam should be securely fixed to the core with a softer foam, such as upholstery foam, forming the striking surface. These foam layers must be firmly laminated together with an appropriate flexible adhesive. The heavier/larger the head is, the softer the foam should be - don't get carried away with the size of the head as you have to be able to pull your blows. Any spikes should be no longer than 2"/51mm and the spikes should be completely collapsible, containing no rigid reinforcement.

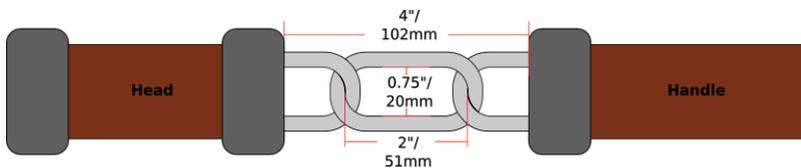
Axeheads

Axeheads are also obviously striking surfaces. These should contain no rigid core. Flexible reinforcement such as cloth, thin leather, suede or an equivalent material is permissible, which again should not become rigid when the adhesive attaching it to the weapon cures. The reinforcing should not come within 0.5"/12mm of the outer edges of the head. The head should also be securely fixed to the core.

Flails

Links

Links should be made of a flexible, non-elastic material such as leather, rope or firm rubber. You are allowed one half link protruding from the haft and one half link from the striking section/head. These are then joined by a single, full link as shown.. A full link has an internal measurement of no more than 2"/51mm long by 0.75"/20mm across. Inelastic rope may also be used instead of a set of links. The total distance between shaft and head should therefore not be more than 4"/102mm when stretched out, whether links or rope. This is to prevent entanglement around other weapons. Three (or more) section staves or equivalent weapons should not be used.



Striking Section/Head

The head should have no solid core, and be made of foam, preferably open cell polyurethane foam (such as sponge or upholstery foam).

Spikes

Spikes should not be more than 0.5"/12mm in length on a flail.

Length

Flail lengths will be measured laid out straight, i.e. handle length plus link section length plus head should not exceed the maximum length for the weapon size.

Nunchaku

For nunchaku type flails one end should be completely coreless - this is the striking end. This should be easily distinguishable from the handle, to avoid confusion and unintentional handle strikes in a mêlée.

Staves and Polearms

Pommel

A minimum of 0.5"/12mm thick foam, fixed securely to the core. Any solid decoration such as gems must be recessed into the foam and have at least 0.5"/12mm of foam between it and the core, any surface mounted decoration must not be made of rigid materials and have sufficient give (25% of its thickness is a reasonable amount).

Some people may also use staves and pole weapons as walking sticks. To protect the lower end from compression damage and wear on the ground, a soft leather pouch may be tied over the pommel. The knots should not protrude, and should have an equivalent give to any surface mounted decoration as discussed above. This should not be used as a striking end.

Weighting

It is permissible to weight the weapon, however all weighting must be fixed securely to the core and any weighting that extends from the handle into the pommel must be covered by 0.5"/12mm of foam.

Handles

The handle must be firmly fixed to the core, and should be padded with at least 0.5"/12mm of foam. Any weighting must be securely attached to the weapon and not extend past the guard into the blade. Any ricasso above the crossguard should be treated as if it is a striking surface and padded appropriately.

Blade

A minimum of 0.5"/12mm deep foam on the striking surface and 6mm deep on the non-striking surface *after carving* - 6mm thick with a 3mm deep blood groove carved into it will not pass. Remember this is an absolute minimum, and we would recommend, due to the increased mass and potential angular velocity of a two-handed weapon, that thicker foam should be used. The foam should be securely fixed to the core and layers of foam must be laminated together firmly with a suitable grade of flexible adhesive, such as a solvent based impact adhesive. This glue should not become rigid under compression.

Where possible the tip of the core should be rounded to prevent it working through the foam and be reinforced using cloth, thin leather, suede or an equivalent material. This material must not become rigid after the adhesive attaching it to the weapon has cured.

Hammerheads/Maces

Minimum of 0.5"/12mm of foam. Standard weapon foam should be securely fixed to the core with a softer foam, such as upholstery foam, forming the striking surface. These foam layers must be firmly laminated together with an appropriate flexible adhesive. The heavier/larger the head is, the softer the foam should be - don't get carried away with the size of the head as you have to be able to pull your blows. Any spikes should be no longer than 2"/51mm and the spikes should be completely collapsible, containing no rigid reinforcement.

Poleaxes

Axeheads are also obviously striking surfaces. These should contain no rigid core. Flexible reinforcement such as cloth, thin leather, suede or an equivalent material is permissible, which again should not become rigid when the adhesive attaching it to the weapon cures. The reinforcing should not come within 0.5"/12mm of the outer edges of the head. The head should also be securely fixed to the core.

Double-ended Weapons

A two-handed weapon with striking surfaces at both ends should be treated as the entire length of the weapon being a striking surface.

Injection Moulded Weapons

Injection moulded weapons should have a density of approximately that of the foam discussed above. Injection moulded weapons often start out harder than an equivalent foam weapon but will soften with use. This may lead to the injection moulded weapon deteriorating through heavy or consistent use. Injection points should be checked for solid protrusions where the moulding compound has not 'foamed' and cured as a rigid lump or point or a foreign object has been caught in the mould, and the weapon should be firmly attached to its core

Claws

Claws should be constructed of LD45 Plastazote, an equivalent closed cell foam, cast latex or similar soft material and must not have a core. The claws should be solid enough to hold their shape, but should be soft enough to flex when a strike is made. Flexible reinforcement such as cloth, thin leather, suede or an equivalent material is permissible, which again, should not become rigid when the adhesive attaching it to the foam cures. Cast latex claws may be filled with open- or closed-cell foam to increase structural integrity.

Claws should protrude at least 3⁷/₁₆mm past the tips of the fingers.

All claws must fasten to the wearers open hand or extended fingers. You must not be able to clench your fist and still have the claws in a striking position whilst wearing them. This does not mean that you cannot close your hands; only that you should not be able to hit someone with the claws with your hand closed.

Claw users will be expected to pass a Claw Competency test, and re-qualify themselves every three years. Claw Competency cards must be on your person while using your claws. Any creature that requires claws to be played - such as Were Creatures - may not be played if you do not have a Claw Competency Card.

Projectile Weapons

All archers are expected to have taken a Bow Competency test, and will be expected to carry their Bow Competency card when using their bow in an In Character area. All archers will be expected to provide their Bow Competency card on arrival at weapons check.

Bows

Compound bows, Mongolian composite bows and bamboo bows are not permitted within this system. The 'Mongolian style' wooden shortbows are permitted, subject to the checks below.

In general the Archer will be expected to string their bow, which should not have evidence of cracks, splinters or other damage. The bowstring should be firmly attached and in good condition.

Bow limbs / staves should be of wood or fibreglass. Riser/handle should be of wood, fibreglass or metal.

Bow limbs may be wrapped in material, or built up with resin or foam to make them appear more in character, but these modifications must not interfere with or alter the mechanics of the bow, nor be of a size or shape that may cause injury to those around the archer. These modifications must be in place when the bow is weighed.



Draw

Longbows and recurve bows will be tested using a standard set of bowscales at a draw of 28"/71.1cm. The draw weight at this distance must not exceed 30lbs/13.636kg with a small allowance for standard deviation in the set of bowscales being used.

ARROWS

Neither IDV Engineering Mark 1 LRP arrows nor the dimple-headed 'golf-ball' style are suitable for use with this system. IDV Mark 2 arrows are acceptable.

If the weapons check department is unsure of the construction of a home-made arrow, a Senior Weapons Checker may request that a sample be cut open in order to check the construction. If this is done, the Senior Weapons Checker will return the arrow to you, so that if the construction is called into question again, you will have a cutaway to show.

Previously unseen moulded arrows will be need to be subject to more strenuous testing prior to being allowed to be used at Lorien Trust events.

Shafts

The shafts should not exceed 28"/71.1cm from nock to the base of the arrowhead. The shaft should not splinter when lightly flexed or put under torsion.

Shafts should be made of wood or fibreglass tube. Dowel, Metal and carbon fibre shafts are not acceptable.

Nocks

The nock should be securely attached to the shaft and should not be cracked or broken. It should hold the arrow securely against the bowstring.

Fletchings

The fletchings should be securely attached to the shaft either in a set of three - one perpendicular to the line of the nock and the remaining two set at 120° and 240° around the shaft from the first, or a set of four - one set at 30° to the line of the nock and continuing around the shaft at 150°, 210° and 330° to the line of the nock.

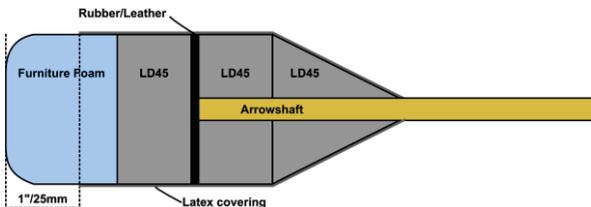
Heads

The head of an arrow should be at least 2"/51mm in diameter.

There should be no sharp points, bodkins, broad heads, bullet tips or piles on the end of the arrow shaft even under the foam.

The front face of the arrow should be made of upholstery foam at least 1"/25mm thick, which may have a hemispherical dome to improve its aerodynamics. Any latex, gaffer tape or other coverings around the outside of the foam should leave 1" of foam clear above it. The foam face should be securely attached to a piece of LD45 foam at least 1"/25mm thick. This should be backed by industrial rubber or leather (bicycle inner tube or boot leather tend to be sensible), no less than 0.125"/3mm thick.

A piece of LD45 foam at least 1"/25mm thick with a hole to accommodate the shaft is then securely glued in place. The shaft is then securely glued to the rubber/leather pad and the sides of the hole in the foam. Behind this another 2-3"/51-76mm LD45 foam should be glued to further support the shaft, this extra foam can be tapered or left as a cylinder.



Cross-section of an LRP arrow, using the build techniques described above. Moulded arrow types will differ in cross-section.

Crossbows

Hand Crossbows may be either powered by bungee cord and utilise a rigid prod, or be of a prod-driven design. Prod-driven crossbows are allowable under the provisions of the Crossbows Act 1987, section 3, i.e., not for use by persons under the age of 18.

<http://www.legislation.gov.uk/ukpga/1987/32/section/3>

The body of the crossbow should not be cracked or damaged, and the prod should be firmly attached and not cracked or damaged, and should have suitable attachment points to stop the cord from slipping down the prod when drawn.

The bungee cord or bowstring should not be frayed, damaged or repaired. A bungee cord should be attached by crimping the ends of the cord into loops with wire crimps or suitably strong cable ties, and a string should rest correctly in the notches on the tips of the prod.

The trigger mechanism should work fluidly, and the trigger should release the cord smoothly and evenly without the opportunity for snagging on the body of the crossbow.

Crossbows will have their draw weight measured at full draw, which must not exceed 30lbs/13.636kg.

Bolts

Shafts

Shafts length must be appropriate to the crossbow (there should be little space between the end of the shaft and the mechanism that projects the bolt, neither should the bolt be protruding inches past the bow when loaded), and no greater than 28"/71.1cm.

Shafts should be made of wood or fibreglass tube. Dowel, Metal and carbon fibre shafts are not acceptable. The shaft should not splinter when lightly flexed or put under torsion.

Nocks

If a nock is present, it should be securely attached to the shaft and should not be cracked or broken. Many bungee-powered crossbows do not utilise nocks on their bolts.

Fletchings

The fletchings should be securely attached to the shaft either in a set of two - both parallel to the line of the nock (if present), set on opposing sides of the shaft, a set of three - one perpendicular to the line of the nock (if present) and the remaining two set at 120° and 240° around the shaft from the first, or a set of four - one set at 30° to the line of the nock (if present) and continuing around the shaft at 150°, 210° and 330° to the line of the nock.

Please note that triple fletched bolts should only be used with a crossbow designed to take them, those having a channel cut in the bolt groove for the fletching to run in.

Heads

The head of a quarrel or bolt should be at least 2"/51mm in diameter.

There should be no sharp points, bodkins, broad heads, bullet tips or piles on the end of the arrow shaft even under the foam.

The front face of the arrow should be made of upholstery foam at least 1.5"/38mm thick - this face may have a hemispherical dome to improve its aerodynamics. The foam face should be securely attached to a piece of LD45 foam at least 1"/25mm thick. This should be backed by industrial rubber or leather (bicycle inner tube or boot leather tend to be sensible), no less than 0.125"/3mm thick.

A piece of LD45 foam at least 1"/25mm thick with a hole to accommodate the shaft is then securely glued in place. The shaft is then securely glued to the rubber/leather pad and the sides of the hole in the foam. Behind this another 2-3"/51-76mm LD45 foam should be glued to further support the shaft, this extra foam can be tapered or left as a cylinder.

Catapults and Slingshots

To use these, a competency certificate is required (such as is required for a bow).

Projectile weapons must conform to whichever of the Arrows and Bolts or Throwing Weapon safety guidelines is appropriate.

Hoopaks, Whipiks and other Throwing Weapon launchers

These will be judged on an individual basis by the Head Weapons Checker or a Senior Weapons Checker.

Throwing Weapons

Throwing weapons should not be weighted or be of a size likely to cause injury to the person hit. They may be reinforced internally using cloth or leather, or higher density foam as long as the outer surface is not compromised by this reinforcement. Very large items, such as barrels or chests should be hollow or made of lightweight open-cell polyurethane foam such as furniture foam. Throwing weapons **must not** be used in *mêlée* (hand-to-hand) combat.

Siege Weapons

All siege weapons will be checked on an individual basis by the Head Weapons Checker, the Head Ref and the IC and OOC management (or their deputies).

If you plan to bring siege weaponry, please inform the LT beforehand, so that we are aware that some is coming.

Practical considerations include damage to the weapon or others if it is struck or fallen, any areas where moving parts may come into contact with people, accidentally or otherwise.

Ogre bows and ballistae must be mounted on a stand and have a full team of three people for use.

Any person or crew intending to use this style of siege weapon must prove themselves competent in its use to the Head of Weapons Check, Head of Bow Comp, Head Ref or their deputies.

These weapons will have their draw weight measured at full draw - which must not be greater than 28"/71.1cm - and must not exceed 30lbs/13.636kg.

ARMOUR

General

Armour must be weapons checked if it contains fibreglass, plastic or metal, this includes raised studs or rivets on either cloth, padded or leather armour.

All armour will be checked on an individual basis and judged on its own merits - What appears to be identical may not be and may not pass.

Metal and plastic studs should not protrude more than 6mm from the surface if the armour, tower studs cannot be used. All studs should be securely affixed to their backing.

All rivets and chainmail links should be fully closed to prevent damage to weapons and people.

All straps and lacings should be securely attached.

All nuts and bolts should be secure and unlikely to come undone. Bolts should have rounded heads; hex bolts should be avoided where possible and wingnuts should not be used.

Rigid Plates

All armour made from metal or another rigid material (e.g., fibreglass, carbon fibre or plastic) must have any edges rounded off, or turned over, for safety.

All rigid armour will be checked for burrs and sharp edges. These must be filed, covering the edge with gaffer tape is not acceptable. This applies equally to edges inside and outside of the armour.

Gothic flanges protecting joints on platemail may be unsuitable for LRP, as they provide a large protruding edge which may damage weapons or people.

Metal

All steel armour of less than 1mm thick/19SWG should have the edges rolled or folded - Steel of less than 0.5mm/25SWG should not be used.

All aluminium armour of less than 1.5mm/16SWG should have the edges rolled or folded.

Aluminium of less than 1mm/19SWG should not be used.

Articulated gauntlets should not create rigid raised edges on the fingers, when the hand is closed around a weapon or other item.

Articulated pauldrons and tassets (and similarly constructed items) should be secured in such a way that the plates cannot be separated so items cannot get between the overlapping plates as when the plates close together they can cut like a guillotine.

Fibreglass

Fibreglass should not be cracked or splintered in any way. The edges should be intact or have been repaired with suitable resin or adhesive.

Plastic

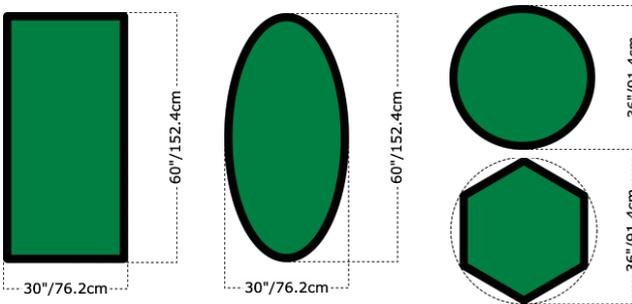
Plastic armour should be of sufficient flexibility that any deformation of the plates does not lead to fractures or shear points.

Helmets

On top of the above guidelines, and it should be noted that rigid protruding spikes, horns, flanges or wings will not be allowed on site. Flexible or collapsible equivalents are allowed. This applies to all headgear - crowns, circlets etc. - whether claimed as armour or not.

Shields

Tower shields should be no larger than 60"/152.4cm by 30"/76.2cm, and round or regularly polygonal shields should be no larger than 36"/91.4cm.



The shield shapes shown here all fit the given dimensions. Please note the Hexagonal shield has its *longest* dimension fitting within the 36"/91.4cm diameter circle.

There should be no hard or sharp protrusions such as bolt-heads, screw tips etc. on the either face of the shield. Where such are required for construction they must be countersunk and/or covered with a secure layer of LD45 foam.

Bolts should protrude no more than 5mm past the nut, if it is cut off it should be filed to remove sharp burrs. No wingnuts should be used in construction.

Bosses or any decoration made of metal or other rigid materials are not permitted. Any decoration beyond 20mm thick should be flexible (compressible to 50% of it's depth).

Wooden

0.3-0.5"/8-12mm plywood or solid wood should be used. Hardboard and chipboard are not suitable as they are not strong enough.

The front surface of the shield does not have to be padded but is recommended that it be padded with at least 0.25"/6mm of foam.

The edges should be padded with at least 0.5"/12mm of foam. This padding should extend at least 0.75"/20mm onto the front and back surfaces and be firmly attached.

Foam

Any reinforcement/core should be faced with at least 0.5"/12mm of foam and should end at least 0.75"/20mm from the edges.

Foam shields may be constructed with foam of a greater density than 45kg/m³, as long as the edges are not rigid enough to cause injury.

Shields may use fibreglass rod to provide a handle between multiple layers of foam. Both ends of the rod should be rounded to prevent to prevent it working through the foam and be reinforced using cloth, thin leather, suede or an equivalent material. This material must not become rigid after the adhesive attaching it to the weapon has cured.

Plastics

Plastics may be used to form shields, but these should be of sufficient flexibility that any deformation of the plates does not lead to fractures or shear points.

Polycarbonate Riot shields may be used as shield bases.

Props and Prosthetics

Banners and Non-Combat Props

These are pieces of kit that add atmosphere and realism to the game, but are NOT intended for use in combat. Some examples include banners, boxes or barrels that are used to store money, water, anything else that may be taken into an area when combat may occur. These items do not have to adhere to the strict guidelines covering weapons, but must conform to the basic standards above. They **must not** be used **to strike with** in any form of combat, as an offensive or defensive weapon. They will be identified by a NCP card, signed by a Senior Weapons Checker.

Ritual Props

Ritual props need not necessarily be non combat props. Any that are not, however, should be kept away from areas where combat may occur, and should not enter these unless being take to, or returned from, the Ritual Circle.

Live blades are **never** usable as ritual props.

OOC Cards

These are pieces of kit or costume used for an OOC reason, for example walking sticks which aid the player rather than the character. They **must not** be used **to strike with** in any form of combat, as an offensive or defensive weapon. They will be identified by a yellow OOC card, signed by a Senior Weapons Checker.

Prosthetics - Wings, horns and Tails

While not actually weapons or armour, we would like to see any rigid, reinforced or articulated prosthetics - just to make sure that in combat they will not cause a problem to yourself, other players or their weapons. These should be seen by a Senior Weapons Checker.

The Lorien Trust Weapons Check team would like to thank all those who have contributed to the information in this guide, including but not limited to: Greenie, Chalkie, Emma Woods, Mike Stringer, Steve Powell, Stephen Sayers, Milesy, Ben Price, Ian Thomas, Nuz, JC and CJ.