

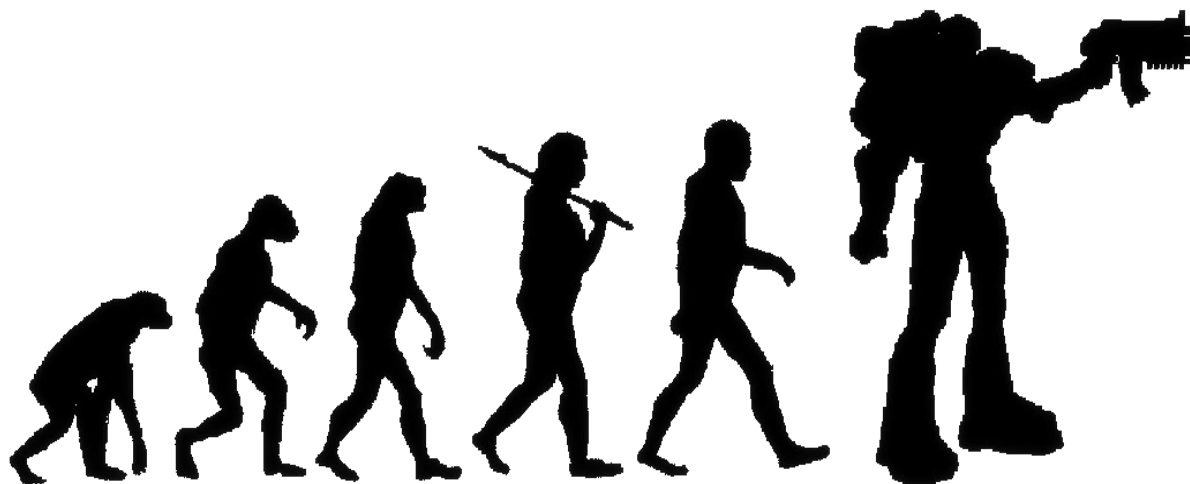


UNIT-3

WEAPON TRAINING

Knowledge	Understanding	Application Skills	Evaluation
Elementary knowledge about rifles and shooting.	The students will understand the different positions in which the rifle can be operated; how firing is done; how the trigger is operated; how to handle the recoil.	The students will become alert and careful as handling weapons will in still in them a sense of responsibility for their own and others safety.	Activities, work sheets and assignments, mock exercises

Learning to shoot has been man's basic instinct from the early ages. Early men went out into the jungle with bows, arrows and weapons for hunting and also used them to protect themselves from dangerous animals and enemies. As times progressed, more weapons evolved to include, sophisticated blade equipment and, still later, cannons, rifles, machine-guns, tanks, battleships, war planes, rockets – and eventually nuclear weapons have made their way into the modern defence technology.



Advancement of Weapons

Weapons have always played a crucial role in the society, moulding and changing the course of history. They have destroyed civilizations and created new ones. Apart from their employment in warfare and other combat situations, they are also used for the maintenance of law and order and for border security.



Weapon training is a very important component of NCC Programme. Training of shooting with rifles is an integral part of this programme. The fine art of shooting, teaches a person precision, accuracy, co-ordination of body movements, patience and confidence which all help to make him a better man in the public life. The shooting at the ranges helps an individual to master this as a sport and also to learn handling of a weapon for self-protection.



NCC Cadets given arms training

Characteristics of .22 Rifles, Stripping, Assembling, Care and Cleaning and Sight Setting

Characteristics of Rifles

S. No.	Details	Rifle .22 No II MK IV BA	Rifle .22 Deluxe BA
(a)	Length	45"	43"
(b)	Weight	8 lbs 10 ½ oz	6 lbs 2 oz
(c)	Magazine capacity	10 Rounds	05 Rounds
(d)	Muzzle velocity	2700 per second	2700 per second
(e)	Grooves in the barrel	06	06
(f)	Effective range	25 yards	25 yards
(g)	Max range	1700 yards at 33 angle	1700 yards at 33 angle
(h)	Calibre	.22	.22
(i)	Ammunition	.22	.22
(j)	Rate of fire:	05 rds pm	05 rds pm
	(i) Normal	10-15 rds pm	10-15 rds pm
	(ii) Rapid		



Weapon Training



Rifles



Fig- 1: Rifle .22 No 2 MK IV



Fig-2: Rifle .22 Deluxe

Safety Precautions

- a) Pushing forward the safety catch, raising and drawing back the bolt knob and then, examining the chamber and the magazine. When satisfied that both are clear, push the bolt knob forward and then down, press the trigger and apply the safety catch.
- b) Inspecting the drill cartridges and ensuring that there is no live ammunition.

Stripping: Before stripping, a check should be carried out as to whether the number on the left side of the body corresponds with the number on the back side of the lever of the bolt (fig 1). The removal is done in the following sequence:-

- a) Removal of the bolt by raising the leaf back sight and pushing forward the safety catch. The left hand is kept under the magazine with the middle finger on the restraining catch. The bolt is withdrawn to the rear, the bolt head upwards turned and the back sight folded back.
- b) The magazine catch is pressed upwards and the magazine is taken out.



Assembling: The assembling of the rifle is always in the reverse order. The magazine is checked to ensure that the magazine number is the same as that of the rifle. The magazine is inserted at its place and pressed. The cadet should ensure that the magazine is fixed in its place.

While assembling the bolt of the Deluxe .22 rifle, the following have to be borne in mind:

- a) The bolt head should be fully tight.
- b) The bolt head and guide rib as well as cocking piece and steel lug should be in a line.
- c) The number of the bolt should tally with that of the rifle.
- d) The safety catch should be applied.

The bolt is inserted by holding the bolt lever with the right hand and rifle with the left. The bolt is pushed forward until it touches in the charger guide and the bolt head is to be turned towards right till the click sound is heard. Now the trigger is pushed forward and pressed and the safety catch is applied.

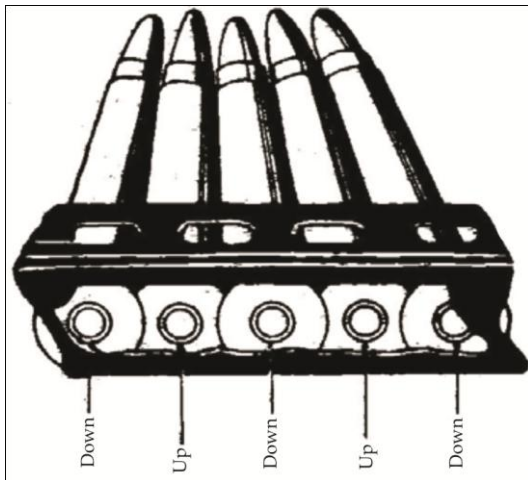
Sight Setting: The sight is set by pressing the thumb spring (Range increasing towards the muzzle side- the thumb spring is adjusted accordingly).

Care and Cleaning: The efficiency of the rifle depends on two factors. The care given to the rifle and the skill of the firer. The rifle is designed to stand up to active service conditions but performance will be considerably affected if it is subjected to unduly harsh conditions. The rifle is stripped, the butt trap is opened and the pull through and the oil bottle is removed for cleaning. The pull-through has three loops, first one is for the gauze, the centre for cleaning the barrel with flannelette and the end one for oiling the barrel and for use of the armourer.

Loading, Cocking and Unloading

In action, the soldiers' life depends as much upon the rapid loading of rifle as upon the accuracy of shooting. This underlines the importance of swiftness in bolt manipulation. The bolt ought to be properly lubricated.

Ammunition and Charger: No charger is provided for the deluxe rifle. The ammunition is loaded one by one in the magazine. It is to be ensured that the ammunition is clean before firing.



Correctly Filled Charger



Loading an Unloading

Loading must be carried out on orders and no action is taken without proper orders. It must be carried out clearly and in a set sequence. Fumbling and lack of determination leads to jamming and delay.

Loading and Unloading in the Lying Position:

The following drill is carried out:-

- Lying down, a long pace forward is taken with the left foot and at the same time, the rifle is passed into left hand, grasping it at the point of balance. The right hand is placed on to the ground in line with the left foot. During this movement, the rifle is pushed forward and lowered to the ground. The left arm is extended to the front. The legs to be well apart. Now the rifle can be loaded.
- The rifle can be unloaded without further orders. The right hand is placed on the ground below the right shoulder. The left hand is drawn up. Stand up as quickly as possible.

Lying Position and Hold

The lying position is the most comfortable position from which to fire. The three basic essentials of good shooting are:-

- The position must be comfortable and hold so firm that the rifles gains a rock like steadiness.
- The firer must aim correctly.
- The trigger be pressed in such a way that aim is not disturbed.



Position and Hold:

To get a stable position, the firer should get a feeling of being rooted to the ground with:

- a) Legs are opened wide apart and body slanting to the left from the line of the target.
- b) The formation of the two triangles:
 - i) A horizontal triangle is formed by the three points where the chest leaves the ground, the left elbow and the right elbow. (Fig 1)

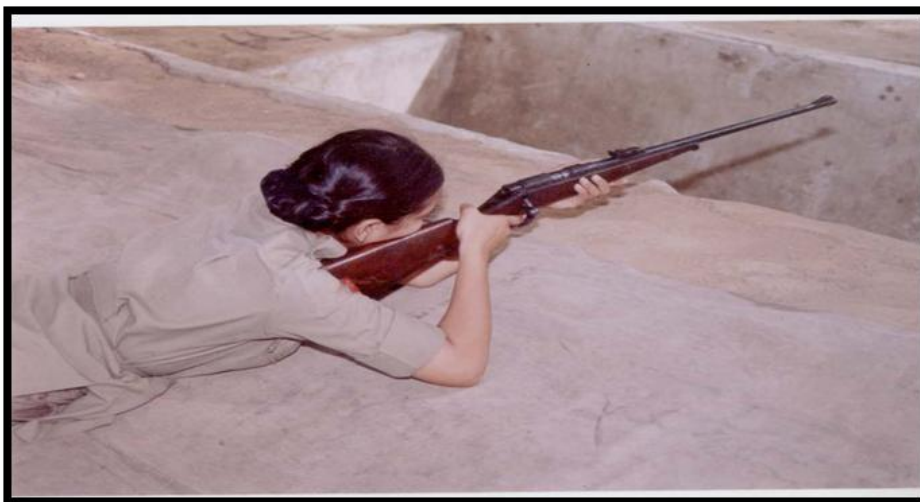


Fig-1

- ii) The vertical triangle as viewed from the front of firer, two of its sides are formed by the forearms, the base being the ground between elbows. In addition as a quick check, the shoulders should be level (Fig-2)



Fig-2



The Right Hand: Bedded in as per the build of the firer, a firm grip providing steadiness, and the shoulder bent well forward to allow the forefinger between the first and second points to be actually on the trigger. The right hand must pull back the rifle very firmly in the shoulder, and lock it there. The forefinger must take the first pressure on the trigger, whenever the butt is brought into the shoulder.

The Left Hand: The left hand acts as the support to the forward part of the rifle, thereby helping to steady the rifle against the shoulder. The rifle should be held as far forward as possible, well clear of the magazine. No attempt is made to force the left wrist under the rifle. The large pad of the muscle at the base of the left thumb protrudes and automatically be pressing against the left side of the rifle and that is balanced by a similar pressure by the left forefinger on the other side of the rifle. The left hand never pulls the rifle into the shoulder.



Fig-3

The Shoulder: The butt plate is bedded into the shoulder. Improper bedding in will result in a sore shoulder and possible flinching. The butt plate should meet the shoulder on the interior pad of the shoulder muscle joint and not in the 'hollow' of it.

Position of the Head: The weight of the head should press the chin downwards and to the right against the butt. The head should be at such a distance that neither the cocking piece nor the finger, knocks the face during firing.

Breathing: To aim correctly, hold the breath while pressing the trigger.

Aiming I - Range and Targets

Accuracy of the aim is essential for the successful shot. This is by far the most difficult operation, as the eye has certain limitations and there are influences affecting what it



does. Nevertheless, good shooting can only be obtained with consistency of aim. Normally, 25 yards range is used for the Deluxe .22 rifle.

Aiming

The laws of aiming are:

- (a) Focusing on the target so that a clear picture is formed on the retina of the eye and getting true centre of the target. Then with the eye, focus to the foresight.
- (b) Holding the rifle properly and keeping it upright.
- (c) Close the left eye and focus the foresight.
- (d) See the foresight through the black sight 'U'. The foresight is seen right in the centre of the U. The tip of the foresight must be aligned in the centre and in level with the shoulder of the U.

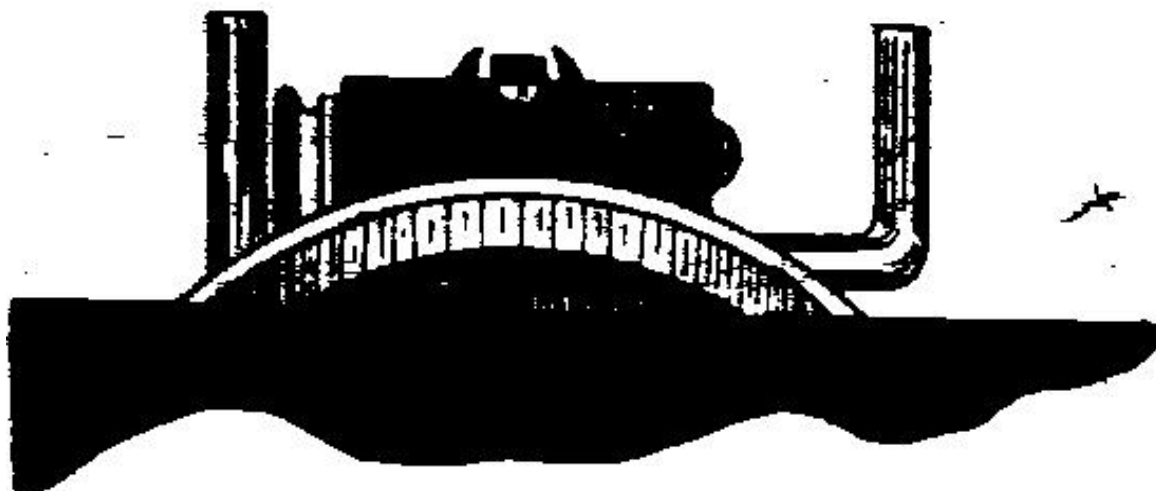


Fig-1: Correct Aim

Elevation is given to counter the force of gravity, while the bullet is in flight. The elevation depends upon the range of the target. This elevation is given automatically by adjusting the back sight.

Targets:

The following targets are generally used by female cadets:

- (a) For application firing 1' x 1' target is used. The aim is to be taken at the bull, which is the black, centre-most circle.
- b) For grouping, 1' x 1' target with a white patch in the centre of the bull is used.
- (c) For rapid firing, 6 inches figure target is used. The aim is taken at the centre of the figure.



Fig-2

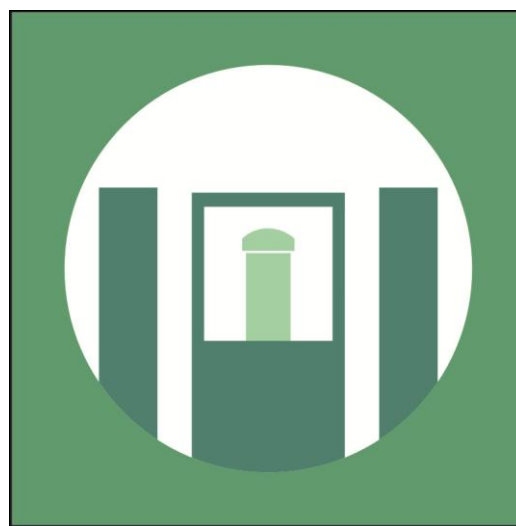


Fig-3

Trigger Control and Firing a Shot

Trigger Control: The third intention for accurate shooting is the trigger operation without disturbing the aim. To achieve this, perfect co-ordination between eye, brain and operation of the forefinger on the trigger is required. To develop this co-ordination, the following exercises have been designated:

Trigger Operation Exercise No.1

Object: To practice independent action of the index finger.

Method: With the exception of the index finger, the right hand grips the left wrist as firmly as possible until the white is visible under the nail tips. The right index finger then press slightly on the wrist, on which action there must not be any increase in pressure from any part of the hand. Avoid wearing a wrist watch during the exercise.

Trigger Operation Exercise No. 2

Object: To practice further muscular control of the hand.

Method: For this, the right knee is held clinched with the right hand, less the index finger, held away in a hooked position as through round trigger. The index finger is made to move through an arc as if pressing the trigger. The only movement should be forming of the middle joint of the index finger to its tip.

Trigger Operation Exercise No. 3

Object: To develop co-ordination between the right eye, brain and right hand index finger and practice muscular control of the hand.



Method: For this the lying position is assumed and the rifle is cocked. The left hand leaves the rifle and supports the head. The left eye is closed. (If the firer cannot close her left eye, she blankets it out with the left hand). The right eye takes a line of vision, eye-foresight-any object on the ground in front of the line of vision when the brain impulse 'on aim' is transmitted by the eye, the index finger instantaneously presses the trigger.

Trigger Operation Exercise No. 4

Object: To introduce an element of 'holding' and the co-ordination between right eye, brain and right index finger.

Method: The exercise is the same as No 2 with slight differences. Hold the rifle with both the hands and take the aim at the target. Now the important thing is restraining the breathing. (This has been already dealt with under 'Holding'). During this exercise, there should not be any round in the chamber.

Trigger Operation Exercise No. 5

Object: To introduce an element of 'holding' and the co-ordination between right eye, brain and right hand index finger.

Method: As for exercise 3, with the important addition of right hand holding, rifle is held steadily and no quiver is allowed. (When the firer attempts this exercise he must bring in the important item of restraining the breathing. This has already been dealt with under 'holding'). During its performance, no discernible movement of the rifle whatsoever is to take place. Magazines must be removed to practice this exercise. When the firer performs this exercise by getting two or three totally correct performances quickly, he/she is a potential 'marksman'.

Firing a Shot:

Determination: Accurate shooting is never achieved without concentration. Each time a shot is fired the firer must be fully determined that it is going to be the perfect one.

Turning the Shot: From the time correct holding is achieved, not more than five seconds should be taken to fire a shot. Dwelling on the aim causes the eye and muscles to tire and results in bad shooting.

Action on Range Being Ordered: When the 'range' is given, the firer adjusts his/her sights and await for indication of the target.

Sequence of Firing a Shot:

Aiming Position: On coming into the aim, the firer must take the first pressure.



Breathing: Just before taking aim, breathing must be gently restrained. It is important to coordinate so that, when the foresight comes to the point of aim, the breath is partially exhaled.

Firing: Immediately on 'correct aim', the second pressure is to be taken and shot fired. For a second or two after firing, there should be no relaxation of the hold or movement of trigger finger or head.

Follow Through The hold and aim must be maintained until the bullet has left the barrel. Better still, fire should allow through until the bullet has reached the target.

Declaration: The firer declares, if the aim at the time of firing is not correct e.g. left, right, high or low. A correct shot should not be declared.

Re-loading in the Shoulder: Immediately after follow through or declaration, reloading at the shoulder is carried out.

Re-alignment: Having reloaded, the firer should realign his sights approximately on the target.

Limber-Up: Before firing any practice, it is advisable to carry out trigger operation exercise No 5 and sequence of action for firing a shot. This is termed as 'limber-up' and its aim is to assist in coordination and tuning up of muscles, eye and brain.

Range Procedure and Safety Precautions

Use of Red Flags: No firing should take place until all the red flags are hoisted and look-out men posted as per the range standing orders. One flag will always be on the top of the butt. Flags are a warning that the range is in use. A red flag displayed on the rifle butt indicates that no firing should take place.

Suspension of Firing: If firing is suspected during the practice, owing to some unforeseen event, weapons are placed on the ground and the firer stands clear.

Inspection of Weapons: The officer in charge of the firing point is responsible for ensuring that all weapons are cleared and inspected before leaving the firing point. A further inspection will be carried out at the conclusion of firing.



Firing a Shot



During inspection, loading, and unloading, all the rifles must point towards the target. On the command '*Nirikshan ke lie Janch Shastra*' (Examine Arms) rifles are held parallel to the ground and pointed in the direction of the target.

No one will go to the targets until all weapons have been unloaded, inspected and permission to go has been given by the officer in charge. Only the target papers are brought back to check the results.

Only firers, coaches, the Firing Point Officer and his/her assistants are allowed on the firing point. Waiting details must be at least 10 yards from the firing point or in the shelter provided.

The following is the normal procedure on the firing points:-

- (a) The party to fire is brought within about 100 yards of the firing point.
- (b) The practices to be fired are explained.
- (c) Firers are detailed to targets.
- (d) The coaches, ammunition party and look out men take up their positions.
- (e) Only the first two details form up behind their targets.
- (f) On the order of '*Age Barh*' (detail advance) the first detail will take position on the firing point.
- (g) On the lowering of the red flag at the butt, the officer supervising the firing point may order his red flag to be taken down and give the order of 'Detail Advance'. The coaches check their positions and correct them if needed, and give the word of command 'Limber up'.

On this, the firers must align rifles. The officer gives the order to load and carry on.

- (h) The firing starts only after getting orders from officer-in-charge of firing.
- (j) On completion of fire, the firers must raise their right hand up, keeping the elbow on the ground.
- (k) Officer-in-charge gives the word of command '*Khali Kar*' (before this he must ensure that all have finished). On this, the firers take their rifles onto their shoulders and move the bolt twice, press the trigger and stand up.
- (l) The Officer-in-Ccharge gives the command '*Detail Report*'. On this the firers would report '*Number ek rifle theek, do theek, teen theek and number char rifle theek*'. The report will be from left to right. (Normally four targets are used on the miniature range).



- (m) The first and last firer will say 'Number ek rifle theek' and the rest will say 'Do theek, teen theek' and so on.
- (n) The details are changed by word of command and the new detail which has been waiting comes up while another detail forms up behind.
- (o) Before the firers leave the range they have a further weapon inspection. Each firer is asked whether he/she has any live ammunition. It is to ensure that they have no live ammunition.

Miniature Ranges: Only .22 ammunition is used on miniature ranges. Scoring is similar to that as laid down for the classification of ranges.

Aiming II - Alteration of Sight

Necessity: If during firing it is found that the elevation of the barrel is not correct i.e when the rifle is fired correctly with correct aim, the shot goes high or low instead of hitting the point of aim, it is necessary, provided the time allows, to read just the setting of the back sight.

Mean Point of Impact (MPI): The central point of area covered by the group of rounds fired with consistent aim and held at the same aiming mark is called MPI.

Elevation: The amount of alteration necessary is given in the following table, which shows the change of MPI when the sight is changed by 100 yards:

Range Target	Rise or drop of MPI on target
200 yards	6 inches
300 yards	12 inches
400 yards	18 inches
500 yards	24 inches

An alteration of 50 yards in the sight brings half the effect shown above. 200 yards doubles it on the target.

Figure Target: If, while firing at figure targets, the shots are observed to miss, either high or low, the firer should raise or lower his/her sights by one hundred yards, re-aim and fire. If the shot is observed to miss the target, the sight should be altered by a further 100 yards.



Theory of Group and Snap Shooting

The Group and its MPI: In approaching a method for firing, the first essential to understand is that, when firing a series of shots with a supposedly constant aim and under the same conditions, they will not all hit the same spot, however perfect the weapon and its ammunition. A pattern is always formed. The divergence of shots is due to a variety of reasons.

For the purpose of training the group indicate five consecutive well-fired shots, fired with consistent aim at the same aiming mark. The central point of impact is the Mean Point of Impact (MPI) of the group.

Grouping Capacity: The diameter of a circle containing all five shots, fired by a firer to the best of his ability, is known as his grouping capacity.

For the purpose of coaching and scoring, firers are classified into certain grouping capacities and measured at a range of 100 yards. These capacities are represented by the diameter of the circles e.g., 2 inches, 4 inches and so on.

A firer's grouping capacity, while remaining fairly constant at any given range, varies in proportion to the range at which firing is taking place. Thus once a firer's grouping capacity at 100 yards/ 25 yards has been ascertained, his capacity at any other range can be calculated by simple arithmetic. Hence should the group be centrally placed the scores expected on target can also be predicted.

Declaration: It must be appreciated that a group is representative of a firer's capacity, only when a correct aim has been taken for every shot. Should a firer accidentally fire when aim is not correct, he must note very carefully where the sights were pointing at the moment of firing and declare the fact. If on checking it is found that a bullet has gone astray and not at the place declared by the firer, it should be ignored for judging his grouping capacity. For instance if a firer was making a 4 inches group and because of one stray bullet he makes a 12 inches group, his grouping capacity will be considered as 4 inches.

Snap Shooting





Application of the Grouping: Grouping is of immense value to the firer and to his coach and does in fact form the basis of application practices in which the centre of the firer's group is applied to the centre of the target to note very carefully the group of the MPI, making alterations to sighting or to the point of aim where necessary. In the early stages a coach helps the firer for this purpose.

For example; If the position of the first shot is reasonably good and no error is declared, the second shot should be fired with the same aim. If the second shot is within the grouping capacity of the firer the probable MPI is the middle of the two shots. If MPI is too far out it should be adjusted for elevation and deflection; the correction should not be made boldly but with caution. The third shot gives the clear picture. If this MPI is again not central, a further cautious change should be made. After the fourth shot, the MPI position should be known and the fifth shot should be a good one fired with the correctly ascertained elevation and deflection.

Improving Capacity: Once the grouping capacity of the firer is assessed, it will be his duty not only to maintain this capacity, but to improve on it eradicating any faults he has had in the early shoots.

Miniature Range Snap Shooting: After grouping and application fire, the snap shooting should be fired. This is to defeat the time factor. Initially it is done on miniature range to make the firer realize that the exposure of target is enough to get a deliberate round fired and he/she must be perfectly calm and collected throughout. In fact before he/she is made to fire he/she should be given enough practice:

- (a) Concentration
- (b) Speeding up co-ordination between eye and hand.
- (c) Practising in dominating impulse.

The stages of practice is:

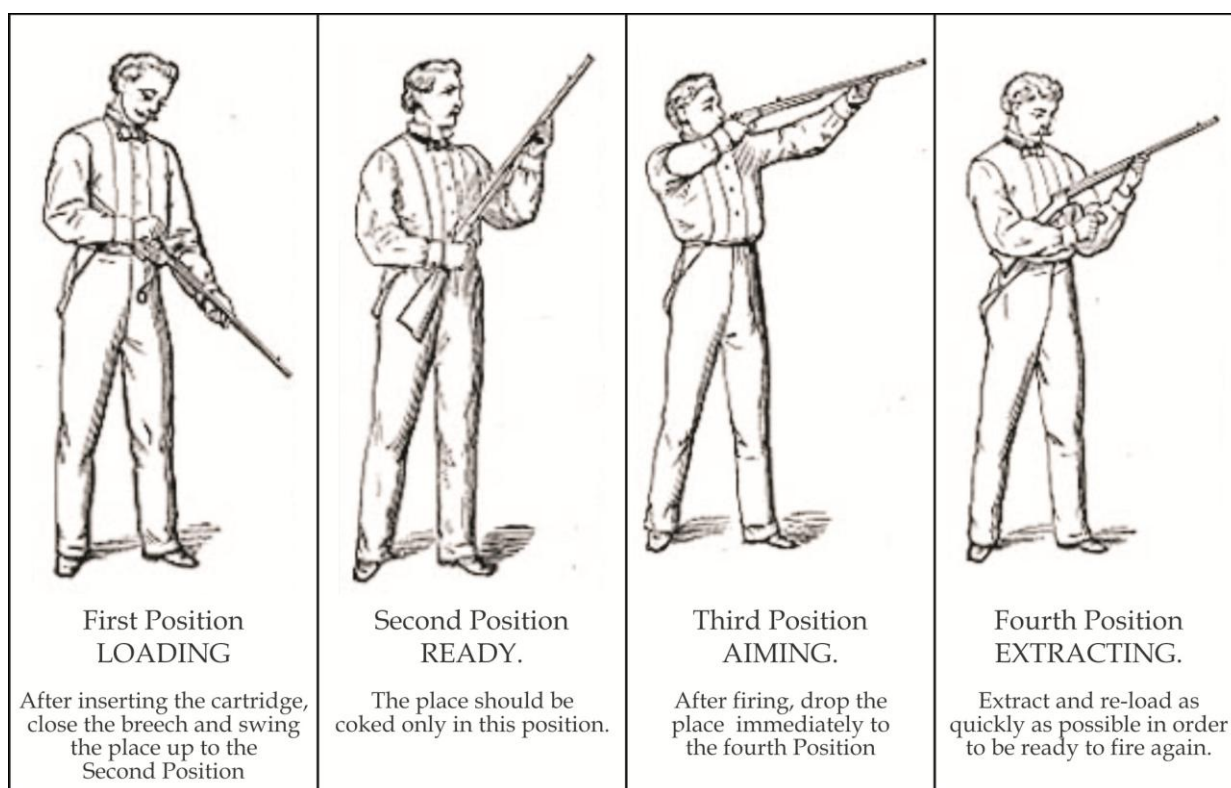
- (a) **Stage-1:** Automatic Alignment: The aiming mark is given at the instructors eye when the squad is lying in semi-circle with instructor in the centre. The alignment is checked with the help of aiming disc when the individual on the command 'up' aims at the eye of the instructor.
- (b) **Stage-2:** Automatic Alignment with Correct Hold and Trigger Operation: On the command 'up' the firer brings up the rifle, aims, holds the rifle correctly and takes the shot. The firer reloads when the rounds would have left the barrel for certain (It is best to emphasise this by a distinct pause), comes down and declares



his/her shot, if incorrect, to the instructor. There is no time limit initially, only 'accuracy before speed' is insisted. Later in this stage, indication with a finger is given and thus raising of the finger is the signal for the firer to fire his round. Sight impulse thus replaces sound impulse.

- (c) **Stage 3, 4 and 5:** Practice firing is done at figure targets 11, 12 and snap shooting at ranges 100, 200 and 300 yards.
- (d) **Stage 6:** For firing on a miniature range, representative figure targets are used and the time progressively reduced from 7 to 4 seconds. The size of the targets is also reduced. Not more than two practices should be fired in a day. Here again accuracy before speed will be insisted upon. Good holding is essential.
- (e) **In stage 7:** The practice is given at range sighting at figure 11 and 12 targets and in stage 8, the range snap shooting practice is carried out.

Continuous Snap Shooting: It is to take on the targets as they appear. The time comes in battle when the rifleman is confronted with a number of enemies within killing range. The task is to account for as many as possible, before they escape to cover or alternatively get to close quarters. The guiding principle is, always 'shoot to kill'. In this case, having killed one enemy, the firer must at once engage another, firing continuously and methodically as long as the target remains.





The Points to be Observed

- Accuracy is not sacrificed for speed.
- There is no verbal declaration of aim, since this would cause distraction.
- The butt remains in the shoulder in order to save time in re-aiming.
- Perfect bolt manipulation is ensured so that no time is wasted in reloading.
- Firing continues until such time as the command 'stop' is given, or no further fire is required.

Short Range Firing (.22 Rifle)

Practice No	Practice	Target	Range	Round	Instructions	Scoring
1.	Deliberate	1Ft	25 yards	1	(a) Position lying supported (b) One practice of 5 rounds	Bull and Inner-3 points Magpie-2 points Outer-1 points HPS - 15 Points

Long/Short Range 7.62mm Rifle Course (Firing by Cadets of Sd/Sw Ncc)

Practice No	Practice	Target	Range	Round	Instructions	Scoring
1.	Deliberate	4'x 4' / 1'x 1'	100/25 yards	5	(a) Position lying supported (b) Position lying unsupported	Bull and Inner-3 points Magpie-2 points Outer-1 points HPS-15 points Bull and Inner-3 points Magpie-2 points Outer-1 points HPS-15 points

Note: Out of 12 rounds authorized per cadet, 2 rounds are pooled for zeroing and re-classification of failures.



Characterstics: 7.62 mm SLR

1. **Calibre** – 7.62 mm.
2. **Length**
 - a) With short butt – 1126.50 mm (44.35 in).
 - b) With normal butt – 1139.20 mm (44.85 in).
 - c) With long butt – 1151.90 mm (45.35 in).
 - d) Length of rifle with bayonet – 1397.00 mm (55 in).
3. **Weight**
 - a) Rifle only – 4.4 kg.
 - b) Rifle with full mag – 5.1 kg.
 - c) Rifle with full magazines and bayonet – 5.392 kg.
 - d) Bayonet – 0.283 kg.
 - e) Empty Magazine – 0.255 kg.
 - f) Full magazine – 0.709 kg.
4. **Rate of Fire**
 - a) Normal – 5 rds per min.
 - b) Rapid – 20 rds per min.
 - c) Faster than rapid – 60 rds per min.
5. **Range**
 - a) Effective range – 275 m (300 yds).
 - b) Sight range – 200 yds to 600 yds.
6. **Sight Radius** – 533.40 mm (21.77 in).
7. **No of Grooves** – 06 (Six).
8. **Pitch** – 1 turn in 304.8 mm (12 in).
9. **Twist of rifling** – Right hand.

Amn (Cart SA Ball 7.62mm)

10. (a) **Calibre** – 7.62 mm.



- | | |
|---------------------------------|---|
| (b) Weight of cart | - 23.07gm \pm 0.65 gm |
| (c) Length of cart | - 71.16mm \pm .76mm
(2.80-0.03 in) |
| (d) Weight of bullet | - 9.33 \pm 0.13 gm
(144 \pm 2 gm). |
| (e) Powder charge | - NC Powder. |
| (f) Muzzle velocity | - 815m/2700 ft \pm 30 ft/S
(at 27.43m (90 ft) from muzzle) |
| (g) Weight of cart case | - 10.89 gm. |
| (h) Weight of propellant charge | - 2.85 gm. |
| 11. System of operation | - Gas operation. |
| 12. Magazine capacity | - 20 rds. |

Characteristics: 5.56mm INSAS Rif

- | | |
|------------------------------------|------------|
| 1. Calibre | - 5.56 mm. |
| 2. Length of rifle without bayonet | - 960 mm. |
| 3. Length of rifle with bayonet | - 1110 mm. |
| 4. Length of barrel | - 464 mm. |
| 5. Weight | |
| a) Fixed butt with empty magazine | - 3.6 kg. |
| b) Fixed butt with loaded magazine | - 3.69 kg. |
| (c) Empty magazine | - 340gm. |
| d) Full magazine | - 305 gm. |
| e) Bayonet | - 400 mtr. |
| 6. Effective Range | - 90 gms. |
| 7. Sight Radius | - 470 mm. |
| 8. Muzzle velocity | - 900 m/s. |
| 9. Principle of operation | - Gas Op. |



10. **Penetration**
 - 3 mm at 700 m.
11. **Mode of fire**
 - Single shot and three round burst (TRB).
12. **Rate of Fire**
 - a) Normal
 - 60 rds/min.
 - b) TRB
 - 90 rds/min.
 - (c) Intense
 - 150 rds /min.
 - (d) Cyclic
 - 600 to 650 rds/min.
13. **Types of Ammunition**
 - a) Ball Rd.
 - b) Tracer Rd.
 - c) Blank Rd.
 - d) HD Cart.

SUMMARY

- *Learning to shoot has been the man's basic instinct from the early ages. Then men went out into jungle with bows, arrows and weapons for hunting.*
- *Weapon training is a very important component of the NCC Programme. Training of shooting with rifles is an integral part of this programme.*
- *Shooting, teaches a person precision, accuracy, co-ordination of body movements, patience and confidence which all help to make him a better man in the public life.*
- *The shooting at the ranges helps an individual to master this as a sport and also to learn handling of a weapon for self-protection.*
- *Rifle .22 No MK-II, MK IV and Deluxe BA have different characteristics in terms of weight, length, magazine capacity, velocity, range, calibre, ammunition and rate of fire.*
- *Precautions should be strictly followed when stripping, assembling, sight setting of the rifle is carried out.*
- *The efficiency of the rifle depends upon its care in terms of cleaning and the skill of the firer.*
- *In action the soldiers' life may depend as much the rapid loading of rifle as the accuracy of shooting.*



- *Lying is the most comfortable position from which to fire. The three basic essentials of good shooting are:- (a) Position must be comfortable and hold so firm that the rifle gains a rock like steadiness. (b) The firer must aim correctly. (c) The trigger be pressed in such a way that the aim is not disturbed.*
- *Accuracy of the aim is essential for a successful shot. This is by far the most difficult operation, as the eye has certain limitations and there are influences affecting what it does. Nevertheless, good shooting can only be achieved with consistency of aim.*
- *The third essential criteria for accurate shooting is trigger operation without disturbing the aim. To achieve this, perfect co-ordination between the eye, brain and operation of the forefinger on the trigger, is required.*
- ***The Group and its MPI:*** *For the purpose of training, the group implies five consecutive well-fired shots, fired with consistent aim at the same aiming mark. The central point of impact is the Mean Point of Impact (MPI) of the group.*
- ***Grouping Capacity:*** *The diameter of a circle containing all five shots, fired by a firer to the best of his/her ability, is known as his / her grouping capacity.*
- ***Miniature Range Snap Shooting:*** *After grouping and application fire has been done, the snap shooting should be fired. This is to defeat the time factor. Initially it should be done on miniature range to make the firer realize that the exposure of target is enough to get a deliberate round fired and he/she must be perfectly calm and collected throughout. In fact before he/she is made to fire she should be given enough practice in the following:*
 - (a) *Concentration.*
 - (b) *Speeding up co-ordination between the eye and hand.*
 - (c) *Practicing in dominating impulse.*

The practice is given in the following stages:

- (a) *Stage-1: Automatic Alignment*
- (b) *Stage-2: Automatic Alignment with Correct Hold and Trigger Operation*
- (c) *Stage 3,4 and 5: Practice firing is done at figure targets 11, 12 and snap shooting at ranges 100, 200 and 300 yards.*

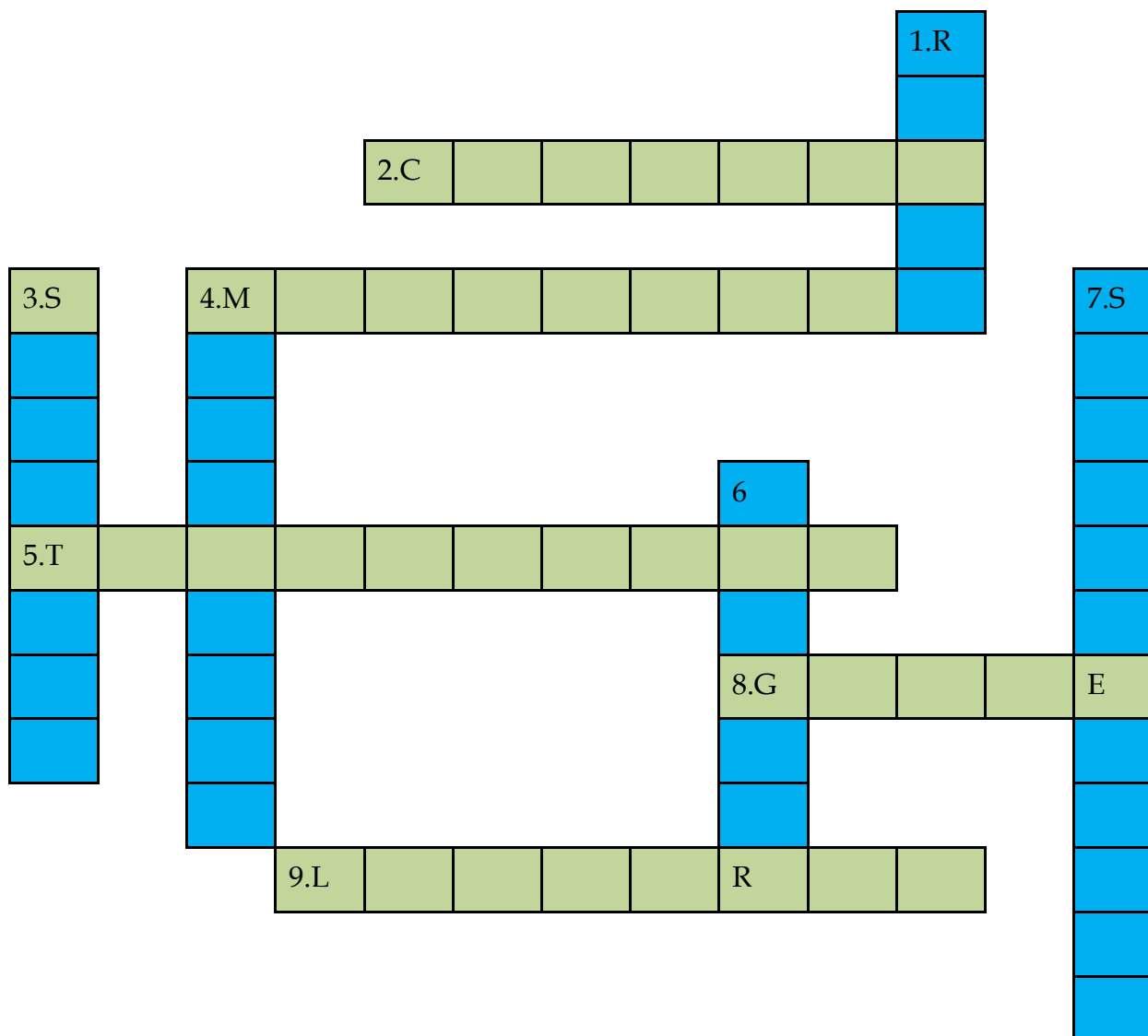
Stage-6: For firing on miniature range representative figure targets are used and the time progressively reduced from 7 to 4 seconds. The size of the targets is also reduced. Not more than two practices should be fired in a day. Here again accuracy before speed will be insisted upon. Good holding is essential.

In stage 7: The practice is given at range sighting at figure 11 and 12 targets and in stage 8, the range snap shooting practice is done.



CROSSWORD PUZZLE - 3

Solve the crossword with the given clues:



Across:

2. The process of raising the cock of (a gun) in order to make it ready for firing
4. Central Point of Impact is also known as
5. Synonym route, flight path, course
8. The pull through has three loops, first one is for the _____
9. The term used for: Before firing any practice, it is advisable to carry out trigger operation exercise No 5 and sequence of action for firing a shot.



Down:

1. Hand used for twist of Rifling (left hand or right hand)
3. The act of firing a shot
4. Point (.) 22 ammunition is used in this range
6. To aim correctly, hold the breath while pressing the _____
7. The adjustment of a gunsight for elevation and windage on a particular range under favorable light conditions

Comprehension Questions

Q1. Answer the following in about 15 words:

- i) Define Trajectory and First Catch.
- ii) When will the rifle will be halfcocked?

Q.2. Answer the following in about 50 words:

- i) What are the basic essentials of a good firer?
- ii) What are the various positions to be taken while firing?
- iii) Name any 10 parts common to all weapons?
- iv) What are the main points to be observed during continuous snap shooting?
- v) Which targets are generally used by female cadets for shooting?

Q.3. Answer the following in about 75 words

- i) Describe the sequences of stripping and assembling of LMG?
- ii) What is a 'Group'? What are the methods of finding the MPI?
- iii) Why is weapon training a very important component of the NCC programme?
- iv) What should the firer do to get a stable position while shooting?
- v) What are the laws of aiming?

Q.4. Answer the following in about 150 words

- i) What parts of a rifle are stripped and cleaned?
- ii) Explain the range procedures and safety precautions under the following heads:
 - a) Use of red flag
 - b) Suspension of firing



- c) Inspection of weapons
- ii) What drill must be carried out for loading and unloading of a rifle, in the lying position?

Q.5. Answer the following in about 250 words

- i) Explain the sequence of firing a shot.
- ii) Explain 'alteration of sight' under the following heads
 - a) Necessity
 - b) Mean point of impact (MPI)
 - c) Figure target

Let's Discuss

Q.6. HOTS (Higher Order Thinking Skills)

"Weapons have always played a crucial role in the society, moulding and changing the course of history". Elaborate.