

Target Shooting



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This is the fifth edition of the factsheet on the subject of Target Shooting. The Rules of the Scout Association with regard to shooting with Firearms are set out in the Association's Policy, Organisation and Rules. Anyone proposing to arrange shooting as a Scout activity must be familiar with these Rules and with the relevant Law. The person taking charge of the activity as the "Range Officer" must hold an appropriate national governing body qualification.

The purpose of this factsheet is to help Leaders arrange target shooting activities and to facilitate discussion of the issues associated with target shooting. Examples of related activities not involving firearms and suitable for a wider age range are also included.

What is a Firearm?

The term "Firearm" is defined in Section 57 of the Firearms Act 1968. This defines a firearm as a lethal barrelled weapon capable of the discharge of any shot, bullet or other missile. So, in order to be classed as a firearm, an object must be a weapon, it must have a barrel through which some kind of missile is fired and the effect of the missile on the target must be potentially lethal. Lethality is a complex issue but it is accepted that a device not capable of inflicting "a more than trivial injury"—one in which only superficial damage such as bruising occurs—will not be classed as a Firearm. Most air rifles and air pistols are capable of inflicting a lethal injury and so are Firearms. The Rules regarding shooting in POR apply only to the use of Firearms as defined in law. However, many of the underlying principles should be applied to target shooting games with non-lethal equipment to ensure safety and to

encourage young people to develop a good safety culture.

Target Shooting – an Olympic sport.

Target shooting is an Olympic sport, and one in which the United Kingdom has an excellent record. Success requires concentration and the disciplined control of both mind and body. It is a sport in which young and old, male and female, can compete together and which is available to many people to whom a lot of sport is inaccessible, for example those who are blind or in wheelchairs.

Types of Target Shooting recognised as Scout Activity

Target shooting with airguns (air rifles and air pistols) is the most accessible form of the sport and it is possible to set up a safe airgun range in almost any Scout Headquarters. Shooting is typically on indoor ranges either 6 yards or 10 metres long. The relevant National Governing Body is the National Small-Bore Rifle Association (NSRA), Lord Roberts Centre, Bisley Camp, Woking, Surrey, GU24 0NP. Tel: 0845 130 6772.

Outdoor shooting at reactive targets is also a recognised air rifle discipline. Known as Field Target shooting, it is usually conducted under the auspices of the British Field Target Association (BFTA), P.O. Box 2242, Reading, Berks, RG7 5YY. The BFTA is affiliated to the NSRA. The distances involved will typically vary between 7 and 50 metres. Specific rules for the conduct of target shooting with airguns as a Scout-led activity are contained in POR.

The Scout Information Centre

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The use of small-bore rifles (usually firing .22inch rimfire cartridges) is also governed by the NSRA through a system of affiliated clubs. Small-bore rifle clubs that meet a stringent set of criteria are approved for this purpose by the Secretary of State for the relevant Government Department (The Home Office, The Scottish Office, and the Northern Ireland Office as appropriate to the part of the UK). Scouts may practice target shooting as a member or guest of one of these "Home Office" approved clubs. Small-bore rifles are very much more powerful than air rifles and the ranges on which they are used by approved clubs will have been inspected for safety by the military authorities and will have a range safety certificate. These ranges may be indoors or outdoors and will usually be from 15 yards to 100 metres in length.

Clubs carrying out target shooting with full power rifles and muzzle-loading pistols must be approved for this purpose by the Secretary of State for the relevant Government Department. Scouts may practice target shooting as a member or guest of one of these "Home Office" approved clubs. Shooting is generally outdoors over distances from 50 to 1200 yards. Ranges are inspected for safety by the military authorities and will have a range safety certificate. The national governing body is the National Rifle Association (NRA), Bisley Camp, Brookwood, Woking, Surrey, GU24 0PB. Tel: 01483 797777.

Clay Pigeon Shooting is target shooting with shotguns at moving targets. It is an outdoor activity. The target is a "clay" – a disc projected into the air or along the ground from a "trap" and which breaks when hit. The national governing body is the Clay Pigeon Shooting Association (CPSA), Edmonton House, Bisley Camp, Brookwood, Woking, Surrey, GU24 0NP Tel: 01483 485400. Scouts may participate in clay pigeon shooting under the standards and controls of the CPSA. Assurance that these standards are being applied is most readily achieved by participation in the activity as a member or guest of an affiliated club.

There are several other national bodies associated with the shooting sports. The Muzzle Loaders' Association of Great Britain is concerned

with muzzle-loading rifles and pistols. The Great Britain Target Shooting Federation is an "umbrella organisation" for International target shooting and the British Association for Shooting and Conservation is the UK representative body for country shooting. All of these bodies issue qualifications recognised by The Scout Association in range safety and the proficient use of firearms (see below).

The use of firearms on Service premises under the supervision of an authorised member of the armed forces, such as may take place on a military "open day" is permissible as a Scout activity. The range management qualifications issued by HM armed forces and UK Police forces are recognised by The Scout Association.

The Debate – Is Shooting Suitable?

The possibility of parental or any local sensitivity to the activity needs to be taken into account when planning to incorporate target shooting into the Scout programme. The use of guns in sport can raise issues which it may be helpful for the young people to discuss prior to participation in the activity. The following is a brief summary of the points for and against which may help in discussions.

The case for

Target shooting brings forward many virtues. Guns are potentially dangerous and any young person participating will need to learn and apply the safety rules. By this means they should gain an understanding of the need for an appropriate safety culture in the handling of dangerous equipment in general. Strong self discipline is required for undertaking shooting and a great deal of co-ordination is required in the aiming and firing process, which also requires a great deal of concentration, patience and self control. Dedication is required to improve the shooting posture and so improve shooting technique and gain better scores. All of these virtues are of great benefit in the development of a young person. Shooting allows those who are less physically able to participate and gain the self esteem from competing on equal terms with physically able

young people. Many other sporting disciplines, such as archery, throwing the javelin, parachuting, gliding and orienteering, exploit present or former military skills and their adoption as sports in which friendly competition takes place at international level is a positive contribution to world peace.

The case against

Historically, the one purpose of a gun was to kill or incapacitate a fellow human being or animal. Although guns nowadays tend to be used in a sporting context, it does not alter the fact. In America, the gun culture is proving very hard to break. A gun culture is starting to grow within this country and it is not sensible that The Scout Association should assist by allowing Scouts to participate in shooting. Scouting is not a military organisation but by far and away the greatest users of guns are the military. We should not, therefore, even contemplate their use. Within the spiritual development of young people which Scouting aims to encourage, shooting does not fit well and we should therefore not offer the opportunity to handle guns. In aiming to work towards a peaceful future there is no place in the world for guns and, therefore, training in guns, even air guns for sporting purposes, is inappropriate.

Safety culture

Target shooting has an excellent safety record, with one of the lowest accident rates of all Olympic sports. This may seem surprising in view of the obvious hazards associated with the handling of firearms but it is because the hazards are so obvious that shooters have an excellent safety culture. It must be stressed to all newcomers to the sport that ultimately safety is the personal responsibility of the shooter for on the firing point firer, firearm and ammunition must all come together. It is this necessary and very visible concern for safety which gives target shooting such a high training value for the development of young people.

Age considerations

The law does not stipulate a minimum age for the handling of firearms under supervision and on private premises. However, it is a key principle of the Scout Association's Rules for all activities that they should be appropriate to the maturity and ability of each participant and that equipment should be of the appropriate size. The size of gun is very significant. Young people do not benefit from being invited to "have a go" with an air rifle which is far too big for them. This sets them up to fail with the result that they may easily be put off the activity.

The mental maturity of potential participants is even more important because this is a matter of safety. They must be capable of understanding the need for the safety rules and the rules themselves. They must be willing to obey them. They must also be able to distinguish reality from the fantasy or "play" world of "Cowboys and Indians" and understand the very real responsibilities of being entrusted with a firearm. It has been suggested that for most children this occurs at some time between the ages of 8 and 10. The responsibility for inviting young people to take part in target shooting as a Scout activity rests with the Leaders who know them well and can judge their fitness to take part.

Parental Consent

For those under the age of 18 years it is a requirement of POR that written parental consent is gained prior to the activity. Details of the particular form of shooting should be given with as much detail as practicable. This will help parents and the young people themselves to decide whether they consider the activity to be suitable for them. For some, the shooting of an air gun may be considered acceptable but not the shooting of a cartridge firearm. Others may consider the use of target rifles of all calibres acceptable but not air pistols. Such parental opinions must be respected.

Section 21 of the 1968 Firearms Act prohibits the possession of a firearm and ammunition by any person who has been convicted of a crime and

sentenced to a term of imprisonment or its equivalent for young persons of 3 months or more.

The prohibition applies in all circumstances and to all categories of firearms and ammunition including those such as airguns or shot cartridges for which a certificate is not needed.

A sentence of 3 months to 3 years attracts a 5 year prohibition, shorter ones no prohibition but a longer one means a life ban.

Although not strictly a legal requirement, it is good practice to obtain a declaration that participants are not prohibited persons under Section 21 of the 1968 Firearms Act. It may conveniently be combined with the parental consent. This declaration should also be obtained from any adults who may be invited to participate in or assist with the activity. A specimen form indicating the activity information that should be supplied and sought is attached to this Factsheet. The spaces for administrative information are not intended to be prescriptive but are provided for the convenience of those who wish to photocopy the form rather than produce their own.

How to arrange the activity

For most, the starting point will be an air rifle range at a Scout HQ or campsite. Many Scout Counties/Areas will have an Activities team who can provide the necessary qualified instructors and equipment. If no local back-up of this type is available a local rifle club may be able to help. The NSRA will be happy to put you in contact with clubs. Note that the guidance about airgun shooting given in this Factsheet applies to Great Britain but NOT to Northern Ireland, where airguns are subject to additional legal controls, essentially those applicable to small-bore rifle shooting in the rest of the UK.

Delivering air rifle and air pistol shooting as Scout activities independently at Group or Unit level or by a Campsite needs the following before the air guns may be brought onto the relevant premises:

- Knowledge of the relevant Law on the part of the Group Scout Leader, District Explorer Scout

Commissioner or Campsite Manager as applicable,

- Prior permission in writing from the home District/County Commissioner
- Prior permission in writing from the person authorised to be in charge of the premises or camp site where the shooting is to take place
- Adequate arrangements for the security of the firearms when not in use (including whilst in transit).

At least one suitably qualified Instructor, preferably several, will be required to actually run the activity.

The list of qualifications recognised by the Scout Association, a brief guide to the relevant Law (in England) and advice on security are contained elsewhere in this Factsheet.

To arrange target shooting with small-bore or full-bore target rifles or with muzzle loading rifles and pistols, or clay pigeon shooting contact your local club or the relevant national governing body (listed above).

Range Conducting Officer Qualifications

Holders of any of the following qualifications may supervise the shooting of airguns as a Scout activity:

Great Britain Target Shooting Federation:

Coach Educator,
National Coach,
Regional Coach,
County Coach,
Club Coach.

National Rifle Association:

Club Instructor,
Cadet Adult Instructor,
Range Conducting Officer;
Range Conducting Officer Assessor.

National Small-bore Rifle Association:

Youth Proficiency Scheme Tutor,
Youth Proficiency Scheme Tutor Trainer,
Range Conducting Officer,
Club Instructor (Rifle, Pistol or Airgun)
NSRA Club Coach,

NSRA County Coach.

The Muzzle Loaders Association of Great Britain:
Approved Instructor.

British Association for Shooting and Conservation:
Airgun Coach.

H.M. Armed Forces:
Range Conducting Officer.

Police Forces:
Range Conducting Officer.

It should be noted that many of these qualifications relate to the use of firearms very much more powerful than airguns. Accordingly, their holders will be very well versed in range safety generally but some may be unfamiliar with the range design principles necessary to overcome the specific hazard of short range airgun shooting – that of “bounce-back” from the stop butt. The attention of those whose training and experience do not include airgun range construction should be drawn to the relevant section in this factsheet (below) or to the Codes of Practice on this subject issued by the military authorities and the NSRA if they will be setting up ranges “from scratch” as opposed to operating only on ranges of proven safe construction.

The use of “Range Assistants” or “Safety Supervisors”

Qualified Range Officers may be assisted in the running of the range by others who need not hold formal qualifications. This is encouraged as a means of developing young people in taking responsibility for the activity and its administration. These people must operate within their “demonstrated competence” as determined by the qualified person taking responsibility for the range.

“Range Assistants” do things not involving the direct supervision of the shooters on the range - such as marshalling people, counting pellets, changing targets and scoring.

“Safety Supervisors” need a higher degree of competence as shooters. They can be used to provide close supervision of shooters while on the range, it being understood that they operate at all times under the overall supervision of the Range

Officer. They can help the shooter interpret the range officer's instructions into actions such as loading, aiming, firing, making visibly safe. They can provide the close supervision that may be needed to ensure a beginner “keeps it pointing down the range”.

The degree of supervision needed will be influenced by many factors, most notably the competence of the shooters concerned, and is at the absolute discretion of the qualified Range Officer.

Types of Target:

Most target shooting is carried out using paper targets. For most disciplines the targets have circular aiming marks and concentric scoring rings but other geometrical designs may be encountered and are acceptable for Scout use. The use of targets representing human beings or animals is not permitted as a part of any Scout activity, nor on property owned or leased by, or used in the name of, the Scout Movement.

Modern purpose built airgun and small-bore ranges may have electronic target systems where the scoring is achieved automatically, displayed on the firing point and printed at a central console.

In addition, there are a number of types of reactive targets available for airgun shooting. These will generally “fall when hit” providing “instant feedback” to the shooter and to spectators and can be very enjoyable to use. They may be obtained as sets of targets in a box or frame intended for indoor use or as individual targets to be set out on the ground outside for “Field Target” shooting. Both types of target are available in geometric shapes and these are acceptable for use by Scouts and on Scout property subject to compliance with the relevant range construction guidelines.

The Construction of Airgun Ranges

Airgun ranges to be used by Scouts or on Scout premises must have been properly constructed to comply with the guidelines issued by the National Small-Bore Rifle Association or the National Rifle Association and with any bye-laws relevant to the

location of the range. These guidelines derive from the criteria for Airgun Range Construction contained within the Ministry of Defence Joint Services Publication 403 Volume II. The following notes are intended for the information of those who may be asked to authorise the construction of a range on premises under their control and for Range Officers whose training and qualifications relate to firearms other than airguns.

The principal danger peculiar to airgun shooting is that of pellets bouncing back from striking a hard or reflective surface near the target area.

Indoor Ranges

A suggested range layout for an Indoor Range is attached to this factsheet. On indoor ranges each target will be mounted in a holder with a pellet catcher designed to trap the pellet and to withstand repeated impact. The range should be constructed with a backstop to prevent damage to walls and fixtures from the occasional shot that misses the target holder and pellet catcher. Safe backstop materials are those which:

- Totally resist the pellet, causing it to lose all its energy in deforming – examples are a heavy steel plate or a thin steel sheet mounted directly in contact with a rigid material such as chipboard - or
- Decelerate the pellet and dissipate its energy – examples are loosely hanging sheets of carpet or heavy canvas (which may be made even more effective by suspending two pieces about three inches (70mm) apart - or
- Allow initial penetration followed by deceleration and expansion – examples are combination materials forming a sandwich such as hardboard/carpet/chipboard and hardboard/expanded polystyrene/ chipboard.

Backstops of the last two design types should be inspected regularly as they will deteriorate in use. The following materials are generally NOT safe to use on their own for the reasons shown:

- Hardboard – penetration
- Thin steel sheet – penetration
- Chipboard – vicious rebound

- Timber (hardwood) - vicious rebound
- Timber (softwood) – unpredictable rebound.

Purpose made pellet catchers and target holders are commercially available and their use is recommended. However, acceptable temporary target holders can be made from large cardboard boxes filled with newspapers, magazines, bits of carpet etc.

A properly constructed airgun range is one that does not present a significant rebound hazard. Ranges that do should not be used. Accordingly there should be no need for individual eye protection by shooters or range staff. A range of new construction should be tested for rebound before being used by young people. This test should be repeated after backstop renewal. During this testing, eye protection should be worn. Air pistols have a lower permitted energy limit than air rifles and the lower pellet energy means that rebound (as opposed to penetration) is more probable from certain types of backstop. Ranges on which air pistols are to be used should therefore be tested for rebound with air pistols as well as air rifles.

Outdoor Ranges

Outdoor airgun ranges may be constructed either with or without a stop butt. For those with a stop butt, similar rebound considerations apply as for indoor ranges. In addition, the absence of a roof could allow an accidental shot at high elevation to go over the top of the stop butt and consideration should be given to operating a full danger area template. The danger area template for airgun ranges without an effective stop butt is shown in the diagram at the back of the factsheet.

Equipment

Calibre

POR Rules concerning airgun shooting other than as an activity of a Home Office Approved club specifically limits calibre to .177 inch or less. The reasons for this are as follows:

- For target shooting at paper targets a standard calibre is used to enable fair competition (all

pellets make similar sized holes); .177inch is the internationally recognised calibre for this purpose.

- .22inch is the calibre of choice for shooting at live quarry. Target shooting is recognised as a Scout activity; shooting at live quarry is not.
- The maximum permitted muzzle energy for air rifles not requiring a Firearms Certificate is 12 ftlbf, regardless of calibre. .22 air rifles are generally made with muzzle energies near this limit so that they are most effective against live quarry. The muzzle energy of a .177-inch air rifle designed for target shooting at 6yds or 10 metres may be around half this value, with a resultant lower potential for harm in the event of an accident.
- A typical .177 pellet will lose its energy through aerodynamic drag more quickly than a .22 pellet of the same muzzle energy. This means that over longer distances a negligent “loose shot” with a .177 pellet presents a lesser hazard in the event of an accident.

Pellet type

POR Rules also specify that the pellets used must be ‘diabolo shaped’ and of soft deformable metal such as lead. This is to minimise the risks of “bounce-back” from the target area. Tests have shown that pellets of some other types, notably steel BB and plastic “Zaps”, rebound badly from traditional steel target boxes.

Security

It is essential to keep airguns secure when not in use. They are attractive to young people, who may not fully appreciate their potential to cause injury, even death. Unsupervised access by young people must be effectively prevented. This will involve keeping airguns under lock and key when not in use. For permanent storage in an HQ or campsite a dedicated and robust cupboard or other container fixed in a permanent lockable building is recommended. Its purpose should not be apparent from the outside.

Where there is no practicable alternative to short term storage in a vehicle, guns should be hidden, preferably in a separately locked area such as a

car boot. If a choice of several vehicles is available, choose one with an alarm.

Remember that security “under lock and key” is only as good as the security of the keys. Keys protecting guns must be protected to the same standards as if they were the guns themselves and not left accessible to young people.

Target Shooting activities not involving Firearms

Archery is the subject of a separate Rule in POR and has its own Factsheet (FS120406).

Some airguns, those of the type generally referred to as "airsoft" guns, have muzzle energies well below the level at which (on the basis of expert advice from the Forensic Science Service)¹ a penetrating injury can occur. Because of this they do not fit the definition of a firearm and do not come under the control of the Firearms Act. Use of "airsoft" and similar guns by Scouts lies outside the scope of the POR Rule on “Shooting with firearms” and is subject to the general rules relating to risk assessment. A direct hit from very close range would cause bruising and such guns should never be fired at living people or at animals. Range safety rules should be followed so that users learn good habits.

Members of the Scout Movement may not take part in “Paintball games” as a Scout activity but may take part in Target Shooting using Paintball equipment.

Laser Clay Pigeon “shooting” is a laser game and is not a firearms activity. POR Rules require that parental permission is obtained and the activity is included on the sample form attached to this Factsheet for the convenience of users.

Other “Accuracy” games

There are many “accuracy” games which develop the basic skills of target shooting. They may be played with balls, Frisbees etc and many are suitable for very young children.

¹ Home Office Memorandum <http://www.parliament.the-stationery-office.co.uk/pa/cm199900/cmselect/cmhaff/95/95ap05.htm>

An example suitable for Beavers would be to play a target practice game. Mark a target on the floor and teams take it in turns to slide a plastic dish across the floor on to the target.

Alternatively, try throwing a soft ball at a target such as a bucket or chair to try and hit it.

Members from Cub age upwards will enjoy forms of "crazy golf" or putting played with golf equipment (use the light plastic balls indoors!).

Water pistols can be used for accuracy games. In pairs, try to force a hole through a stretched out piece of kitchen roll or toilet paper using water pistols. The pistols must not go over a marked line. This works best on a table top.

Discussion and Debate

Debating an issue in a formal manner offers training value both in logical thinking and in public

speaking. The use of firearms for sporting purposes is a suitable subject for debate by Scouts and Explorer Scouts. Some of the arguments for and against have been set out above. A "set piece" debate can be held in which Members represent the views of various interest groups such as the anti-gun lobby and the shooting organisations. Examples of the cases "for" and "against" target shooting are given in this Factsheet and critical analysis of these could form the basis for discussion. The value of the exercise is increased if Members are given sufficient advance notice to be able to research more thoroughly the views they are to represent. The rest of the Unit forms the "studio audience" and votes on the proposition both "before" and "after" the debate to enable the speakers to see what influence they have had on the opinion of others.

Activity Information and Parental Permission Form – Shooting



Written parental permission is needed before a young person can take part in this activity

Upper section to be completed by Leader.

Lower section to be filled in by parent or guardian and returned to Leader.

Name of Unit or Section:

Activity Information: *(please tick the appropriate box)*

- | | | |
|--|---|--|
| <input type="checkbox"/> Air rifle shooting | <input type="checkbox"/> Clay pigeon shooting | <input type="checkbox"/> Rifle shooting |
| <input type="checkbox"/> Air pistol shooting | <input type="checkbox"/> Shotguns on a range | <input type="checkbox"/> Laser clay shooting |
| <input type="checkbox"/> Other <i>(please specify)</i> : _____ | | |

Date or period _____

Administrative Information:

Start Time _____ Finish Time _____

Place: _____ Is transport provided? YES/NO

Cost _____ Cheque payable to _____

Additional information

Emergency contact telephone No. _____

Leader: _____ Contact details: _____

If any additional information is required please do not hesitate to contact the Leader of the activity.

Parent or Guardian's consent

I, being the parent/guardian of the person named below, declare that he/she is not subject to restriction by virtue of Section 21 of the Firearms Act 1968 (which applies only to persons who have served a term of imprisonment or youth custody) and give permission for:

_____ (name of young person) to take part in

_____ (proposed activity)

Please state if he/she has a disability or medical condition relevant to this activity:

Please indicate details of any medical treatment they are receiving at the moment:

I am *able/unable* to provide transport *(delete as appropriate)*

I enclose a fee of _____

Contact details in the event of an emergency: _____

_____ Tel: _____

Name _____ Signature _____ Date _____

Extracts from the Firearms Act 1968

'Section 21'

- (1) A person who has been sentenced (to custody for life or) to preventive detention, or to imprisonment or to corrective training for a term of three years or more (or to youth custody (or detention in a young offender institution) for such a term), or who has been sentenced to be detained for such a term in a young offenders institution in Scotland, shall not at any time have a firearm or ammunition in his possession.

- (2) A person who has been sentenced to imprisonment for a term of three months or more but less than three years (or to youth custody (or detention in a young offender institution) for such a term), or who has been sentenced to be detained for such a term in a detention centre or in a young offenders institution In Scotland, shall not at any time before the expiration of the period of five years from the date of his release have a firearm or ammunition in his possession.

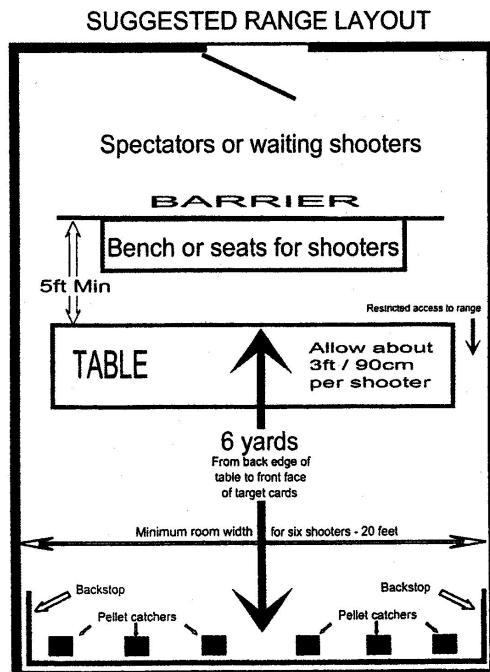
This means:

Section 21 prohibits the possession of a firearm and ammunition (under any circumstances), by any person who has been convicted of a crime and sentenced to a term of imprisonment (or its equivalent for young persons) of 3 months or more. The prohibition applies in all circumstances, including handling and firing at an approved shooting club or at a clay pigeon shoot where a certificate is not ordinarily required. It also applies to the possession or use of other categories of firearms and ammunition such as AIRGUNS or shot cartridges for which a certificate is not needed.

A sentence of 3 months to 3 years attracts a 5 year prohibition, shorter ones no prohibition but a longer one means a life ban.

Range Layout Diagrams

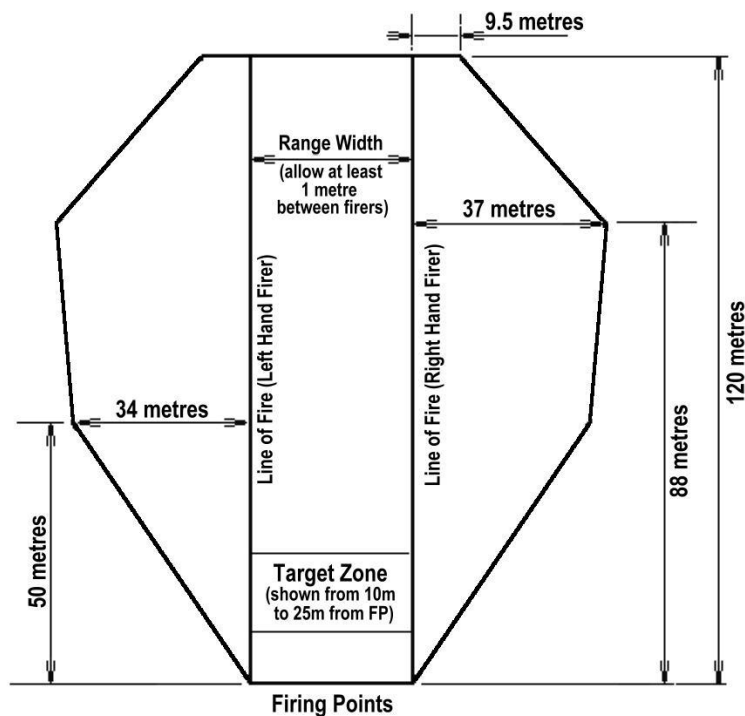
1. Indoor Range:



Notes on the Indoor Range Diagram:

- This diagram is indicative only.
- 6 yards is the minimum distance for safe airgun shooting.
- Security of the area in front of the firing points is vital. Any doors in front of the shooters' table must NOT be capable of being opened from the outside.
- It is desirable to have a separate area where shooters may be briefed before entering the range.

2. Outdoor Range Danger Area Template:



Notes on the Outdoor Range Danger Area Template:

- The entire Danger Area must be secured and should be overseen by the Range Officer.
- The original template in the Code of Practice is expressed partly in angular units and is shown here converted to wholly linear units for the convenience of users.
- Lines of Sight must be below the horizontal (i.e. targets below muzzles)
- These dimensions relate to horizontal ground.
- Note that the Range Danger Area extends 120 metres from the Firing points.
- Down-range distances increase if the ground falls beyond the targets and may be reduced if the ground rises beyond them.

- If all Lines of Sight are parallel, The Danger Area width is:
 - equal to the Range Width plus 68 metres at 50 metres from the Firing Points
 - equal to the Range Width plus 74 metres at 88 metres from the Firing Points
 - equal to the Range Width plus 19 metres at 120 metres from the Firing Points.