Chapter 8 – Lane Play

Overview

Introduction

In a nutshell, this chapter helps you and your athletes determine where to line up and where to aim, and provides concepts on how to play the lanes more effectively. From these concepts, you and your athletes may make your own rules and adjustments for that particular game on those particular lanes. Athletes at the highest levels of our sport use these methods. As you and your athletes work to implement these techniques, precise aiming and higher scores are the result.

Charts and mechanical rules serve the basic function of giving the new bowler the rudiments of how to line up and get the ball to the intended target. Advanced bowlers, however, need an intuitive sense to determine how to bowl on a given day and a given lane. As this level of training is devoted to instruction for the intermediate bowlers, we discuss methods of lane play that are used to “dial in” precisely to prevailing lane conditions.

This chapter contains four sections. The first section reviews lane layout and marking, and helps you determine the target line and direction of approach and delivery. The second section describes ways to adjust to strike shots. The third section introduces several alternative methods for spare conversions. The last section provides instruction on adjusting to a variety of lane conditions.

Consistency is No.1

There is a direct correlation between the athlete’s ability to reproduce a consistent approach and delivery and successfully play the lanes.

An adjustment is usually based on your athlete's previous delivery. Without first mastering the physical game, it is impossible to make any worthwhile adjustments when subsequent deliveries are executed differently.

The cornerstone of a sound physical game is consistency. Consistency is the foundation from which an athlete will be able to make meaningful adjustments to successfully play the lanes.

Continued on next page
Overview Continued

Consistency is No. 1 continued

Adjusting to lane conditions is possible only when:

- The athlete has an accurate, consistent armswing.
- The armswing is timed properly with the movement of the feet.
- The release has been mastered and is the same every time.
- The athlete has the ability to walk straight to the foul line.

Emphasize that the learning process in bowling involves a series of stages. Explain the value of acquiring the mindset of process orientation versus outcome orientation as introduced in CHAPTER 4 – THE MENTAL GAME.

Paying attention to how the ball is delivered rather than what pins are knocked down or the score is your athlete’s initial step to develop an invariable, consistent approach and delivery. Once this is mastered, the only remaining variable is the changing lane. You can teach your athletes how to adjust to the lane.

Once your athlete has developed consistency in his/her physical game, it is time to start considering the lane condition and how to adjust.

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Section 1 – Developing the Target Line

Overview

The ability to line up is contingent upon understanding the blueprint of the way the lane is laid out. The entire layout of the lane was covered in USBC Coaching Level I Coaching certification manual, specifically in CHAPTER 3 – FACILITY AND EQUIPMENT.

This section begins with a review of lane layout and markings, establishes reference points for the ball path and describes how to walk parallel to the ball path.

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Review of Lane Layout and Markings

Boards
All lanes are comprised of 39 boards. Right-handed bowlers count boards from right to left. Left-handed bowlers count from left to right. Thus, the middle board (shown below in Figure 8-1, Boards as a black board) is always the 20th board. Every fifth board has a lane marking (shown below in Figure 8-1, Boards as gray boards).

![Figure 8-1, Boards](image)

Locator Dots
Before the Foul Line: There are three sets of locator dots before the foul line. The locator dots behind the foul line are located on every fifth board. One set is located just before the foul line, as shown below in Figure 8-2, Locator Dots – At Foul Line. It should be noted that in many cases the middle dot (located on the 20th board) often is a bit larger than the other dots.

![Figure 8-2, Locator Dots – At Foul Line](image)

Although not required as part of the lanes, there are usually a second and third set of locator dots located about 12 and 15 feet before the foul line, respectively, as shown below in Figure 8-3, Locator Dots – Before Foul Line.

![Figure 8-3, Locator Dots – Before Foul Line](image)

NOTE: On some lanes, the locator dots on the far left and far right are not included in the two sets of locator dots farthest back from the foul line. It is strongly recommended that an athlete be instructed to determine starting position counting away from the middle dot or 20th board.

Continued on next page
Review of Lane Layout and Markings, Continued

**Locator Dots continued**

*After the Foul Line:* Seven feet from the foul line are ten locator dots on the lane. These dots occur on the 3rd, 5th, 8th, 11th, 14th, 26th, 29th, 32nd, 35th and 37th boards, as shown below in *Figure 8-4, Locator Dots – After Foul Line.*

![Figure 8-4, Locator Dots – After Foul Line](image)

Think of these locator dots as the rear “gun sights” of a fixed sight rifle. As a marksman uses the rear gun sights to line himself up precisely for his shot, a bowler uses these ten locator dots in the same manner.

**NOTE:** *The use of these locator dots is optional.*

**Target Arrows**

A target arrow is placed beginning on 20th board. From this center arrow additional arrows are placed every fifth board out to the channel. These arrows are usually located on the 5th, 10th, 15th, 20th, 25th, 30th and 35th boards of the lane. Target arrows, shown below in *Figure 8-5, Target Arrows,* are used extensively for lane play and spare conversions. Arrows are numbered beginning on the ball side of the bowler where arrow #1 is on the fifth board, #2 on the 10th board, through #7 on 35th board.

![Figure 8-5, Target Arrows](image)
Determining the Target Line

**The Line in Your Mind**

The path of the ball from the foul line to the pins should be one that the bowler can visualize in his/her mind. USBC Coaching program founder Fred Borden referred to this as “the line in your mind.” With a solid physical game, this path should be very consistent.

A key concept: To establish the specific direction and path that a ball travels requires determining at least two *reference points* along that path. Although this path may be an arc, it is still a line.

Lane play usually is referred to in terms of “what line is being played.” To establish the direction and path that a ball will travel requires determining two *reference points*. These two reference points are used to describe the line that is being used or played. Discussion of determining these two reference points follows.

**First Reference Point – Foul Line**

The point at the foul line where the ball actually is released is the initial point of reference. There are three items to consider when determining this initial reference point:

1. Starting position in the stance
2. Lay down point
3. Drift

These three items are discussed in detail in the material that follows.

**Starting Point – Stance:** Paying attention to the details helps your athletes improve their ability to play the lanes. A point of reference, or where the athletes start on the approach, must be determined first. The athlete must note the board that the non-ball side foot starts on the approach. Since the bowler releases the ball standing on this foot, it is important to know where the foot begins in the stance.

*Continued on next page*
Determining the Target Line, Continued

To determine the location of the foot, the bowler uses the inside edge of the slide foot, as shown below in Figure 8-6, Starting Point. This illustration depicts a right-handed bowler’s foot lined up with the 20th board.

**Figure 8-6, Starting Point**

**Lay Down Point**: If an athlete plans to deliver the ball standing on the 20th board, targeting the second arrow (10th board), it would be inaccurate to state that the target line the ball will travel from the foul line to the arrows is 20 to 10. To accurately describe the direction of the target line, we must take into account the distance between the slide foot and the actual board where the athlete initially places the ball on the lane. This distance is known as the lay down point.

One method of determining the lay down point is to have your athlete face the lane, kneel on their ball side knee and place the sliding foot on the ground in front. Have him/her lean forward and extend the bowling arm toward the floor, touching the floor with the middle finger as shown below in Figure 8-7, Lay Down Point.

**Figure 8-7, Lay Down Point**

*Continued on next page*
Count the number of boards from the inside edge of the slide foot to the board where the middle finger touches the lane to determine your athlete’s lay down point.

Another way to determine the lay down point is to stand behind the athlete and watch a number of shots. From observing several deliveries, a coach may determine the athlete’s lay down point.

As a general rule, the ball lays down a minimum of six boards from the inside edge of the athlete’s slide foot. The maximum diameter of a bowling ball is 8.595 inches. Using half the diameter of the bowling ball 4.2975 inches and allowing a little more than one and a half inch clearance from the ankle, will place the lay down point at about six inches or six boards from the ball side edge of the slide foot, as shown below in Figure 8-8, Six Board Distance.

![Figure 8-8, Six Board Distance](image)

**Drift**: Another consideration when determining the beginning point for the ball path is watching where your athlete finally ends up at the foul line when the ball is released. This movement right or left on the approach at the foul line from to the initial stance position is known as *drift*.

Athletes who have a consistent drift will be able to make adjustments when playing the lanes. When athletes drift a different number of boards and in different directions on each shot, they usually will have difficulty in hitting a target on the lane. Both problems indicate issues that need to be addressed with the physical game — particularly in the area of the armswing.

If an athlete drifts two boards to the right, this must be taken into consideration when setting up in the beginning stance. This athlete will need to adjust the starting position two boards to the left to compensate for the natural drift to the right.
Determining the Target Line, Continued

When instructing an athlete to change the method of targeting from pin bowling to spot bowling, he or she should be advised to use a target in the area around the arrows. In most cases, the second arrow is the recommended target. If the athlete has a problem hitting the second arrow, change the target area to have the ball go between two arrows – suggest using the second and third arrows.

Eventually, the coach should have the athlete reduce the target area to an arrow or a single board to improve accuracy. An athlete may use the arrows 15 feet from the foul line or the locator dots seven feet from the foul line.

Once athletes have determined the target lines they wish to play, there are several ways to make subtle adjustments off that line. Athletes may either make a:

- Parallel move or an
- Angular move

These changes are described in detail in the material that follows.

**Parallel Move:** Making a parallel move constitutes a small change where the athlete maintains the same ball path but makes a parallel move on the approach and on the lane, as shown below in *Figure 8-9, Parallel Move*.
Determining the Target Line, Continued

If the ball runs high and enters the pocket at the 19th board with the athlete target line being 14 to 10, a possible adjustment would be to move the lay down point and the target at the arrows two boards to the right. This changes the target line to 12 to 8, moving the entry point to the 17th board.

**Angular Move:** Changing the angle constitutes a more severe change in the target line. In this scenario, the athlete changes the lay down point and keeps the same target at the arrows. If the ball is hitting the head pin on the 21st board using the athlete target line 14 to 10, the athlete should move at least two boards to the left. With the lay down point being further left, the ball naturally rolls further to the right of the original target because the ball is now rolling over the target at a new angle. This angle takes the ball closer to the channel and should end up to the right of the head pin upon impact, as shown below in Figure 8-10, Angular Move.

![Figure 8-10, Angular Move](image)

**Less Severe Angular Moves:** Making changes to only the lay down point can result in a pretty severe change in angle. To soften the angle, an athlete can make 2:1 adjustments. This adjustment would be for every two boards the athlete moves on the approach (or with the feet) a corresponding one board adjustment is made in the same direction at the target (or with the eyes).
Determining the Target Line, Continued

**Example:** If the athlete’s ball is completely crossing over the head pin and hitting it on the 22nd board, the right-handed athlete needs to make an adjustment to the left. An initial adjustment may be moving from the 20th board on the approach to the 30th board and changing the target board from the 11th to 16th board, as shown below in *Figure 8-11, Less Severe Angular Moves*. This adjustment moves the ball to the right of the head pin without requiring an aggressive ball reaction to recover from a large angle change.

*Figure 8-11, Less Severe Angular Moves*
In the Level I training, the athlete was introduced to the concept of walking parallel to the intended path of the ball during the approach and delivery, as shown below in Figure 8-12, Walking Parallel to Intended Path. Keep in mind the ball is a heavy object that influences the direction the body moves. Since the arm swing and steps are both going in the same direction, this minimizes any side-to-side motion the ball causes to the body.
Direction of the Approach and Delivery, Continued

Another method to consider is walking parallel to the boards with the shoulders open to the intended target, as shown below in Figure 8-13, Walking Parallel, Shoulders Open. Athletes who have the ability to hook the ball may need to create a wider angle when delivering the ball on the lane.

Figure 8-13, Walking Parallel, Shoulders Open
Section 2 – Strike Adjustments

Overview

Since making a strike is the main objective of bowling, your athletes need to know various methods of adjusting their strike shot to lane conditions. This section describes four different ways for adjusting the strike shot.

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Strike Angle

Angle of Entry

The ball must impact the pocket at the proper angle for consistent strikes to be realized. A proper angle primarily assures that the pins knock each other down like dominoes. This angle also promotes proper deflection off the 1 pin to allow the bowling ball to take out the 3, 5 and 9 pins (as long as necessary velocity has been achieved). This angle varies according to lane conditions, personal style and ball velocity; but it is an angle. This is why we encourage a physical game that puts rotational spin on the ball, creating hook potential. This hook in the back end enables the ball to hit the pin triangle at an angle.

If a bowler were to achieve this angle by bowling a straight game, he or she would have to line up two lanes away as shown below in Figure 8-14, Angle of Entry.
Classic Second Arrow Strike Methods

Under Average Conditions

Most bowling books teach the second arrow strike method. This technique involves following the second arrow track (10th board) down the lane to the back end, then hooking in 7 1/2 boards to the strike pocket. The 1 o’clock to 10 o’clock release we discussed in Section 2 – Components of the Physical Game of CHAPTER 7 – FINE TUNING THE PHYSICAL GAME imparts enough hook potential under average lane conditions to realize this 7 1/2 board hook on a dry back end.

Have your athlete line up in the stance so the lay down point is on the 14th board. Earlier in this chapter it was noted that the average lay down point was six boards to the inside edge of the slide foot. Most right-handed bowlers line up with the inside of their left foot on the 20th board in the middle of the lane. Slight adjustments to the right or left may be necessary, depending on the physical stature of your athletes.

Having your athlete aim at the second arrow, the path will be the ball starting at the 14th board at the foul line and intersecting the second arrow on a path out towards the channel. As the ball travels down the lane it will encounter friction in the mid lanes where the lane has not been oiled. The sideways (counter clockwise) motion of the ball will cause the ball to hook towards the left. The ball will get roll just prior to entering the pins at the pocket.

Instruct your athletes to utilize the 1 o’clock to 10 o’clock release method (11 o’clock to 2 o’clock for left-handed bowlers).

If all factors – including the physical game, lane conditions, ball speed and ball coverstock – are properly matched, the results should be as shown below in Figure 8-15, Second Arrow Strike.

Figure 8-15, Second Arrow Strike

Continued on next page
Classic Second Arrow Strike Methods, Continued

Other Factors

The above scenario may not occur exactly this way. The ball could impact too far to the right or left of the strike pocket. Any number of factors influence how the ball reacts on the lane, including:

- **Lane conditions**: An oily back end kills a hook. Dry heads and pines result in an early hook. There are many other variations.

- **The bowler**: Every individual bowls differently, and these differences in style translate into differences in bowling ball behavior on the lane. In addition, a bowler’s game varies from day to day. Maybe one of your athletes is bowling a little slower than usual. A slower ball will hook sooner than a faster ball.

- **Equipment**: As noted CHAPTER SIX – BOWLING BALL PARTS AND DYNAMICS, the surface of the bowling ball will strongly affect the ball reaction on the lane. Acquiring equipment with different surface types and maintaining these surfaces to match up with different lane surfaces and conditions are important items for effective lane play.

Why did we even discuss the second arrow method if it doesn’t work? The reason is that the second arrow track serves as a basis upon which adjustments can be made.
Adjusting for Strikes – General

Making a Move

Consider the previous example. As we said, usually when a bowler tries the conventional second arrow shot, he or she will miss the pocket slightly to the right or left. Provided that good shots are being made, an athlete will need to make an adjustment. The secret to making adjustments can be summed up in seven words your athletes should memorize:

**MOVE THE FEET ON THE APPROACH IN THE DIRECTION THE BALL MISSED AT THE PINS**

The concept of this adjustment is based upon the use of a pivot – with the pivot being the target on the lane. If the ball misses to the right of the intended pin(s), an athlete should move right on the approach. If it misses to the left of the intended pin(s), move left on the approach.

Angular Change

The adjustment where the athlete changes the start position (right or left) on the approach and delivers the ball at the same target on the lane is known as an *angular change*. Delivering the ball from an adjusted starting position results in the ball intersecting that target at a different angle. This new angle represents an adjustment to the previous path the ball took over that target, as shown below in Figure 8-16, Angular Change.
Adjusting for Strikes – General, Continued

**Complete the Change**

After changing the starting position on the approach, the athlete must remember to turn and square his/her body to the new target line to complete the angular change. If the athlete fails to get the ball to the same target on the lane, he/she needs to understand that this shot represents a different ball path and is not an adjusted path over the original target.

The size of the adjustment depends on how badly the object pin was missed. If the ball missed the object pin by two to three boards, a subtle 1- to 1½-board adjustment on the approach is sufficient. If the ball misses the object by more than three boards, a larger adjustment must be made.

**Example**

Susan arrives at the bowling center and takes a few practice shots. Her lay down point is four boards to the right of the left inside heel, so she lines up with the left inside heel on the 18th board.

Her shot intersects the second arrow perfectly. In the middle of the pines, however, the ball hooks too early. It misses five boards to the left, striking the head pin on the left side.

Susan adjusts by moving five boards to the left. This time her shot is a “soft leave.” In other words, she hits the strike pocket a little too far to the right.

On her third shot, Susan moves over one board to the right. This time, she makes a strike. At this point, she is “dialed into” the lane.
The Language of the Standing Pins

Soft Pocket Hit

All of us have experienced times when the ball appeared to impact the strike pocket perfectly. The only problem was that pins were left standing.

If your athletes consistently leave the same pins standing, chances are these pins are trying to tell them something. If a right-handed bowler is off just a fraction to the right of the strike pocket, this is called a “soft pocket hit.” A common scenario during a soft or “light” pocket hit is shown below in Figure 8-17, Soft Pocket Hit.

Notice that the 10 pin is left standing. Other common soft hit leaves are the 5 pin, the 8-10 combination and the 5-7 combination. (For left-handed bowlers, common soft pocket leaves include the 5, 7, 7-9 combination and 5-10 combination.)

Instruct your athletes to adjust to a soft pocket leave by moving over one board to the right in the stance (right-handed bowler) without changing the target.

Continued on next page
If your athlete misses too far to the left, this is called a “hard pocket hit.” A common scenario during a hard or “high” pocket leave for a right-handed bowler is shown below in Figure 8-18, Hard Pocket Hit. The 4 pin is left standing.

Other common hard hit leaves include the 4-7 and the 4-9 combinations. (Common hard pocket leaves for left-handed bowlers include the 6-10 and the 6-8 combinations.)

Instruct your athletes to adjust to a hard pocket leave by moving over one board to the left in the stance (right-handed bowler) without changing the target.
Section 3 – Alternative Spare Conversion Methods

Overview

Converting Spares

The key to converting spares is reducing each conversion into a single pin shot. As taught in Level I, the athlete must determine in which of seven zones the key pin resides. Utilizing the 3-6-9 method for converting spares, the athlete made the adjustment on the approach, squared the body back to the original target and rolled the ball over this target and converted the spare.

This section provides several variations of the basic spare conversion methods to help your athletes expand their abilities to convert spares.

It is important to remember that these are recommended systems for converting spares. Athletes may use any or develop one that works for them.

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Alterng the Initial 3-6-9 Conversion

### Adjusted 3-6-9 Conversion

As the athlete continues to develop the physical game and begins to acquire the skill of hooking the ball, the initial 3-6-9 spare conversion system, introduced in Level I, may need to be adjusted.

This basic system has been changed primarily for the three spare zones on the ball side (right side for right-handed bowlers) of the pin deck.

With the athlete’s ability to hook the ball, an adjustment is made to create a target line that accommodates this movement of the ball. The adjustment on the approach is in four-board increments (or 4-8-12) for each zone on the pin deck off the strike target line. The target at the arrows also changes with each zone change. The adjusted spare conversion guide for right-handed bowlers is shown in the table below in Figure 8-19, Adjusted 3-6-9 – Right-handed Bowler.

<table>
<thead>
<tr>
<th>Key Pin</th>
<th>Adjustment on approach</th>
<th>Target on lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (5)</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>2 (8)</td>
<td>3 right</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>4</td>
<td>6 right</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>7</td>
<td>9 right</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>3 (9)</td>
<td>4 left</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>6</td>
<td>8 left</td>
<td>3rd arrow</td>
</tr>
<tr>
<td>10</td>
<td>12 left</td>
<td>Between 3rd and 4th arrow</td>
</tr>
</tbody>
</table>

*Figure 8-19, Adjusted 3-6-9 – Right-handed Bowler*

*Continued on next page*
### Adjusted 3-6-9 Conversion, continued

The adjusted spare conversion guide for a left-handed bowler is shown in the table below in *Figure 8-20, Adjusted 3-6-9 – Left-handed Bowler.*

<table>
<thead>
<tr>
<th>Key Pin</th>
<th>Adjustment on approach</th>
<th>Target on lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (5)</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>3 (9)</td>
<td>3 left</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>6</td>
<td>6 left</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>10</td>
<td>9 left</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>2 (8)</td>
<td>4 right</td>
<td>Between 2nd and 3rd arrow</td>
</tr>
<tr>
<td>4</td>
<td>8 right</td>
<td>3rd arrow</td>
</tr>
<tr>
<td>7</td>
<td>12 right</td>
<td>Between 3rd and 4th arrow</td>
</tr>
</tbody>
</table>

*Figure 8-20, Adjusted 3-6-9 – Left-handed Bowler*
Reverse 3-6-9

Covering the Ball-side Corner Pins

Some athletes have a difficult time covering the ball-side corner pins no matter which of these spare conversion methods is selected. For the right-hander, that would be the 10 pin. A suggestion is to have the athlete move to the left of the approach and select a target they are comfortable using to convert the 10 pin. Select a position on the approach and roll the ball over the target of choice on the lane. Make appropriate adjustment to the right or left until you find a line that you are comfortable with to convert the 10 pin.

If the athlete lines is standing on 30 and rolling the ball over the third arrow, have the athlete try covering the 3 and 6 pins by moving three and six boards to the right off this 10 pin line.
Straight Lines

Achieving a Straight Shot

With the premium on spare shooting being accuracy, logic would dictate that the straighter the ball, the greater the chance for success. There are several ways to achieve a straighter shot, discussed in earlier chapters in this manual, which include changing the following:

- **Equipment**: Using a plastic ball or a highly polished ball creates very little friction and results in a fairly straight ball.

- **Wrist position**: Using the “relaxed” wrist position, as discussed in CHAPTER 7 – FINE TUNING THE PHYSICAL GAME, will minimize the amount of revs and energy that are imparted to the ball.

- **Hand position**: Positioning the hand behind the ball with the thumb and fingers at the 12 o’clock and 6 o’clock position, as discussed in CHAPTER 7 – FINE TUNING THE PHYSICAL GAME, will produce a very low degree rotational axis on the ball. This rotation will generate little to no hook potential.

Straight Line Options

Being able to deliver a ball straight creates additional options for spare conversions that include the following two options:

- **Straight Line – Cross Lane**: An athlete delivering a straight ball may develop target lines to roll the ball cross lane to cover the 6 or 10 pins (top diagram), or the 4 or 7 pins (bottom diagram) as shown below in Figure 8-21, Rolling Cross Lane.

Figure 8-21, Rolling Cross Lane

Continued on next page
Straight Lines, Continued

- **Straight Line – Parallel Boards**: The ability to deliver a straight ball allows the athlete to determine target lines using each of the seven target arrows. Rolling the ball on the board each arrow resides allows the athlete to cover all seven spare zones going straight down the lanes, as shown below in *Figure 8-22, Rolling Straight Down Boards*.

![Figure 8-22, Rolling Straight Down Boards](image)

In accordance with USBC Equipment Specifications, pins are to be centered 12 inches apart in a triangular configuration on the pin deck. By the nature of these triangles, the pins are not spaced five inches apart (side-to-side) and will not exactly match the alignment of the targeting arrow and locator dots. In actuality the distances between each pin will be closer to six inches apart – with only the 1 and 5 pins actually aligned with the middle locator dots and fourth arrow.

However, utilizing a straight target line that runs parallel with the boards on the lane will give an athlete another option for converting spares. Example: a ball (8.575 inches wide) traveling down the 30th board will impact the four inch wide 4 pin residing on the 32nd board.
Using Experience and Bowling Sense

Intuition as Guide
Under normal lane conditions and when playing a second arrow strike game, adjusting for spare conversions is simple: following the previous spare conversion guides should result in success. However when competing on extremely wet or dry conditions conventional adjustments may not be possible because of the location a ball return.

This is where the intuitive bowling sense of the individual comes into play. How many thousands of times has the athlete watched and evaluated a ball as it traveled down the lane, broke and impacted the pin triangle? Creating an accurate mental picture of the line in the mind that you need and correctly duplicating this trajectory is actually the sport in a nutshell. It all boils down to experience, attentiveness, knowledge and practice.

General Guidelines
There are general guidelines that can help your athletes adjust to lane conditions for spare conversions:

- Using the spare conversion guide as a basis, subtract boards for dry lane conditions when lining up in the stance; add boards for oily lane conditions.

- When converting spares cross lanes:
  - If there is not enough room on the right side of the approach to make the desired adjustment, the athlete will need to move the target farther left on the lane and readjust the starting position on the approach to create the preferred target line. As the athlete moves to the right on the approach, his or her eyes will move to the left on the lanes.
  - If there is not enough room on the left side of the approach to make the desired adjustment, the athlete will need to move the target farther right on the lane and readjust the starting position on the approach to create the preferred target line. As the athlete moves to the left on the approach, his or her eyes will move to the right on the lanes.
Section 4 – Playing the Lanes

Overview

This section deals with the impact of lane dressing on the game, and provides a variety of suggestions and instructions that will help your athletes adjust their games to address changing lane conditions.

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Lane Conditions

Lane Dressing

For the most part, a lane always appears to have a shiny surface. At times, the ball comes back with an oily ring around it. This is because lane dressing is regularly applied to a lane to help protect the wood surface. The lane dressing creates an area on the lane where the ball initially skids before hooking and then rolling into the pins.

Lane conditioning is important because the amount of dressing and where it is applied ultimately determines how and when the ball reacts during a shot.

When watching your athletes bowl you may have noticed that even though they are executing good shots, the ball seems to react differently on the lanes. A reasonable explanation may be there was more or less dressing on that part of the lane since the last shot.

As soon as the oil dressing is applied to a lane, it begins to break down. How fast the dressing breaks down depends upon how much the lane is being used, overhead lighting, porosity of the wood, type of dressing, temperature, humidity and other factors.

Types of Lane Conditions

There are three basic types of lane conditions:

- Oily
- Medium
- Dry

Have your athletes try to determine which of these three conditions exist.

Can they detect patches of lane dressing? Or are there dry, worn areas where the dressing is absorbed into the lanes? Check the ball when it comes back. Is there a telltale oily ring around it or is it fairly dry? Lane conditions affect the performance of the ball on the lane. This is why it is necessary to learn how to adjust.

Dry Lanes: The absence of lane conditioner on the lane surface is what constitutes dry lanes. A dry lane increases the friction between the surface of the ball and the lane. The increased friction optimizes the ball’s potential to hook. Athletes usually find that the ball hooks too far to the inside of the lane.

Continued on next page
Lane Conditions, Continued

The friction that produces the hook potential also causes the ball to lose energy. The greater the friction the greater the energy lost. Balls on this surface react very early, as shown below in Figure 8-23, Effects of Amount of Lane Conditioner.

**Effect of Each Condition continued**

Medium Lanes: If there is a *medium* amount of dressing on the lane, no adjustments should be necessary, as shown above in Figure 8-23, Effects of Amount of Lane Conditioner. Just have your athletes play their regular game.

Wet Lanes: An abundance of lane conditioner on the lane surface characterizes *wet lanes*. The presence of lane conditioner reduces the amount of friction between the ball and lane surface. This reduction in friction results in the ball going straighter, as shown above in Figure 8-23, Effects of Amount of Lane Conditioner. Athletes usually find that the ball stays to the outside of the target.

This lack of friction results in decreased hook potential. The ball loses very little energy while it skids down the lane. Balls on this surface react very late, if at all.

**Going With the Flow**

Your athletes must adapt both their physical and mental games to play these extreme conditions. Being able to go with the flow means understanding what condition they are bowling on and taking full advantage of that lane condition. This means they must:

- Adjust their games to be straighter when the lanes are oily.
- Play a hook game when the lanes are dry.

*Continued on next page*
Lane Conditions, Continued

Going With the Flow continued

When the lane conditions are very oily, a hook ball is nearly impossible. Also, the sideways spin on the ball makes the ball skid more, meaning that you lose the turn on the ball. Slow down and lay the ball down earlier, before the foul line. (The ball does not set off the foul light.) This encourages more roll on the ball.

When the lane conditions are dry, the athlete needs to make the adjustments to get the ball to the desired target. Maximum hook is not always the best situation. Although it is true that a hook shot provides a better angle for making strikes, it can be the most difficult to control.

To adjust to this problem, explain to your athletes that they should play a straighter game with more roll and less hook. The athletes need to utilize the variety of physical techniques and adjustments made with equipment discussed in this manual to effectively adjust to a straighter game.
Lane Wear From Second Arrow Track

Second Arrow Lane Wear

Most athletes are taught to play the area around the second arrow. With the majority of right-handed players rolling the ball on that portion of the lane creates an interesting situation. This portion of the lane becomes worn.

Have your athletes imagine an old set of stairs. The outside edges of the steps that are closer to the walls and railing show very little wear. However, the middle portion of the steps that endures all the use, abuse and traffic will show wear.

This is the same way with a bowling lane; the areas that get the most use will show wear. Since most bowlers use the second arrow track for strikes, this area of the lane will be the worn area. This worn portion of the lane translates into a rough area with warped spots that usually result in an uneven distribution of lane dressing.

Effect of Dry Area

The principal problem is that the oil tends to soak into the worn, unconditioned wood, making the worn area dry. This results in an over-reactive, unpredictable path. A ball follows the path of least resistance, usually meaning the path that is oiled.

The wearing of the second arrow track need not be this pronounced before it has an effect on your athletes’ games. During the course of an hour or two of play, balls pick up oil on the second arrow track, making it drier than other portions of the lane, as shown below in Figure 8-24, Second Arrow Dry Area.

Advanced bowlers realize that part of the challenge of the game is to play around the lane’s rough areas. (Actually, the best technique is to play just to the inside edge of a rough track). This means your athletes want to find a target track other than the second arrow.
Understanding Ball Reaction

Skid, Hook and Roll

When studying ball reaction, the coach and athlete need to have a basic understanding of ball surfaces and ball motion as presented in CHAPTER SIX – BOWLING BALL PARTS AND DYNAMICS. The bowling ball must go through three distinct stages when traveling down the lane:

1. Skid
2. Hook
3. Roll

Each of these stages is shown below in Figure 8-25, Skid, Hook and Roll Stages, and described in the material that follows.

The ball initially skids through the front portion of the lane. As the ball travels down the lane and encounters friction, it will begin to lose velocity.

At the point where the axis rotational force becomes more dominant than the ball speed, the ball begins to move in the direction of the axis rotation. The point where the ball begins to change direction is known as hook.

The ball continues to hook until the forward motion once again becomes the dominant force and the ball goes into a roll.
Breakpoint

Depending on the bowling center and lane conditions at the time, a ball begins to hook in a different area of the lane. The point where the ball begins to hook is known as the breakpoint. For the example shown below in *Figure 8-26, Breakpoint at 20 Feet*, the breakpoint is at 20 feet.

![Figure 8-26, Breakpoint at 20 Feet](image)

During the first few practice shots of the day, your athletes should locate the breakpoint on the lane. Later in this section, we cover a four-step method for reading lanes. Using this method, a bowler can readily determine the breakpoint for the lane as well as other very helpful information.

After the breakpoint is discovered, instruct your athletes to determine approximately how many boards the ball hooks once it reaches the breakpoint.

In the following example, we have two athletes who roll the ball down the lane. Athlete “A,” standing on the 18th board, rolls the ball out to the 10th board at 40 feet and the ball hooks to the pocket, as shown below in *Figure 8-27, Athlete “A” – Breakpoint at 40 Feet*.

![Figure 8-27, Athlete “A” – Breakpoint at 40 Feet](image)
Breakpoint, Continued

The Optical Illusion of Breakpoint continued

Athlete “B,” standing on the 30th board, rolls the ball and at the 10th board at 50 feet the ball hooks to the pocket, as shown below in Figure 8-28, Athlete “B” – Breakpoint at 50 Feet.

![Figure 8-28, Athlete “B” – Breakpoint at 50 Feet](image)

In the following illustration, which ball hooked the most?

![Illustration](image)

In the above illustration both balls will actually cover an identical number of boards to the pocket. Both ball paths, regardless where they start on the lane, end up with the ball rolling to the pocket from the same board. Both lines will be equally effective as the path is identical from the breakpoint into the pocket.

*Continued on next page*
Breakpoint, Continued

Adjusting the Breakpoint

In situations where the ball is hooking very little, this is an indication of wet or oily lanes. In this case, instruct your athletes to play a longer game by moving the breakpoint down the lanes closer to the head pin. Additionally, an athlete can adjust to this type of game by cupping the wrist, change to a softer/more porous ball cover or laying the ball down on the lanes earlier.

The point at which the ball goes into a roll is where the ball has its strongest hitting power. Optimally, the athlete wants the ball to go into its roll no more than three to four feet from the pins. This maximizes pin action and helps the ball finish strongly.

The longer the ball rolls before hitting the pins, the greater the loss in speed and energy. The loss of power results in reduced pin action and a greater chance for the ball to deflect off the pins. This occurrence is known as “hook out.”

A simple adjustment that an athlete can make to adjust the breakpoint is to move the target either closer or a bit further down the lane. Moving the target 12 to 18 inches further down the lane results in the bowler projecting the ball a bit further, causing the ball to skid and delaying the ball reaching the breakpoint. Conversely, an athlete moving 12 to 18 inches closer to the target will end up laying the ball down on the lane sooner, which will promote the ball getting into an earlier roll, resulting in an earlier breakpoint.
**Loft**

This chapter has introduced concepts of lane play geared to develop an understanding of the importance of paying attention to when, where and how much a ball reacts on a lane or the breakpoint. Up to now all adjustments for lane play have been made by making moves to the right or left on the approach or lane.

Another way to affect when and where the ball reacts on the lanes is to adjust where the ball initially impacts the lane. The distance the ball travels once it leaves the athlete’s hand to the point where it lands on the lane is known as **loft**.

Loft is often used in situations where the amount of friction between the ball and lane surface is resulting in early ball reaction. Lofting the ball out on to the lanes will delay ball reaction and move the breakpoint further down the lane.

**Adjusting Loft**

Adjusting the amount of loft is a tool that will lengthen or shorten a lane in terms of ball reaction. When the lanes are dry, an athlete may choose to shorten the lane by increasing the amount of loft. This action will reduce the distance that the ball will physically travel on the lane and moves the breakpoint further down the lane.

Conversely, if the lanes are wet or extremely oily an athlete may choose to significantly reduce the amount of loft or even lay the ball down at the foul line. Reducing loft will increase the distance the ball will travel on the lane, giving the ball a better opportunity to get into a roll.

An athlete should be encouraged to practice various degrees of loft utilizing the relaxed, firm and strong wrist positions. This will develop additional options and ability to play the lanes.
Blocked Lane Conditions

Types of Blocks

There are two general types of blocked lane conditions. The first type is referred to as the “basic block,” or “intentional block.” Basic blocks are lane conditions intentionally created by a bowling center to make scoring easier. Although there are several types of basic blocks that we will cover shortly, the general theory is the same. A blocked lane has an area directed to the strike zone that contains more oil than other areas. Since balls usually follow the path of least resistance, people get more strikes and higher scores.

The other type of blocked lane condition is a “reverse block.” A reverse block is not an intentional lane condition. With a reverse block, there is more oil on the sides and less oil in the middle of the lane. It occurs after much bowling when many balls deplete the oil away from the middle of the lane. In addition, this oil is usually deposited in the back end, reducing hook potential. Adjusting to a reverse block condition requires a high level of skill, which we discuss in detail shortly.

Adjusting to Basic Blocks

There are four types of basic blocks:

- Blended block
- “Berlin Wall”
- Tunnel block
- Funnel block

Proper adjustment for each of these four types of basic blocks is described in detail in the material that follows.

**Blended Block:** A blended block condition is a gradual increase of oil toward the center of the lane, as shown below in Figure 8-29, Blended Block.
 Blocked Lane Conditions, Continued

Adjusting to Basic Blocks continued

This may or may not be an intentional block. Most lanes have a slight depression in the middle of the lane. This means there is a natural tendency for a lane-conditioning machine to place more oil on the sides and less in the middle. Bowling proprietors compensate for this by adjusting the machines so more oil is placed in the middle of the lane than on the sides. This results in uniform oil distribution from side to side. Sometimes, however, proprietors may overcompensate, and this results in a blended block.

If you notice a blended block condition exists, no compensation is necessary. Instruct your athletes to play a normal game. They may have to move a board or two to the outside to compensate for the additional oil in the middle of the lane, but this is discovered as soon as they dial themselves into the strike position.

Wet/dry condition: This condition is similar to a blended block. Wet/dry conditions is characterized by an oily middle abruptly going to a dry, as shown below in Figure 8-30, “Berlin Wall”

Figure 8-30, “Berlin Wall”

Have your athletes adjust to the Berlin Wall by first finding the edge of the block, then playing just to the outside of the edge. Remember, as the oil evaporates, this edge moves in toward the middle. As this happens, tell your athletes to move in a board or two to compensate.

Continued on next page
Blocked Lane Conditions, Continued

Adjusting to Basic Blocks continued

**Tunnel Block:** A tunnel block is designed specifically for bowlers who use the second arrow strike position. More oil is placed on a couple boards to either side of the second arrow track, as shown below in *Figure 8-31, Tunnel Block.*

![Figure 8-31, Tunnel Block](image)

For second arrow players, no adjustment is necessary. If a bowler uses the first target arrow as a strike point, however, crossing the second arrow area takes some of the hook out of the ball. An athlete should adjust to this by either playing a second arrow strike game or closing the shoulders and playing a straighter game.

**Funnel Block:** A funnel block is similar to a blended block condition. With a funnel block, however, the oiled area tapers in toward the center as it nears the pin triangle. The effect is to channel the bowling ball toward the center of the lane, as shown below in *Figure 8-32, Funnel Block.*

![Figure 8-32, Funnel Block](image)

Have your athletes adjust to a funnel block as they would for a blended block condition.

*Continued on next page*
As we stated before, a reverse block is one of the most difficult lane conditions to play. Scores are lower as a result. Encourage your athletes to accept the challenge and remind them their competitors are playing under the same conditions.

There are three strategies to countering a reverse block; each of which is described in the material that follows.

**Hook From Oily Side:** If the back end is still somewhat dry, the athlete can play from the far right side of the lane (which still contains oil). A basic requirement for this strategy is that an athlete has a strong hook shot, as shown below in Figure 8-33, *Hook From Oily Side*.

![Figure 8-33, Hook From Oily Side](image)

**Straight Game:** The second strategy is to play a straight game from the center of the lane. A bowler wants to adjust for straight lane play by making changes in the physical game (see CHAPTER 7 – FINE TUNING THE PHYSICAL GAME) and changing equipment (see CHAPTER 6 – BOWLING BALL PARTS AND DYNAMICS). This is the strategy of choice if the back end is oily, as shown below in *Figure 8-34 Straight Game*.

![Figure 8-34 Straight Game](image)

*Continued on next page*
Blocked Lane Conditions, Continued

Adjusting to Reverse Blocks continued

*Cross-lane:* The third strategy is to play cross-lane from the left side of the lane with a strong hook. (As the majority of people are right-handed, the left side is probably in better condition.) Your athlete should cross over the fourth arrow by opening the shoulders. The breakpoint is in the back end. This allows the player to utilize only the dry portions of the lane, as shown below in Figure 8-35, *Cross-lane.*

![Figure 8-35, Cross-lane](image-url)
Reading Lanes – The Four Shot Method

Probing During Practice

Usually, most bowlers use their initial practice shots to dial into the strike angle. The problem with this method is that conditions of the other portions of the lane are a mystery. Therefore, all spare conversions have to be based upon the 4-8-12 and 3-6-9 methods -- methods that do not compensate for oil and dry lane conditions.

The “four shot system of reading lanes” is a tool that helps a bowler probe for the condition of all portions of the lane. This allows your athletes to make adjustments for both strike and conversion angles.

Instruct your athletes to use the first shot to limber up and to aim for the strike pocket. The remaining four shots, however, are for lane reading purposes.

Shot One

Tell your athletes to aim for the 7 pin (10 pin for left-handed bowlers) as they would under normal lane conditions. This entails lining up with the inside of the left foot on the 11th board (assuming a six-board lay down), and turning the shoulders in to close the angle, as shown below in Figure 8-36, Shot One. Aim is taken between the second and third target arrow.

As this shot travels cross lane, your athletes have a good idea of the condition of the middle portion of the lane. If the shot misses to the right, the middle of the lane is oily; if it drops into the channel, the middle of the lane is dry. In addition, they know how many boards to adjust when making left-corner spare conversions.

Continued on next page
Reading Lanes – The Four Shot Method, Continued

**Shot Two**

Your athletes should next aim for the 10 pin (7 pin for left-handed bowlers) as they would under normal lane conditions. Have them line up on the 32nd board (adjusted accordingly for individual lay down points). Their shoulders should be turned out, opening the angle, and their aim should be between the third and fourth target arrows, as shown below in *Figure 8-37, Shot Two*.

![Figure 8-37, Shot Two](image)

Shot Two determines the condition of the right side. If the right side is dry, the shot misses to the left; if the right side is oily, the ball drops into the right channel.

This second shot provides your athletes with a wealth of information. First, they know how far to the right they can arc out before hooking back into the strike pocket. The drier the right side, the more they are able to play out for a sharper hook angle. Second, they know how many boards to adjust for a 10 pin spare conversion.

**Knowledge from Shots One and Two**

The information from both Shot One and Two can be combined to gain even more knowledge concerning the overall condition of the lane. If Shot One at the 7 pin misses to the right and Shot Two at the 10 pin misses to the left, as shown below in *Figure 8-38, Shots One and Two – Blocked Lanes*, the lanes are blocked. More oil is in the middle of the lane than the sides.

![Figure 8-38, Shots One and Two – Blocked Lanes](image)

Continued on next page
Reading Lanes – The Four Shot Method, Continued

Knowledge from Shots One and Two continued

If Shot One ends up in the channel and Shot Two misses to the left, as shown below in Figure 8-39, Shots One and Two – Dry Lane, conditions are very dry throughout the lane.

![Figure 8-39, Shots One and Two – Dry Lane](image)

If an athlete misses to the right of the 7 pin on Shot One and Shot Two ends up in the channel, as shown below in Figure 8-40, Shots One and Two – Oily Back End, the back end (and possibly the entire lane) is oily.

![Figure 8-40, Shots One and Two – Oily Back End](image)

Continued on next page
Reading Lanes – The Four Shot Method, Continued

**Shot Three**

Shot Three is toward the 2pin (3 pin for left-handed bowlers). Again, have your athlete line up as they would under normal lane conditions. Also, have them use the second arrow track, as shown below in *Figure 8-41, Shot Three.*

![Figure 8-41, Shot Three](image)

This shot, as it follows the second arrow track over a long distance, determines the track’s condition. If the shot misses to the left, the second arrow track is worn and/or dry. If the shot misses to the right, the middle of the back end is oily. Instruct your athletes to use the information from this shot when lining up for strike shots and for spare conversions in the middle of the pin triangle.

**Shot Four**

The last shot should be for the strike pocket. This time, tell your athletes to utilize all the information they have gained from the last three shots to determine the optimum strike angle under the prevailing lane conditions. They should be dialed into the lane fairly well. If they do miss, it is probably by no more than a couple boards, requiring little adjustment for the next shot, which counts.
Chapter Summary

Key Points to Remember

Following are key points presented in this chapter.

1. There is a direct correlation between the athlete’s ability to reproduce a consistent approach and delivery and successfully play the lanes.

2. A good armswing and timing that are properly matched to an athlete are key components for developing a good release.

3. It is strongly recommended that athletes determine their starting position counting away from the middle dot or 20th board.

4. Reference to the line that is being played indicates the intended direction and path that a ball travels using two reference points on the lane. These points include the release point at the foul line and the target that the athlete is trying to cross over on the lane.

5. Information regarding lay down point, drift and the beginning position of the athlete are required in determining the release point of the ball at the foul line.

6. Besides delivering the ball utilizing a completely different target line, an athlete may make either an angular or parallel move off a previously used target line. A 2:1 move with the feet and eyes is an additional adjustment to the angular move.

7. Developing the ability to deliver the ball by walking parallel to the boards on the approach will allow the athlete to create deeper a angle to play the lane.

8. Several variations of the basic spare conversion methods were introduced to expand the options for converting spares and include:
   - 3-6-9/4-8-12
   - Reverse 3-6-9
   - Straight line conversions
     - Cross lane
     - Parallel with the boards

9. Loft is a tool that will effectively lengthen or shorten a lane in terms of ball reaction.

Continued on next page
Chapter Summary, Continued

Key Points to Remember continued

10. There are three basic types of lane conditions:
   - Oily
   - Medium
   - Dry

11. The **four shot method** introduced to read lanes includes delivering the ball at the following targets:
   - Right hand: 7, 10, 2, strike pocket
   - Left hand: 10, 7, 3, strike pocket