Health / Skill Component:

**Muscular Strength** is the health component that will require most of your energy. You will need strength in your arm to control ball as it swings like a pendulum before it is released. The skill needed to bowl is **hand eye coordination**. It is important to combine movement with your upper and lower body as you move about the lane.

History

Modern bowling began in northern Italy as a game called “bowls”. The game later spread to Germany, Holland, and England, where it was played on grass (the bowling green) and was known as nine pins. The Dutch brought the game to America in the early 1600s, where it was played on grass or clay and later on a single board. The game in America was very popular, especially among people who like to bet on the game. Nine-pins were so closely linked to gambling that several states banned it in the 1840s. In response to the prescribed law players added one pin to make the game 10 pins so they could continue to bowl and gamble.

In 1895 the American Bowling Congress, which continues to govern all of the rules of bowling, was organized. Bowling hit its pinnacle of popularity when it became an official Olympic event during the summer games in 1992.

Bowling Ball

Bowling balls are constructed of synthetic plastic or hardened rubber and have a circumference not more than 27 inches. The official ball weighs between 8 and 16 pounds and usually has three bored holes to assist the bowler in controlling the path of the ball.

Bowling Lane

Bowling lanes are constructed of hard maple wood or laminated surfaces. The bowling lane is 63 feet long and 42 inches wide. It is 60 feet long from foul line to the first pin. Range finders or spots are engraved in to the lane 10 to 15 feet down the lane and are used to help the bowler aim the ball toward the pins. Attached to both sides of the lane are 9-inch wide channels or gutters to catch errantly thrown balls. Additionally, a 15-foot approach or runway prior to the lane provides a delivery area for the bowler. The foul line separates the approach and the lane, crossing the foul line results in no points for the bowler. Bowling pins are 15 inches high with a 1/4 inch base. They are placed at the end of the lane in an equilateral triangle design; the center of each pin is 12 inches from the next pin.

General Rules

A line or game is composed of 10 frames. A player is entitled to two balls per frame unless a strike is rolled. In the 10th frame a strike or spare earn the bowler a third ball. If a foul is committed, the pins are reset and 0 points are recorded for the ball. A ball is dead when:

1. One or more pins are missing from the set up
2. Any interference occurs before the ball reaches the pins
3. In team play, if a bowler rolls out of turn or in the wrong lane

If a dead ball is declared, the bowler must re-roll the ball in question. The following situations may occur where the ball rolled and pins cleared do not count:

1. A ball rebounds from the rear cushion of the pit area
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2. A ball leaves the alley and returns to knock down pins (out of the gutter)
3. A foul is committed

Bowling may be played on an individual or team basis. A match consists of three games. In competition, the winner is decided by:
1. Winning 2 out of 3 games
2. Having the highest total of 3 games added together

Safety and Etiquette
- Bowling rules of conduct on and off the lanes are based mostly on common courtesy.
- Do not take an excessive amount of time before each ball delivery.
- The bowler on your right has the right of way. If he/she has taken a stance in the approach area, wait until the delivery is complete before you begin yours.
- As soon as you have completed your delivery and follow through, move away from the foul line and wait behind the approach for your ball to return. This courtesy allows the next bowler to make their approach without being distracted.
- When a person is bowling with a particular ball, even if it is a house ball (owned by the bowling alley), it is their property at the time. Do not use it without their consent.
- Keep food and drink out of the playing area.
- Use regulation-bowling shoes.
- Refrain from talking to a bowler once they have assumed their stance.
- Return any ball used to the racks before leaving.
- Know how to and share the responsibility of scoring.
- Throwing the ball as hard as you are able will NOT cause more pins to drop.

Strategy
Choose the heaviest ball that can be controlled, as this will give better pin action. Establish a consistent starting position by taking four and one half steps back from the foul line. For a right-handed bowler the 1-3 pocket is best to roll a Strike (1-2 pocket for a left hander). Spot bowling (using the arrows or some other mark on the lane) is the recommended aiming method.
- Aiming at the pins is not recommended.
- Adjust your starting position based on the results of the previous throws.
- Use a four-step approach (right, left, right, left for a right handed bowler). {Shown above}
- Push the ball forward on the first step
- Let the ball swing down and back on the 2nd and 3rd steps
- Right leg crosses behind on the 4th step
- For beginners a straight ball release is best as it is easiest to control.
- Rotate the hand to a natural handshake position.
- Release ball out in front of the body (not dropped beside leg).
- Follow through straight up on the release.
- Use a cross-alley technique for picking up spares.
- Consistency is the key to good bowling.
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Scoring
The score in bowling consists of the cumulative (on going) record of pins knocked down in each of the 10 frames. It is a means of comparing the performance of the bowlers within a possible perfect total score of 300. Each game (or line) consists of 10 frames with a maximum of two balls rolled for each frame except in the 10th frame. In the 10th frame a third ball can be rolled if a strike or spare is earned.

Symbols
- **Strike**: All pins knocked down with the first ball.
- **Spare**: All pins knocked down in two attempts. Figure indicates that seven pins were knocked down by first ball. On the second ball the remaining 3 pins were knocked down.
- **Miss**: Failure to strike or spare.
- **Split**: After first ball, the headpin is down and two or more pins remain standing with no intermediate pins in front or between. In this example, the split was converted with the second ball.
- **Foul**: A part of the bowler's body touches any part of the lane, equipment, or building beyond the foul line during or after delivery. When a player fouls, no score is allowed on that ball and the pins are reset (similar to losing a turn). If the foul occurs on the 2nd try, the player is awarded only the pins they knocked down on the first try.

- If a strike is rolled it will score 10 points for that frame PLUS the adding of the next two balls thrown.
- If a spare is made it will score ten points for that frame plus the adding of the next (one) ball rolled.
- If a strike or spare is not made, it is an open frame. The total number of pins the two balls rolled in that frame are totaled and added to the previous frame.
## Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Approach</td>
<td>the area before the foul line with sets of dots to guide starting position</td>
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<tr>
<td>Arrows</td>
<td>targets on the lane that help the player align a starting position w/ the pins</td>
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<tr>
<td>Creeper</td>
<td>an excessively slow rolling bowling ball</td>
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<tr>
<td>Double</td>
<td>two strikes in a row</td>
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<tr>
<td>Foul</td>
<td>touching or going beyond the foul line when delivering the ball. This is indicated on the score sheet with a ‘f’. The score for the ball rolled is 0 regardless of what was knocked over.</td>
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<tr>
<td>Frame</td>
<td>1/10 of a game. Each square on a score sheet indicates one frame.</td>
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<tr>
<td>Gutter ball</td>
<td>a delivered ball that rolls off the lane into the gutter.</td>
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<tr>
<td>Head pin</td>
<td>the number one pin</td>
</tr>
<tr>
<td>Hook</td>
<td>a ball that breaks sharply toward the pocket</td>
</tr>
<tr>
<td>Lane</td>
<td>the area between the foul line and the head pin</td>
</tr>
<tr>
<td>Mark</td>
<td>a strike or spare</td>
</tr>
<tr>
<td>Nose hit</td>
<td>the ball hits fully on the head pin</td>
</tr>
<tr>
<td>Open</td>
<td>a frame in which the player fails to strike or spare</td>
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<tr>
<td>Perfect game</td>
<td>all strikes, equaling a score of 300</td>
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<tr>
<td>Pin deck</td>
<td>the area where the pins were placed</td>
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<tr>
<td>Pocket</td>
<td>the area between the 1-2 pins for a left-hander; the 1-3 pins for a right-hander</td>
</tr>
<tr>
<td>Set-up</td>
<td>when all 10 pins are set up in a triangular formation</td>
</tr>
<tr>
<td>Sleeper</td>
<td>a pin hidden behind another pin; also called a railroad</td>
</tr>
<tr>
<td>Spare</td>
<td>knocking down all 10 pins using both deliveries (rolls) allowed in a frame</td>
</tr>
<tr>
<td>Split</td>
<td>the head pin and center pins are knocked down</td>
</tr>
<tr>
<td>Strike</td>
<td>all pins down on the first ball</td>
</tr>
<tr>
<td>Turkey</td>
<td>three strikes in a row</td>
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