Index:

Overview of the sport ........................................... 3
The Spirit of Curling ........................................... 3
The Curling Team ............................................ 4
Equipment .................................................. 7
Game Flow .................................................. 8
The Playing Surface ...................................... 13
Sweeping .................................................. 14
Delivery ................................................... 21
Types of Shots ........................................... 30
Basic Strategy ........................................... 34
Free Guard Zone ........................................ 36
Practice Ideas ........................................... 40
Glossary of Terms ..................................... 43
Curling Lingo ........................................... 45
The Zone System ....................................... 46

The Following is taken from:

The Curler’s Manual

By Grayland Cousins

(www.curlingschool.com)

Minor editing done by Hollywood & Orange County Curling Club
Overview of the Sport

Curling is a team sport played on ice. Curling originated back in the 1500’s on the lakes and ponds of Northern Europe. The object of the game is for two teams of four players to slide 42-pound granite rocks down a sheet of ice 140 feet long by 15 feet wide. The rocks are delivered toward the center of a 12-foot diameter target similar to an archery target. The targets are painted into the ice at both ends of the sheet of ice, so the game is played back and forth, usually eight times. Each team positions rocks closest to the center of the targets in an attempt to score more than their opponent.

Each player throws two rocks toward the target, alternating with the opponent. Rocks traveling down the ice have a tendency to curve or "curl", hence the name curling. After all sixteen rocks have been thrown; teams score one point for each rock closest to the center of the target than the opponent's closest rock.

A unique part of curling is the concept of sweeping. Players vigorously sweep, or brush, the ice in front of the rock to keep it moving. The friction caused by the sweeping polishes the ice by briefly heating the surface, which makes the rocks travel farther and straighter.

The Spirit of Curling

The Spirit of Curling

"Curling is a game of skill and traditions. A shot well executed is a delight to see and so, too, it is a fine thing to observe the time honored traditions of curling being applied in the true spirit of the game. Curlers play to win but never to humble their opponents. A true curler would prefer to lose rather than win unfairly.

A good curler never attempts to distract an opponent or otherwise prevent him/her from playing his/her best.

No curler ever deliberately breaks a rule of the game or any of its traditions. But, if he/she should do so inadvertently and be aware of it, he/she is the first to divulge the breach.

While the main objective of the game is to determine the relative skills of the players, the spirit of the game demands good sportsmanship, kindly feeling and honorable conduct. This spirit should influence both the interpretation and application of the rules of the game and also the conduct of all participants on and off the ice."

Curling is one of the few sports in the world that emphasizes etiquette. For the most part, there are no referees or judges. Rules are based on the honor system and both teams and spectators admire good shots. Missed shots are never cheered.

Curling is a medal status sport in the Olympic Winter Games, which debuted in the Nagano, Japan Games in 1998. This status should increase the competitive nature of the game, as well as interest in the sport. Despite the competitive aspect of the game, curling remains a highly social sport for all age groups.
"Broom Stacking"

One of curling's great traditions is broom stacking. The term refers to the social get-together after each game. Originally, curlers, halfway through a curling game on the pond, would stack their brooms in front of the fire and drink scotch with the opponent. Curlers now wait until the game is finished but this tradition is still alive today at all levels of competition. You are expected to socialize with your opponent after every game.

Competitive Spirit (Advanced)

There is also a bit of broom stacking at competitive levels leading to world play. Although the focus of these competitive curling events is on determining a champion, socializing after the game still exists. Even at the most competitive levels, teams will get together after the game for friendly discussion.

The Curling Team

Teams are made up of four players. Each player throws two rocks, alternating with the opponent. The first player is known as the Lead and throws the first two rocks. The second player is known as the Second and throws the second two. The third player is known as the Vice Skip and throws the third two rocks. The fourth player is known as the Skip (team captain) and throws the last two rocks.

The skip controls the game by determining all of the shots and developing the game strategy. Since the rocks curl as they travel down the ice, the throwers must aim at a point other than the intended resting point. The skip is responsible for providing an aiming point. The skip places his broom upright, directly over the desired aiming point. The skip is also responsible for determining whether sweeping is necessary and communicating this to the sweepers*

* There are certain instances when the skip is not responsible for determining sweeping. (See section on sweeping)

Building a Team (Advanced)

At the advanced or competitive level, the curling team becomes more than simply a collection of four individuals. Since curling is one of the only true team sports (everyone on the team has some responsibility on every shot), a proper "fit" at each position is critical.

Although there are many components to great teams, there are three key elements to building a great team. Listed below are four key points when building a team. They are listed in order of priority.
1. All players are comfortable with the position they are playing. This means a comfort level with mechanics of the position, but most importantly that the positional hierarchy (playing lead or second) is in no way a reflection of their skill level.

2. All players have similar releases and release points.

3. All players throw the rock on the same "line of delivery".

4. All players recognize the value of team communication and coordinated sweeping techniques.

Elements number two and three can be overcome by playing and practicing together. Element number one is probably the most important and is responsible for many teams not staying together for more than a couple of years. "Skip syndrome" means that more than one player on the team thinks they should skip.

Each position on the curling team has a certain profile. When searching for team members or analyzing an existing team, keep the following profiles in mind.

**The Lead:**

**Responsibilities:** The lead is responsible for setting up the end. In most cases, the results of the lead rocks determine the tactical approach to any given end. In many cases, the outcome of the end is a direct result of the lead's shots. Once the lead has thrown both rocks, the lead's responsibility is to be a supportive teammate for the others and to become one of the core sweepers.

**Profile:** The lead is the type of person that fully understands the role of the first player. In the past, the lead has usually been recognized as the least experienced player or the least skilled player on the team. This may be the case on a league team, but at the competitive level the lead may be as skilled and experienced as the other players on the team. The difference is now that the lead clearly recognizes the significant role that is expected of him or her. Leads generally throw draw shots with a few takeouts in between. Pick a lead that has very consistent draw weight.

**The Second:**

**Responsibilities:** The second's primary responsibility is to maintain the tactical initiatives developed by the skip and set up by the lead. There are a wider variety of shots at the second position. The second often is asked to make the first offensive or aggressive move. This could be the first come-around of the end.

Because of the free guard zone rule, the second may be the one to "get under" first, meaning the first player to draw behind a guard or guards. On the other hand, the second may also play the role of clean-up person depending on the strategy of the end.
The second may be called upon to clear the area with heavy hits or double take outs. The second should have the ability to throw heavy weight takeouts while still being able to aim properly (hit the broom).

Profile: The second, like the lead, is the type of person that fully understands the role of a team player. Since the shot-making requirements are broader than the lead, the second must possess a well-rounded set of shot-making skills. The second is the position that is the least recognized in the overall scope of the game. This person must realize that this position is by no means a glamorous one. If a cheerleader were present on the team, it would be a perfect fit at the second position.

The Vice Skip:

Responsibilities: The vice is called upon to make every type of shot known to the sport, from guards to peels and from freezes to doubles. The vice skip must have the skills to throw any type of shot at any time. The vice is often asked to make the "kill" shot. This is the shot that seals the end. In addition to shot-making skills, the vice must have excellent knowledge of strategy and house management. This is the most difficult job on the team because the vice is expected to make flawless sweep calls on the skip's rocks. Remember, the vice only calls sweeping on only two shots per end. In most cases, the vice is the most well rounded player on the team.

Profile: The vice skip must also be a true team player. Because their skill level parallels the skip, they must support and have confidence in the skip as the team leader. They must fully understand that even though they might be the best shooter on the team, their role as vice is critical.

The Skip:

Responsibilities: The skip's role is to provide overall leadership and strategic direction to the team; the biggest responsibility of the skip is to "close" the end. This could be the final execution of the tactics developed for the end. On great teams, the skip is called upon to throw maintenance shots like guards, open takeouts, open draws etc. However, in many cases the skip is called upon to make key offensive shots like come-arounds, freezes, hit and rolls, and four foot draws all under pressure.

Profile: The skip must have a stabilizing influence over the rest of the team. Even if the skip is not the best shooter on the team, he/she must be able to calmly execute the final shots. After the skip throws, the end is over. Because of this, the pressure of any given shot may be extremely high. The team must have the confidence that the skip will close the end successfully. Obviously, team dynamics are an important part of a team's success. There is no guarantee that four great shot makers will make a great team until they have become a cohesive unit with similar goals and expectations.
Equipment

Equipment For Curlers

Curling equipment comes in a range of complexity and cost. The only essential items are a "slider" and a "broom". A slider is most often a piece of Teflon®, plastic or steel that is slipped onto one foot in order to easily slide down the sheet of ice. The modern game of curling is designed around the ability to slide with no effort. The other foot usually wears a rubber-soled shoe used to grip the ice. One foot pushes while the other slides. Right-handed curlers push with their right foot and slide on their left.

The broom or brush is used to sweep the ice (polish it, actually) and most curling clubs have brooms available for use.

There are many distributors of curling equipment in Canada, the United States and Europe. Most veteran curlers choose to have their own curling equipment; shoes, brooms, special curling gloves, pants, jackets, etc. The list of equipment is endless. Consult your local instructor or curling professional for advice on appropriate equipment.

Equipment for the Curling Club

Curling facilities own a variety of equipment that directly affects the game. The most critical, and the most expensive are the rocks themselves. They are made from solid chunks of special, high-density granite found in Scotland. The cost of each stone is around $500.00! With proper care, curling stones can last many decades.

Other equipment at the curling club includes measuring devices, ice scrapers, large maintenance brooms, scoreboards and climate control equipment.

Equipment and Performance (Advanced)

Having the proper equipment is an important component to playing well. Since there is an endless list of equipment, decisions on the best equipment to use may be difficult. The following is a list of subtle differences that you should consider.

Sliders:
Sliders come in various speeds, shapes and materials. Generally, the advanced curler will use a slider that provides the least amount of friction. The "thick" Teflon® slider is the most common advanced slider. It is extremely fast and quiet.

Another type of slider that may be faster is one made of stainless steel. These sliders are cost prohibitive for most curlers. Other advanced sliders include the "red brick" slider. It is a fast slider that is very effective on frosty or rough surfaces.
Some advanced curlers prefer a slower slider. Some say they provide a better "feel" over the ice. Thin Teflon sliders in some cases allow for a slower, more controlled delivery.

**Brooms:**

Today's brooms are mostly synthetic made of Cordura® or other similar material. The synthetic broom is effective, efficient and clean.

**The Game Flow**

Games consist of either eight or ten "ends" depending on the level of competition. League and bonspiel games are generally eight ends while play leading to a national or world championship would be ten ends. An end in curling is similar to an inning in baseball. Each end takes approximately fifteen minutes, so an eight end game would generally take two hours to play.

Teams are usually assigned to a given sheet of ice (similar to a lane in bowling) at the curling club. Curling clubs have anywhere from two sheets to eight sheets of ice.

**Beginning the Game**

The game begins with a handshake. It is customary for each player to shake hands with each opposing player and each teammate.

Most curlers take a few practice "slides" before actually throwing the first rock. This is done by sliding out of the hack area with no rock. Do not throw rocks prior to any game unless it is specifically mentioned in the league rules. Practice slides help limber up the body (pre-game stretching is also recommended, see the section on the Delivery) prior to throwing the first rock. The vice skips on each team toss a coin to determine who has the last rock advantage in the first end. In most cases the winner of the coin toss chooses to throw the last rock, the loser of the toss chooses the rock color.

At this point, the skips move to the opposite end of the ice and the team not delivering moves to between the hog lines. The skip calls the shot, the first rock is thrown, and the game is on.

**Note:** In many clubs, the rocks are numbered from one to eight. Unless told otherwise, the lead should throw rocks number one and two, the second throws three and four and so on.

Each player will throw two stones per end, alternating with the opponent. Your team throws one; the opposing team throws one, and so on. As the lead is throwing, the second and vice are designated sweepers, with the skip calling the shots. When the second is throwing, the lead and vice are the sweepers. When the vice is throwing, the
lead and seconds are sweeping. When it comes time for the skips to throw, the vice skip takes over responsibility of the house and calls all sweeping for direction. The lead and second remain as the sweepers for the skip's shots. Yes, the lead and second sweep more than the vice and the skip doesn't sweep at all.

**Position of Players**

Understanding where to position yourself on the ice is critical to team performance as well as playing by the rules. The leads and seconds must position themselves between the hog lines unless they are about to sweep or about to deliver a rock.

If you are about to deliver a rock, position yourself behind the hack and remain quiet and still as your opponent delivers. As soon as the opponent delivers the rock, choose your rock and move into the hack area. While the opponent's rock is still in motion, begin the setup process in the hack.

If you are about to sweep, position yourself on the tee line approximately one foot from the sideline. As your teammate begins to deliver, start moving forward and to the center trying to "meet" the rock near the hog line. At this point you may begin sweeping the rock if necessary.

When you have stopped sweeping, return to the other end of the ice. Be sure not to walk down the center of the sheet, preventing the opponent from viewing. As you are walking back, try not to distract the opponent in the hack. If time permits, stop and remain still while the opponent is delivering.

**Completing the End**

Once all sixteen rocks have come to rest, the vice skips from each team agree on how many rocks are counting and to which team they belong. Only one team can score in an end and the most any team can score would be all eight rocks thrown. Occasionally, when the counting rock or rocks can't be determined by the naked eye, a special measuring device is used (see "Measuring Devices" later in this section). Normal scoring in an end may be one, two, three or even four rocks. Scores of five, six and seven are much less common. Scoring all eight rocks is as rare as a hole-in-one in golf and many players never see one.

**The Score Board**

The vice skip of the scoring team is responsible for posting the score after each end. On the curling scoreboard, the numbers 1 through 16 (possibly 17, 18, 19 etc.) are painted horizontally from left to right. These numbers represent the rocks scored. At one end of the scoreboard, there is a stack of individual numbers from 1 to 8, (9 & 10 if needed). These represent the ends and are hung either over or under the painted numbers. Since teams throw different colored rocks, the ends are hung above or
below the painted numbers depending on color. In curling the rocks scored are posted cumulatively, meaning two rocks scored in the second end are added to whatever was scored in the first end (if any).

The team scoring in the end throws first in the next end. This means that the scoring team will never have last rock advantage after just scoring.

**Finishing the Game**

At the completion of the game, it is customary to again *shake hands with your opponents and your teammates*. It is now time for broom stacking. Most curling clubs have some sort of gathering area for broom stacking teams. There will usually be table set up behind each sheet of ice designated for this.

**Game Speed**

Most people find that fifteen minutes per end is a comfortable pace for the game. In fact, most league schedules and game times rely on this. Slow play not only delays following games, but people will get bored or cold if the pace of their game is too slow. It is important to be ready to throw when it is your turn.

**Timed Games (Advanced)**

At all championship level games and in some bonspiels, time clocks are used to control the speed of the games. The reason for time clocks is to prevent one team from taking enormous amounts of time to call the game. The clock is similar to a chess clock and each team has 75 minutes to complete a ten end game. Teams out of time lose the game.

The clock begins at the start of the rock's forward motion and stops when the rock has either stopped or crossed the side or back line. However, for the clock to stop, the skip or acting skip must be clear of the playing area. Skips should note that even if your rock has come to rest, the clock would continue to run until you completely give way to the opposing skip.

It is necessary for the lead and second to be ready to play when the opponent's rock comes to rest. This is a noticeable difference in the pace of the game. Teams under the clock no longer have the luxury of casually moving into the hack and taking their time. The pace at the beginning of end is usually faster than the pace at the end due to the vice skips and skip's discussing the shots. The faster the leads and second are, the more time the back end has to discuss the strategy.
Measuring Rocks

Occasionally rocks are too close to determine a counter with the naked eye or players cannot determine whether or not a rock is in play. For these reasons, there are three types of measuring devices available.

The first and most often used device is simply called the "measure". It is used to determine the counting rock or rocks in the house. It is a piece of tubular metal approximately six and a half feet long with a sliding gauge on it. It can only be used after all eight rocks have come to rest.

The second device is called the "six foot" measure. It is used to determine whether a rock is in play at the back of the house. Unlike the above device, it may be used during the end. There are only two reasons to use the six-foot measure:

1. To determine if a rock at the intersection of the back line and centerline is in play. The back line overlaps the back of the house and if the lines were installed properly, a rock that is not within six feet of the center, it is out of play.

Free Guard Zone Measure

2. To determine if a rock is in the house. If the rock is not on the centerline and back line and the free guard zone rule is being played, it can be used during the first four rocks.

The third is called the "90 degree" measure. It is an "L" shaped piece of metal use to determine if a rock is in play around the perimeter of the playing area.

Measuring Procedures

Vice skips are responsible for measuring rocks if necessary. The following is the correct procedure for measuring.

Measuring Two Rocks

1. After retrieving the measuring device, enter the back of the house with the measuring point (the part that goes in the center hole) in your right hand.

2. You will measure rocks in a clockwise direction. Place the center point in the center hole and put the measuring device on the ice 180 degrees from the first rock to be measured. This allows you to place the device on the ice away from the rocks in question.

3. As you approach the first rock, determine if any adjustments are needed in the device and make them.
4. Measure the first rock, leave it in place and remember the reading on the device.

5. Swing the device clockwise to the next rock. The reason we go clockwise with the right hand is to ensure the device is in front of you during the rotation. This prevents "backing" into other rocks and displacing them.

6. Measure the second rock and make a decision as to which one is closer. The second rock either in or out depending on the result. Always point to the closer rock for spectators.

Measuring Three Rocks

1. After retrieving the measuring device, enter the back of the house with the measuring point (the part that goes in the center hole) in your right hand.

2. You will measure rocks in a clockwise direction. Place the center point in the center hole and put the measuring device to the left of the odd colored rock.

3. As you approach the odd colored rock, determine if any adjustments are needed in the device and make them.

4. Measure the odd colored rock first and leave it in place. This is the "control rock".

5. Swing the device clockwise to the next rock and measure it.

6. After making the decision on the second rock, move it either in or out depending on the decision. Do not move the first rock. Indicate with your hand the closer of one and two.

7. Move to the third rock and measure it. Again, move it in or out based on your decision. The first rock will be your reference rock and should not be moved.

In both situations it is acceptable to swing the device back to the first rock for a closer look. If rocks cannot be determined by device, a blank end will result. This is very rare.

If two or more rocks are so close to the button that the device cannot be used, a decision will be made visually. Find an impartial person to do this for you.

Using the Six-Foot Measure

1. Enter the house from the rear with the pointer in your right hand.

2. Place the six-foot pointer in the center hole and rest the device on the ice at 180-degrees from the first rock.

3. Slowly swing the device clockwise until it either contacts the rock or swings past it. Never throw the device at the rock as it may come out of the hole and displace
the rock.

4. If, during a free guard zone measure, another rock is in the six-foot path, a decision will be made visually.

The Playing Surface

Some History

As mentioned earlier, the game originated on the frozen lochs of Western Europe. There was a point in curling history where temporary enclosures were placed around the curling section of the frozen lake. This was done to protect the curlers from wind and snow.

Ice that is prepared by nature is known as "natural" ice. For natural ice to occur, obviously the temperature must be below 32° F. This limited the growth of curling to Northern Europe. When the sport finally came to North America (early 1800's), it was primarily played in Canada, where the winter temperatures were consistently below freezing.

In the early 1900's, refrigeration technology allowed ice to be prepared in natural temperatures higher than 32°. This ice is known as "artificial" ice. Almost all curling facilities now have artificial ice, which allows curling to thrive in the United States.

Artificial ice is produced using ammonia or Freon® to super-cool a liquid such as brine which is then circulated under the ice. This is done by running pipes under the playing surface. The pipes are usually about four inches apart, run the length of each sheet, and carry cold brine. A four-sheet club has approximately six miles of piping under the ice. This system can be regulated and adjusted for different conditions. Generally, the brine temperature would be 20-24 degrees yielding an ice surface temperature of 23-26 degrees.

The Ice

From a distance, curling ice appears perfectly smooth. After a closer look, you'll notice that the ice appears bumpy. The rocks actually ride on little frozen bumps called "pebble". The pebble is put on before each game with a machine that works like a flower sprinkler. Without the pebble, there would be too much friction between the ice and the rocks, and it would take enormous energy to move the rocks forward.

The ice is maintained by sweeping the debris off the ice between games and scraping the surface two or three times a week. A special scraping machine is manufactured just for curling ice. The machine completely removes the buildup of pebble and any ground-in dirt before new pebble is applied.
Occasionally, due to the uneven freezing of the surface, the entire area is flooded and allowed to freeze slowly. This levels the ice and is usually done about every six to eight weeks.

It is very difficult to prepare a perfectly level ice surface. Even though most imperfections can't be seen, the way the rocks behave while in motion may indicate

**The Air**

The air temperature in some clubs is controlled. The ideal air temperature is around 40 F degrees. This is a comfortable for the curlers and keeps the relative humidity low so frost won't build up on the ice. Some Clubs have dehumidification systems. This further decreases the relative humidity.

**Sweeping**

**Introduction**

This section will cover all aspects of sweeping. Specifically, the areas covered are:

- The Purpose of Sweeping
- Why Rocks Curl
- Sweeping Equipment
- Sweeping Mechanics

Advanced Sweeping Topics such as:

- Team Sweeping
- Corner Sweeping
- Finishing The Draw
- Judging Weight

**The Purpose of Sweeping**

In the early days of curling, when games were played outdoors on the lochs, snow and other debris had to be cleared from the path of the moving rocks. Bunches of sticks were used as debris clearing devises. However, as the sport evolved, it became clear that, in addition to clearing debris, vigorous sweeping actually made the rocks travel farther and straighter.

The purpose of sweeping is twofold:
1. Sweeping makes the rock travel farther.
2. Sweeping makes the rock travel straighter.

Why Rocks Curl

Before discussing the technical aspects of sweeping, it is crucial to understand what is happening underneath the rock as it travels down the ice. Curling rocks are approximately 12 inches in diameter; however, there is a ringed portion that the rock actually rides on. This ring is about 5 inches in diameter and is called the running surface.

Rocks are intentionally rotated either clockwise or counter-clockwise when thrown. Most rocks, if thrown without a rotation, will assume a rotation at some unpredictable point. Intentional rotation provides the necessary degree of predictability as the rock travels down the ice. As the rock is rotating, one side of the running surface will always be moving faster than the other as it travels over the ice surface.

Example: When a rock traveling down the ice has a clockwise rotation, the left side of the rock is traveling faster over the ice.

The running edge of the rock that is moving faster is known as the "outside edge" and the slower side is the "inside edge". Objects moving faster create more friction, so the faster edge has more friction than the slower edge. Because the fast side (the outside edge) has more friction, it causes more "frictional melting" of the ice. We also know that ice with water on it is more slippery than dry ice. This causes the rock to "bite" the ice more on the dry side causing it to "pivot" to the right. Therefore, a rock with a clockwise rotation will curl from left to right.

How Sweeping Works

The sweeping motion briefly polishes the ice just before the rock travels over it. This polishing is accomplished by warming the ice slightly, increasing the overall frictional melting, and allowing the rock to continue moving longer. This results in the rock traveling farther. This is technically defined as decreasing the rate of deceleration. The overall reduction in friction has another effect: Since the rock is biting less on both sides, the rock will travel straighter.

Sweeping cannot make a rock move faster, only farther!

The Weight Window

The amount of force necessary to propel rock forward is known as "weight". Good sweepers can add an additional 8 - 12 feet to a rocks distance. This is important to
know because as you are throwing the rock, your throwing weight needs only to fall inside this 8-12 foot "weight window". This provides a fairly comfortable margin of error for the thrower.

Example: A rock thrown 8 feet short of the house without sweeping can easily be swept into the house by good sweepers. As a thrower, your responsibility was to hit the "window" and not the actual finished shot. This is what makes sweeping such a critical part of the game.

Sweeping Equipment

There are two types of sweeping devices, the broom and the brush. The broom was the original device and, as mentioned earlier, was simply a group of sticks tied together and attached to a tree branch that acted as the handle. The broom evolved into what is today, a grouping of corn and straw tightly bound together and attached to a thick wooden handle. This type of sweeping device was the preferred item up until the late 1970's. The vigorous swinging motion required by the broom is significantly more difficult to do than the brush. Because of this, and the escalating costs of corn brooms, instructors began teaching curlers to use the brush. For the most part, the corn broom is a thing of the past and the sport will miss the unique, sweeping motion that provided a certain rhythmic flair to the sport.

The brush has certainly been around for a long time. Because of its relatively quiet sweeping motion, it had been perceived as being ineffective. Many social and competitive curlers today will agree that sweeping with a brush is quite an effective and efficient sweeping method and a good overall use of the team's energy.

There are a variety of synthetic brushes being used today. Stretched fabric, such as Cordura, is used in place of the natural hair. Although introduced many years ago, these brushes became popular in 1993 and are now the sweeping standard. Some people argue that the synthetic brushes are so effective in polishing the ice that they actually erode the valuable pebble that the rocks ride on. This creates an undesirable "flat" surface with more friction.

Mechanics of Sweeping

Let's talk about what makes a sweeper effective. The best sweepers today are effective and efficient. Sweeping effectiveness has been the focus of much debate. While many people argue that the most effective sweeping comes from rapid movement of the brush, others argue that effective sweeping is caused by increased pressure of the brush on the ice. We believe that a strong balance of both will achieve optimum results. Rapid movement with as much pressure as possible is what great sweepers strive for. Sweeping efficiency refers to a sweeper's ability to be the most effective while using the least amount of energy.
The Sweeping Stroke

Stance

To start sweeping properly, take a standing position that is 45 degrees to the rock's path, facing the rock and the skip at the same time. With the brush head on the ice, place the inside hand (the hand closest to the rock) on top of the brush handle half way between the head and the end of the handle. This is the bottom hand and it will be supporting much of your body weight during the sweeping stroke. The outside hand (top hand) should be placed underneath the handle about one foot from the top. The end of the handle will be tucked into the arm.

Brush Motion

The rules state that you must move the brush from side to side. It is not clearly stated as to what side-to-side really means only that is should "roughly perpendicular" to the stone’s path and that brush head movement must be "clear and visible". The most effective brush head motion is roughly 90 degrees to the stone’s path and covers an area just wider than the running surface, which is about five inches. A sweeping motion that is shorter than this is subject to scrutiny by the officials (snowplowing) and a motion greater than this is waste of energy. The stroke should be away from your body, and then back towards your body. Keep your top arm tight to your body. By staying tight, you will begin to put more and more pressure on the head as you begin to move your weight over the top of the brush.

The power of the sweeping stroke comes from the top shoulder. The shoulder actually "drives" the brush head out and pulls it back. Because this, most right handed curlers (strong right side) will feel more comfortable sweeping on the right side.

For best results, place the strongest sweeper about 4 to 5 inches in front of the traveling rock. This is called "taking the rock". Move the brush head across the path approximately 6 inches (slightly wider than the diameter of the running surface). The second sweeper should be as close as possible to the inside sweeper without risking contact with the brushes. As a beginner, you may want to stay well clear of the rock to avoid hitting it with the brush. The most effective team sweeping is with the sweepers on opposite sides because the brushes can easily stay close together. Eighty percent of the sweeping effectiveness comes from the inside sweeper. And the outside sweeper represents the other twenty percent. However, the only way the inside sweeper can achieve this eighty percent is with the second sweeper. The second sweeper actually prepares the ice for the inside sweeper. They work together to create great sweeping. Sweeping with only one person will reduce the effectiveness by approximately fifty percent.

Note: Adding a third sweeper accomplishes almost nothing. As a skip or a
thrower, avoid "jumping in" to help. This is a waste of time and only increases the chances of a teammate burning a rock.

The "Angle Brush"

The angle brush is a standard brush with the head turned at a 45-degree angle. It was created to cover the entire running surface while using a small brush head stroke. This was done to keep the path as clean as possible without the need to move the brush quickly. Another strong benefit of the angle brush is the decreased distance between the inside and outside sweepers since the angle brush head is perpendicular to the path instead of parallel to it.

The Foot Motion

In the delivery section, the use of a slider was discussed. Proper sweeping must be done without a slider. If you throw with a slider, remove it for sweeping. If your slider is built into your shoe, cover it with a gripper. Sweeping effectiveness requires a solid platform to sweep from. The proper sweeping motion as the rock and sweeper travel down the ice, looks like a skating motion. Walking fast or jogging next to the rock is not very efficient. As you move with the rock, your inside foot should be skating forward. Your outside foot should also be skating forward but it will lead the body. The outside foot will extend much farther than the inside. The inside foot should also never cross the outside foot during the motion.

To have the greatest degree of flexibility with your teammates, learn to sweep effectively on both sides of the rock. This will allow you to sweep with anyone at anytime.

Advanced Sweeping Guidelines

Team Sweeping

Sweepers are ultimately responsible for judging the weight of the rock thrown. Is it moving too fast, too slow or just right? It is not realistic to expect the skip to judge the weight from 120 feet away. After the rock has been thrown, the sweepers communicate the weight of the rock to the skip. The skip then makes a sweeping decision based on whether or not the rocks curl needs to be straightened out.

Judging the weight of the rock is very difficult and takes lots of practice. You can increase your ability to judge rocks with a few sweeping techniques.
1. **Sweep as upright as possible**, this allows you to visualize the entire field of play and judging motion and speed becomes easier.

2. **Take a sweeping position that faces the skip.** This also helps view the entire field of play and allows you to view the skip at all times. Curling clubs can be very loud at times and visual contact with the skip may be the only way to communicate. This can be done by placing the hand that is closest to the rock in the lower position. This will naturally put you in a "facing forward" position.

Team sweeping refers to teams striving for similar sweeping styles. This continuity will make all sweeping calls more consistent. For example, the most effective sweeping is **two sweepers sweeping from opposite sides** of the rock. This allows the brushes to be as close as possible to each other, limiting the amount of cool down that happens after the brush passes over the surface.

**Corner Sweeping (illegal, for the most part)**

In the early 90's (1990's), a new sweeping concept became popular called corner sweeping. This refers to sweeping across one side of the running surface instead of sweeping across the entire running surface. This was done in an attempt to have even greater control over the rocks curl. For example, by sweeping the inside edge of a takeout (the slow side), friction is reduced on the slow side only, reducing the curl. Sweeping the outside edge of a draw would make it curl more. This results in more effective sweeping. There is a down side to corner sweeping however; it is very difficult to control the consistency of the rock's curl. This results in less predictable shots. Even though corner sweeping may be more effective, most good teams prefer to concentrate on overall sweeping skills.

**The sweeping of one corner only is a violation of the rules.** To conform to the newest rule, the corner must be swept by using differential pressure. The entire brush head will cover the running surface but only the desired edge will receive pressure.

**"Split" Timing**

Another reason to time shots is to help the sweepers decide whether the rock was thrown hard enough. A designated sweeper would start timing their teammates shot as it crosses the nearer back line and stopping the clock as it crosses the nearer hog line. This "split" is the time it takes the rock to travel from back line to hog line will indicate its ability to make it the rest of the way. This is a relative measurement. The time that is measured cannot be calculated into an actual total time due to the deceleration of the rock. The times can be used as a reference.
Example: If one of your players usually has a 3.8 second split and that player throws a rock with a 4.0 second split, it is likely to need sweeping.

This technique works only with players that have consistent, fluid deliveries.

A word of caution, don’t rely on the clock as your sale judge of sweeping. As you develop, you will be able to judge rocks without the use of clocks. Remember, great curlers see themselves as artists and not scientists.

"Finishing" the Draw

Most curlers associate sweeping with rocks traveling farther and straighter. This is true for most shots. There is a case though when sweeping will cause a rock to curl more. As a draw is coming to rest, many curlers continue to sweep the rock in an attempt to keep it straight. This actually continues the rocks curl. Imagine the arc of a rock that is curling. It begins straight then starts to curl. The rock is now pointing in a different direction. If the rock could move forever, it would eventually leave the sheet of ice across the sideline. Sweeping rocks after the curl begins does two things:

1. It reduces the amount of additional curl.
2. It keeps the rock moving on its current path.

Finishing the rock refers to keeping it moving on its arc. This pulls the rock even deeper behind a guard because the rock is still moving on its new path (curling). This is important to know since many come-around shots can be "finished", meaning the rocks can be swept under the guard. For additional finishing try corner sweeping once the rock passes the guard.

The mistake many new skips and vices make is to stop sweeping. This only makes the rock stop short and not continue to curl under. On the other hand, if a rock is curling too much at the end, stop sweeping. Additional sweeping here will only continue the rocks path.

Delivery - The All-Body Method

Introduction

This section will introduce you to the fundamentals of delivering the curling rock using CurlTech’s All-Body method. These "mechanics", when applied consistently, will improve shot making leading to overall enjoyment of the game. The basics covered in this section will enable any curler to enjoy club level social games as well as top-level competitive games. The delivery fundamentals are the same for all levels of play.

The term All-Body refers the coordination of many muscles and body parts moving in
fluid motion. The combination of small and large muscle use will enable you to achieve power and finesse in your game.

Discussed here are the major delivery components, the press, drawback-step, the slide and the release. Also discussed are the four key power generators in the delivery; weight shift, body drop, and extension.

All-Body Delivery Principles:

Several things make the All-Body delivery different from other deliveries. The first being the use of large and small muscles (all-body) to throw the rock. The next is fluidity. The delivery skills taught here, when done properly, will become seamless. Nothing about the delivery is stepped or broken. This is critical for the development of the body's kinesthetic sense of motion* needed for judging draw weight and overall rock control.

The United States Curling Association teaches beginning curlers the ABCs of delivery. This booklet explores delivery in depth, but will highlight the ABCs for reference:

A = Alignment. Keep everything aligned from setup to release.
B = Balance. Maintain Good Balance for a consistent delivery
C = Curl. Use the proper grip, turn, and release for a good curl.

* Kinesthetic sense of motion refers to the body's interpretation of relative movement through a variety of sensory inputs.

The Delivery Process

The process for delivering a rock includes the thing happening before and after. The four component parts described earlier must be included in an overall process of delivering the rock. Let's first review the entire process.

1. Setup & shot planning and pre-shot mental preparation
2. Forward press
3. Draw Back & Step
4. Slide
5. Release
6. Follow-Through

As you can see, the four components are represented in the process. These steps should become seamless over time.
OC Curling Club

1. Setup and Mental Preparation

Setup (Alignment)

Setup refers to the body position in the hack. It should be comfortable and relaxed. As your opponent's rock is traveling down the ice begin this process. When your skip is ready to call the shot you'll be ready.

a) Start from behind the hack and step into it by placing the ball of your foot against the back of the hack, toe pointing towards the broom. Try to place the foot as far towards the inside of the hack as possible.

b) Most of your weight should be on your hack foot at this time. It will stay there for the beginning portion of your delivery.

c) Drop to a comfortable squatting position with approximately 70% of your body weight on the hack foot. Keep your back straight but relaxed.

d) Place your sliding foot flat on the ice, slightly ahead and to the left of the hack foot (heel to toe). There should be about one to two inches between the toe of the hack foot and the heel of the sliding foot.

e) Clean the rock - Flip the rock and clean the running surface. With the rock still inverted, clean the ice area under the rock and replace the rock in position. Do this to the side to keep debris away from the sliding area.

f) **Point the knee of your hack leg directly down the line of delivery**, directly at the broom. The shoulders and hips must also be square to the broom at this point.

g) Holding the broom with the pad facing up, place the head of the broom about one foot ahead of the sliding foot. The broom handle should be gripped one to two feet from the brush head. The grip point depends on the length of your arm and body. It should be in a position to comfortably hold the broom with the head in the correct position with the left arm slightly flexed. It is important to **keep the head of the broom clearly ahead of you sliding foot** throughout the delivery. Allowing the broom to fade back in the delivery will move your shoulder back and out of "square".

h) **Position the rock on an imaginary line between the skip's broom and the center of the hack**. The rock will be under your throwing shoulder. Your throwing arm must have a small degree of flex at the elbow at setup.

i) **Grip the rock** - Place your fingers under the handle until your middle finger is directly over the center of the rock. Hold the handle with the first set of pads on the fingers. Your palm should never touch the handle. Bring your thumb across the handle to the other side and place it near the tip of your index finger. Keep the wrist
high. Your hand should remain in this position throughout the delivery. Cock the stone in the opposite direction of the intended turn. This is towards your body for in turns and away from your body for out turns. The position should be at 1:30 to the right or 10:30 to the left. Keep this angle throughout the delivery until you are ready to release the rock.

You are now ready to begin preparing mentally for a successful shot.

**Pre-Shot Mental Preparation**

Use the power of positive thinking when about to throw a shot. Remember that games should be played swiftly (about fifteen minutes per end) so don't spend too much time here. This process should take only a few seconds.

**Mechanics of the pre-shot mental preparation:**

1. Prior to setup, try to anticipate the shot called.
2. Get in the proper setup position.
3. Understand the shot called (confirm with sweepers if necessary).
4. Visualize perfect mechanics.
5. Visualize yourself hitting the broom with the perfect weight.
7. Channel your focus.
8. Execute.

It is important to visualize the weight and line before visualizing the completed shot. The entire setup and mental prep process should take 8 -12 seconds.

**2. The Forward Press (Alignment)**

Once you are comfortable in the setup position, the skip has called the shot and the sweepers are ready, the fluid motion of the delivery starts. Begin by moving the rock slightly forward approximately 4 to 5 inches. This is the beginning of your body's kinesthetic sense of motion, which again is critical to proper weight judgment. Remember to keep the grip described above.

As the rock is pressed forward, your lower body should remain still. Move only at the waist and keep both arms slightly flexed at the elbow. Your knee may drop slightly but try to avoid pressing forward with just your arm; this will take your shoulders out of square before you even begin the delivery.

**2A Curlers with knee problems and/or limited relative leg strength.**
When you begin the forward press, also begin to elevate your hips. By the end of the press, the hips are fully elevated as in step 3. (This is the fluid version of the trunk lift)

3. The Draw Back & Step (Alignment)
This component is one of the most important. Generating power in the delivery is critical to controlling the rock. Power generation starts with the draw back as the hips are elevated and shifted back. This positions the hips up and back which enables your body to drop and shift forward in the next step. The remaining power will be generated from leg drive and the arm extension. (discussed in step 3a). Think of drawing in energy then directing the energy forward toward the skip’s broom.

Draw the rock back to the side of your foot*. Simultaneously, shift your hips slightly up, back and take a step straight back until your sliding foot is behind the hack. Your throwing arm will almost be straight. At this point, your hips should be back (anywhere from directly over the hack to well behind it, depending on skill and ice conditions) and about a foot higher than the setup position. Your weight has shifted to the sliding foot with the foot about three to six inches behind the hack. It is very important that the sliding foot is directly behind the position it started in. If your weight is not on the sliding foot at this point, you probably have not shifted properly, giving up critical delivery power.

4. Generating Power - Transitioning from the Drawback--Step to the slide (Alignment)
Now is the time to generate power in the delivery. Power refers to the amount of forward motion your body can generate. Power equals control. The more power generated the more control you will have over the rock (and your game).

* Ask your instructor if it is appropriate to draw the rock back to a place other than the side of your foot. There may be instances where drawing the rock to the center of the hack or to the hack toe is better for you and your team.

5. The Body Drop (Alignment into Balance)
With your arm still slightly flexed at the elbow, begin shifting your body weight forward smoothly. As your body begins to move forward, the rock must move forward with it. This keeps the rock in front of your body keeping it on the line of delivery. Leave your sliding foot behind the hack (straight back from setup) until the rock is two-three feet in front of the hack. As your body moves forward over the hack and then over the ice, quickly kick your sliding foot under the center of your body. Your foot should "catch" your body as it drops. Try and wait until the last moment to bring your sliding foot forward and place it in a position on the ice that will allow your body to balance over it. As a reference, the rock should almost be half way between the hack and the back line as the sliding foot is crossing the hack foot. This "body drop" enables the weight shift and gravity to generate power. The combination of the fast
sliding foot motion and the weight of your body coming forward and down to the delivery position will generate the power needed. With this combination move, you will generate enough power to throw the wide range of shots with accuracy and consistency. Be careful not to kick your sliding foot past the center of your body (too far right). The result will be a drift to the right as your body is not balanced over the sliding foot. Each of these power generators needs to be modified as conditions change. See the section on "Harnessing Power" at the end of the chapter for some ideas on how to adjust weight.

6. The Slide (Balance)

At this point gently push out of the hack with your leg. The leg drive should perfectly *compliment* the weight given to the rock by weight shift and body drop. Leg drive is 30% or less of the total power of the delivery. Weight shift, body drop and arm extension represent the remaining 70%. Excessive leg drive produces more of a "push" from the large leg muscle (quadriceps) instead of a fluid "throw" from the whole body.

As you slide out, you will now be transferring all of your weight from the hack foot to the sliding foot. **This is the most difficult part of the curling delivery.** A little assistance from the broom during this shift may be needed. Your sliding foot should move in behind the rock with the heel on the line of delivery. The heel should be on line in the center of the rock. Once your sliding foot is in place, the heel should be underneath your sternum. Try to angle your sliding foot out at this point. By turning the foot to the left (out) you increase the sliding area of the foot. Approximately 45 degrees is optimal however, some people cannot turn their foot in this manner.

No downward pressure should be on the rock or the broom at this point. Your hack foot should trail directly behind your body, on the line of delivery.

Your upper body should be roughly 45° to the ice. This position allows good balance and visualization of the entire plane in front of you. A position that is too low will not allow the visualization of the plane while a position too high will not allow good broom alignment.

Your broom head is still clearly ahead of your sliding foot and your shoulders are square. The broom should be resting on the ice with minimal pressure. (If one of the sweepers kicked it, your delivery would still be sound)

7. The Release (Curl)

Your arm should still be slightly flexed and the handle still cocked as you slide through the house. They both should remain this way until just a few feet from the intended release point which, depending on how much power is being generated by the delivery, should be somewhere between the top of the house and a foot from the hog
All of the rock's rotation is put on the rock within a four to five foot area by shifting the handle from the cocked position to the twelve o'clock position.

When you are four or five feet from the release point, begin rotating your rock and straightening your arm. The flexed arm allows you to throw the rock instead of just letting it go. Rotate the rock so that your hand finishes in the hand shake position. In order to keep the rock on the line of delivery, the rock must be rotated over its center point. The pressure that turns the rock comes from only two fingers and the thumb, one finger on each side of the center point. For an in-turn, the thumb moving to the right and ring finger moving to left, counter to each other. Each pressure point is the same distance from the center axis of the rock. For the outturn, the index finger and ring finger apply the necessary pressure. For consistency and predictability, the rock should rotate approximately 2-2 1/2 times during the length of the shot.

Any lateral movement of the rock while putting on the turn will result in the rock moving off the line of delivery. This is where many shots are missed. Extend the arm through the skip's broom. Never raise the arm at release. This will interrupt the fluid motion of the release.

9. The Follow-Through

The follow through is also a key component of the delivery. It is important to stay in the sliding position for several seconds after letting go of the rock. This will prevent you from "popping up" too early and will also give you a good look at the shot as it travels down the ice. This is valuable in the assessment process that each player should go through immediately following the shot. Avoid the temptation to follow directly behind the shot. This is a team sport and practically speaking your team has control of your rock now.

Watch the rock as it travels down the ice. This will not allow you to see the rock's overall path for future reference. The farther away you are the better your overall view of the entire shot. The skip is fully prepared to handle the sweep calls.

Do not rest your bare hand on the ice for longer than an instant. Your body temperature will melt and damage the ice in a matter of seconds. Also, never rest your knee on the ice for longer than a few seconds. Even with pants on, your body temperature will melt and damage the ice.

Post-Shot Assessment

During the assessment of each rock, determine if you hit the broom with the proper weight. If it was a good shot, try and remember what it felt like so you can do it again.

Weight Window
The responsibility of the person throwing the rock is to throw the proper weight and hit the broom. Because sweeping can add 8-10 feet of distance to a rock, the thrower only has to hit the "weight window". Depending on the quality of your sweeping, the window is approximately ten feet deep, meaning that if a rock thrown ten feet short of the intended stopping point, the sweepers can increase the distance. So, any rock thrown inside the ten-foot weight window is thrown correctly. It is then up to the sweepers to complete the shot. If a rock is thrown beyond the intended stopping point, there is nothing the sweepers can do to help. In other words, it's better to be a little light than a little heavy.

Determining proper weight is difficult to teach because it relies mostly on the body's sensation of position and movement. This kinesthetic sense is enhanced by the fluidity of the delivery.

Adjusting the delivery for different weights.

One of the most commonly asked questions from beginning curlers is "how do adjust the delivery for different weights". Several different weights are required to throw the different shots in curling. In addition, ice conditions are different from club to club and within the club, the conditions are constantly changing. From guards to peels plus, the All-Body method can accommodate. The answer is that all power generators of the delivery need to get stronger for stronger shots. Specifically, the weight shift, body drop (leg delay) and to a certain degree, leg drive.

For example, on heavier shots and heavier ice, the weight shift may change from hips being over the hack to hips being completely behind the hack. Body-Drop may change from a slight delay to a long delay. Leg drive may change from almost nothing to a full push explosion.

Extra power is also need with small-framed, petite curlers. The body weight/rock weight ratio changes significantly from 100lb frame to a 225lb frame. The smaller framed curler must use the extra power to throw all shots.

Harnessing the power.

One the most commonly asked questions regarding any delivery is how to adjust weight for different shots. Unfortunately, the answer is not a simple one. Changing weight first depends on the body's ability to generate power and the ice conditions. Each person has a varying degree of athleticism. This is a big factor when it comes to describing how to adjust weight. Early thinking on the no-lift delivery is centered on leg drive. More weight - more leg drive. Less weight - less leg drive. All curlers should generate enough power to slide through the hog line (remember, you have to let go before it).
Now that we understand about the other power generators, we must adjust them all when adjusting weight. The following matrix is directional only. Each curler may differ. Use it as a base point and modify if necessary. The first matrix describes how the power generators may work throwing different shots on different ice conditions.

<table>
<thead>
<tr>
<th></th>
<th>Weight Shift</th>
<th>Leg Delay</th>
<th>Leg Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Draw on 23-second (hog to tee) ice.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Frame</td>
<td>Hips over hack</td>
<td>Medium</td>
<td>Small</td>
</tr>
<tr>
<td>Small Frame</td>
<td>Hips behind hack</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Junior</td>
<td>Hips behind hack</td>
<td>Large</td>
<td>Medium</td>
</tr>
</tbody>
</table>

| **Takeout on 23-second ice.** |                |           |           |
| Large Frame    | Hips behind        | Medium    | Medium    |
| Small Frame    | Hips well behind hack | Large     | Large     |
| Junior         | Hips well behind hack | Large     | Large     |

As you can see, the delivery can compensate for different ice conditions. Use these to start and modify as needed.
Delivery by CurlTech

Setup

1. Place the ball of your foot on the back of the Hack
2. Squat with the weight on the Hack foot
3. Sliding foot heel to toe.
4. Place the broom head in front of the sliding foot.
5. Cock the handle.
6. Relax the arms and shoulders.

Forward Press

1. Move the rock slightly forward.

Drawback & Step

1. Draw the Rock back.
2. Simultaneously raise the hips and step back with the sliding foot.

Body Drop

1. Start Moving Forward.
2. Delay the sliding foot.
3. “Catch the body as it drops into the sliding position.

Slide

1. Position the sliding foot with the heel on the line of the delivery.

Release

1. Slowly extend the arm and rotate the rock.

Follow Through

1. The follow-through is also a key component of the delivery. It is important to stay in the sliding position for several seconds after letting go of the rock. This will prevent you from "popping up" too early and will also give you a good look at the shot as it travels down the ice. This is valuable in the assessment process that each player should go through immediately following the shot. To improve balance and build leg strength, hold the balanced delivery position until you stop.
Never rest your hand on your sliding foot. This will create a balance dependency in the follow-through and reduce overall balance consistency. Avoid the temptation to follow directly behind the shot. This is a team sport and the other players on your team have control of your rock. After release, consider this the "hand-off" point to your sweepers and skip. Watch the rock as it travels down the ice. This will allow you to see the rock's overall path for future reference. The farther away you are the better your overall view of the entire shot. The skip and sweepers are usually prepared to handle the sweep calls.

Types of Shots

Essentially, there are only two types of curling shots, the draw and the takeout. There are many variations of these two shots, however.

Draws are shots that are only thrown hard enough only to reach the field of play at the other end. Takeouts are designed to remove rocks from play.

Below is a list of possible draw shots:

<table>
<thead>
<tr>
<th>Guard</th>
<th>a rock that comes to rest in front of another rock as protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Guard Zone</td>
<td>a guard that comes to rest on the centerline just a few inches from the house</td>
</tr>
<tr>
<td>Corner guard</td>
<td>a draw short of the house and off to the side</td>
</tr>
<tr>
<td>Come around</td>
<td>any draw shot that curls around another rock</td>
</tr>
<tr>
<td>Tap back</td>
<td>a heavier weight draw designed to push another rock back but not out of the house</td>
</tr>
<tr>
<td>Freeze</td>
<td>a draw that comes to rest touching another rock</td>
</tr>
<tr>
<td>Corner freeze</td>
<td>a draw that comes to rest on the edge of another rock</td>
</tr>
</tbody>
</table>
Below is a list of possible takeout shots:

<table>
<thead>
<tr>
<th>Shot</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>A takeout thrown with enough weight to firmly remove another rock. A normal takeout undisturbed should hit the back wall and bounce back about a foot.</td>
</tr>
<tr>
<td>Hack Weight</td>
<td>A takeout thrown with enough weight to gently remove another rock. A hack weight takeout undisturbed should come to rest at the back wall.</td>
</tr>
<tr>
<td>Peel</td>
<td>A takeout thrown with very hard weight to remove rocks from play. Undisturbed peel weight shots should hit the back wall and bounce back several feet.</td>
</tr>
<tr>
<td>Hit &amp; Roll</td>
<td>A takeout that, after making contact with another rock, rolls to a designated place.</td>
</tr>
<tr>
<td>Chip</td>
<td>A takeout thrown to strike another rock at an angle and remove it sideways.</td>
</tr>
</tbody>
</table>
The Skip's Signals and How to Interpret Them

All shots called by the skip have an associated hand or arm signal. Signals were developed due to the length of the ice (the option is to scream to other players at the other end). Also, many curling clubs are so loud that talking is not possible.

Skip's signal can vary dramatically. Listed below are the most common signals used. There are two basic types:

1. Signals to determine the shot
   - Tapping the ice with the broom (intended resting point)
   - Right arm extended (in turn for right handers)
   - Left arm extended (out turn for right handers)
   - Tapping the rock with the broom (intended target)

2. Signals to determine the weight
   - Tapping the hack with broom (intended weight)

The Anatomy of a Curling Shot

Individuals do not make shots, teams do. Curling is one of the few sports where the whole team directly participates in every shot.

Described below is a sequence of events for most curling shots. It may seem like a lot of things are happening at once, but it all flows together. When a team is functioning properly, all of these things should happen on every shot.

Note: It takes many months of practice as a team for all of these things to happen perfectly. Don't expect your league team to be able to execute in this fashion.
The Draw

- The Skip decides on the shot to be called.
- He/She communicates the shot to the other team members.
- He/She surveys the ice conditions and places the broom for aim.
- He/She communicates the weight required for the shot.
- At the other end, with sweepers in place and ready, the thrower confirms with the sweepers the shot and the weight required.
- The Shooter focuses on the shot, channels energy forward, and throws the rock at the broom with the desired weight.
- The skip gives the sweepers an initial indication of the relative line.
- The sweepers return with an initial indication of actual weight.
- If the weight is too light, the sweepers begin to sweep. *Varies with takeout shots
- The skip continues to communicate the line and may call sweeping if the line is tight.
- The rock comes to rest; the skip and sweepers were I communication the entire time.

Notice that regardless of the shot called, the shooter only has two responsibilities, hit the broom, and throw the weight. It is uncommon for the shooter to call for sweeping.

The shooter may inform the sweepers if he/she feels that the shot was “light’ or “heavy”
Basic Strategy

Introduction

This chapter will provide the new and experienced curler with an outline for strategic decision-making. Each player, team, game situation and ice conditions are different so we'll concentrates on the decision-making process and not on individual shot calling.

Basic Strategy

Someone once said that curling is chess on ice. This is true to some degree because, in addition to throwing and making shots, the skip must determine the course of action to be taken during the game, what shots to call and when to call them. This is known as game strategy or "calling the game."

Strategy has two separate components:

1. Overall strategic game approach

2. Shot-by-Shot Tactics (shot calling)

The term "strategy" is often used to describe both of these components, but we want to concentrate on the differences between them.

Game Strategy

The term strategy best refers to the overall course of action taken by any team during the game. This "game plan" is determined before the game starts and is based on known variables like your team's general skill level, the opponent's general strengths and weaknesses, general ice conditions, etc. Even the format of the competition can impact the game strategy. Strategy can change, and sometimes should, during a game. For the most part, the game strategy is determined before the game and all shots called during the game are in support of the overall strategy.

Some examples of overall game strategy are:

- Play very aggressive shots and force the opponent to make mistakes.
- Play most shots in the house because you know you can out play the opponent (you think the opponent will simply make more open mistakes)
• Force the opponent to play draws around guards (opponent may not have draw weight)

• Play any shot, as long as it's in play

• In the early ends play conservatively then play aggressively in the middle and late ends (you may think the opponent will tire faster than you)

• Play conservatively because all we need to do is make the final four

Once the game strategy has been determined, the skip must support it by thinking about how each end will be played. In each end, the skip then must determine what shots to call and when to call them. Shot calling represents the tactical support of the larger strategy.

There is no such thing as textbook strategy. There are guidelines, however, that apply in many cases.

**The first and most important component to strategy is execution.** Without proper execution of shots and sweeping, no strategy will be effective. The best strategy is the one that plays to your team's strengths and takes advantage of the opponent's weaknesses. Any type of strategy or tactics is appropriate if it's effective.

"**Aggressive**" vs. "**Conservative**" Game Strategy

The term **aggressive** refers to calling and executing shots that, when executed properly, have the highest potential for forcing the opponent's mistake (or inability to score). After all, games are won by preventing the opponent from scoring. Aggressive shots usually include different types of draw shots like "come arounds," freezes, tap backs, etc. In curling, as in other sports, this strategy has a high degree of risk and a high potential pay-off. For example, a perfect freeze almost eliminates the opponent's ability to remove the rock, increasing the chances to score more than one. On the other hand, poorly executed freeze may leave a rock wide open for a hit and roll, resulting in the opposition counting or scoring two.

Teams who want to keep the game free of clutter use a conservative strategy. The shots most likely played in a conservative game would be mostly take-outs or shots thrown into the rings without cover. Teams playing a conservative game throw so many takeouts that some people believe the game has become boring to watch. Because of this, the World Curling Federation adopted a rule that would force teams to play more aggressive games. This rule is called the **"Free Guard Zone" rule.** This rule was adopted for spectators. You won't find many people watching your league games, but the National and World Championships enjoy a sizable crowd both live and on television.
The "Free Guard Zone" Rule

The rule reads like this.

"No rock lying in the free guard zone can be removed from play by the opposition until the first four rocks of the end have come to rest. The free guard zone shall be the area between the hog line and the tee line, excluding the house."

Note: The rule states that no rock can be removed by the opposition. This means that you can remove your own rock from the free guard zone.

Because rocks thrown into the free guard zone cannot be initially removed, teams are forced to play with one or more rocks in front of the house. This creates a certain degree of excitement with more aggressive shots being played.

All games leading to the world championships use this rule. However, not all leagues or bonspiels use it.

Shot-By-Shot Strategy Guidelines

There are many factors that determine what shot to throw. Because of the infinite number of possible options, no strategy plan is absolute. Most of the time, shot calling is determined based on who has last rock. With last rock advantage, the idea is to score, usually more than one rock. If more than one rock cannot be scored, many teams will decide to blank the end, retain the hammer, and try again next end. Without last rock, the idea is generally to steal one or more.

Generally, with last rock, try to keep the center of the sheet open. Since you have the last rock, you will need to have access to the center of the house for the last shot (the four foot). By not keeping the center open, you will run the risk of having the center of the house blocked for your last shot. Having last rock is not an advantage if you can't score with it.

Without last rock, most teams try to steal one or more rocks. To do this, try to throw rocks short of the house, preferably in the center of the sheet. With these rocks in place, a rock can be drawn behind, covered. This represents the best chance to not only prevent the opponent from scoring but to steal the end.

Other Considerations When Determining Shots Called

End - The strategy in the late ends of a game may differ from the strategy earlier in the game.

Score - The score of the game may determine strategy. A sizable lead will look
different than trying to catch up.

Ice - Ice that does not curl much may warrant a different strategy than ice that curls a lot. The same is true with fast ice and slow ice.

Skill - You and your opponent's technical ability should drive many of your strategic and tactical decisions.

**Some examples of how the "End" will determine shot calling**

Considering your game strategy, you may want to play more conservative shots early in the game. This will allow you and your team to become acclimated to the conditions, allow you to read the ice and to assess the opponent's strengths and weaknesses. This may also keep the game close by not allowing either team to score a big end.

Later in game (the last three ends) is the time to stay steady. Many games are won and lost in the last three ends. Teams must concentrate on a good balance between aggressive shots and good execution. Now is the time to protect your lead or to make a move if you're behind.

**Some examples of how the "Score" will determine shot calling**

Again, based on your game strategy, the score will help determine the shots called. For example, in a close game (difference of one or two rocks) the shots called should not stray from the game plan.

If your team is down by a considerable margin, the game strategy should change to a more aggressive one. This is the time to call freezes, center or corner guards, close come-arounds, etc. If the opponent puts a rock in the house, you may want to ignore it and put up a corner guard (you can remove the shot rock later).

Another approach is the freeze. The best freeze situation is when the opponent's rock is behind the tee line. This is a low risk freeze if you have the hammer because the button is still open for you last draw. Even if the rocks are in front of the tee, try freezing to them. This will make it difficult for the opponent to remove them. The old phrase "live and die by the sword" certainly applies here. Aggressive shots can backfire if not executed properly and you may end up shaking hands earlier than anticipated. Aggressive shots will yield a higher return (more rocks). The idea being, if you don't score more than one the game may be over.

If you are leading by a considerable margin, consider changing the strategy to keep things open. This, if executed properly will limit the opponent's ability to get back into the game. This is risky because any dramatic change in strategy must be accompanied...
by solid execution or it will backfire. A good example is the team trying to keep things clear that cannot make a peel therefore leaving rocks in front of the house without any counters.

The **throw-through** is an important strategy late in the game with a sizable lead. The theory being the throw-through is that if there are no rocks in play, there is nothing for the opponent to draw around or freeze against. Usually, teams wait until the last few ends to throw rocks through. The throw-through being executed in the middle ends is a strong statement that you believe the opponent can't catch you. This is embarrassing if they do.

**Some examples of how the "Ice" will determine shot calling**

This refers to ice conditions. Certain ice conditions favor certain shots. For example, straight ice (less than two feet on a draw) does not favor the come around. In many cases a come around attempt on straight ice will result in a rock that is wide open for the opponent to hit and roll. In this case, the “promote” is a better call. The “promote” is easier to throw on straight ice because it removes the variable of a large curl. Sweeping is also very effective in keeping a straight rock even straighter.

On the other hand, ice that curls a lot (more than 2 feet on a draw) favors the come around and not the “promote”.

In some cases, the ice will curl on one side and run straight on the other. If available, always choose the straight side for hits and the curl side for draws.

Another ice condition that drives shot calling is the speed of the ice. Fast ice (23 seconds or higher) will favor the aggressive shots like the freeze or the tap back. Sweeping is usually more effective on faster ice therefore players can be sweep a rock to a more precise location. Slow ice (22 or less) does not favor aggressive shots but favors the conservative approach of heavier hits or hits and rolls.

Remember, ice conditions change during the game. The pebble may be heavy to start then as it begins to breakdown the ice gets faster. If the pebble breaks down too much, the ice may slow down again. This is the best reason to time shots, which is to determine relative Change in ice conditions.

**Some examples of how the "Skill" will determine shot calling**

This refers the skill of you own team as well as the skill of your opponent. Skill is broken up into two categories.

1. The ability to hit the broom on line
2. The ability to throw the proper weight
OC Curling Club

You should already know the basic skill level of your teammates. Common sense applies here. Don't call delicate draws for someone who can't even hit the house. You are usually better off with a rock in play than with a rock in the garage. On the other hand, heavy hits are not a good idea for someone who can't throw more than draw weight. Just as you avoid these weight-based situations with your own team, try to exploit them from your opponent. Try to force the opponent to a draw and so forth.

When it comes to hitting the broom and line, avoid hits with the person who can't hit the broom. The draw in play may a better option.

Now is a good time to watch the releases of your opponent. Many curlers (even the advanced players) throw rocks off line during the release. Try to spot patterns with your opponent. If your opponent has the tendency to toss out the out turn, then force that person to throw that turn. Sometimes a partially covered rock is better than a rock fully covered because it tempts your opponent to go after it.

Free Guard Zone Strategy Guidelines

The Free Guard Zone is the area between the tee line and the hog line, excluding the house. See the rules of play for details. The states that no opponent's rock can be removed from play until four rocks have come to rest. Generally, there are three tactical approaches to playing with the Free Guard Zone Rule in place:

1. Be the first team to the four-foot by drawing around a center guard.
2. Begin clearing rocks from play once four rocks have come to rest.
3. Ignore the center guards and draw to the sides

Unlike regular tactical guidelines, deciding when to use the above guidelines depends more on the end and the score than who has last rock.

Option #1
Early in the game or in a game where the score is close, even with last rock advantage, many teams decide to draw behind a rock in front of the house, after all, your options are limited because you cannot remove the front rock from play. There is risk however, when deciding to play in the house. The opponent uses front rocks to hide behind in order to steal the end. If the hammer team does not draw the four-foot, the opponent will.

Option #2
The other option is to wait a few shots then begin clearing the front rocks in order to expose the four foot. Usually, by the time you're allowed to remove rocks, there are multiple rocks in play. Teams that have players, the second in particular, who can throw heavy weight are more likely to be successful with this option. The key to this approach is the heavy weight take out. The weight needs to be heavy enough to move (not necessarily remove) multiple rocks.
Option 3#
The last option is used primarily with weaker teams.

Summary

Obviously there are a lot of variable that come into play with game strategy and shot calling. As you see more and more situations, you'll begin develop a sense of what works and what doesn't. Never criticize anyone's strategy until you have all the information. It is very difficult to understand all strategy calls from behind the glass. What seems to be an obvious strategy blunder may turn out to be a game saver or a brilliant assessment of conditions. It's better to ask why the shot was called than to assume the call was bad to begin with.

Practice Ideas

Like many sports, practicing the curling delivery is an important part of developing the needed consistency required to make shots on a regular basis. The curling delivery is very complex and it is not something most of us do very often.

Simply throwing proper practice rocks at the club will train your body to recognize a proper delivery and develop some muscle memory. Throwing practice rocks can also be a trap where bad habits can be reinforced. This chapter describes some specific practice techniques that will help you develop your skills.

There are two types of practice sessions;

1. Practice to make your team better
   and
2. Practice to make your individual contribution to a team better

If you play on a regular team, the best practices are the ones with the entire team present.

If most of your curling is in leagues (on several different teams), then you may want to concentrate on these practice drills. First, find someone to practice with. Try and find someone who can reasonably assess your skills and provide feedback to you. Practicing alone can only develop your balance and give a good sense of the overall delivery. The mistake many people make is trying to practice hitting the broom alone. It is virtually impossible for you to determine precise accuracy and line of delivery from the throwing position. The only way to practice accuracy and line of delivery is to throw at a broom held by a person who can provide you feedback.
Drill #1  Balance

You can do this one alone. Since the critical component to a good delivery is balance, this drill is invaluable. Begin by taking a few practice slides followed by throwing a few stones. This will loosen up the body for the balance drill. Now, go back to sliding without the rock but this time raise the broom off the ice as you finish sliding. As you repeat the sliding drill, begin raising the broom off the ice earlier and earlier until you can slide without the use of the broom at all.

Finish the drill by throwing a few stones without leaning on the broom.

Drill #2  The Cup Drill

Place two cups about 2 feet apart near the hog line. Place a third cup about three feet beyond the first two, centered between them. Practice your delivery by hitting the center back cup with the stone while sliding between the first two cups. (Your broom or delivery aide should slide outside of the cups.) This is a great practice drill because you begin to feel and see what it's like to hit the broom.

Fitness

Fitness and strength are not required for curling. You've probably already noticed that curlers come in all shapes and sizes. Overall fitness will, however, help your curling game. We once had the opportunity to discuss curling with the US Olympic Training Specialist at the Olympic Training Facility in Colorado Springs. He mentioned some basic guidelines for curling and fitness. Even if you don't plan on curling in the Olympics, these guidelines should help. The fitness specialist mentioned two main fitness components:

• General fitness

• Specific fitness

Being generally fit refers to having a healthy heart, not carrying too much weight and having some basic muscle tone.

Specific fitness refers to the areas of fitness that are specific to curling. Even the specialist admits to only knowing a limited amount about curling. He mentioned the two key components to curling fitness:
Conditioning - Curling is an anaerobic sport. Most players (except the skip) must sweep vigorously then calm down enough the gently delivery the rock. This requires the heart to calm down quickly, which is associated with general conditioning.

Muscle Strength - Curlers need muscle strength to sustain the delivery position for any length of time. The leg muscles, specifically the quadriceps carry most of the body weight during the slide. Strong quadriceps will help with a consistent flatfooted delivery. Lack of muscle strength in the legs is not noticeable if players are playing games on an irregular basis. Muscle strength becomes critical if a player is playing multiple games per day or playing many games over an extended period of time.

Team Practices (Advanced)

During team practices, a combination of mechanics and team related drills should dominate. If the entire team is present, they have the opportunity to practice actual shots. This can be done by either setting up a particular shot and throwing it over and over, or by playing the "perfect team".

The Designated Shot

Pick a shot that the team throws a lot. Execute the shot with full sweeping and line calling. Agree on a standard for each shot. For example, three come-arounds in a row or three peels in a row or ten freeze attempts. This drill allows the players to practice a common shot when the pressure is off. This goes along way when the pressure is on.

The "Perfect Team"

This refers to playing an imaginary team that does not miss any shots. It begins with the skip gathering a few opponents' rocks at the house end. After the team throws a rock, the skip then determines what the perfect shot would be and executes it by placing the opponent's rock in the perfect spot. The skip must play for both teams. This drill is very valuable because it can simulate game actual conditions without the need for an opponent.

A word of caution when playing the perfect team - they're very good. Expect to give up multiple points. In fact, the goal of this drill is to try and limit the perfect team to one or two points when they have the hammer and to steal when they don't.

One-On-One, Two-On- Two, Etc.
Playing small games breaks up the monotony of any practice. As part of a practice, play a two end game of two-on-two (or one-on-one if you have another sheet available). To make the game even more interesting, do not allow any takeouts. This forces the team to concentrate on finesse shots rather than "blasting". If a player takes a rock out by mistake, it must be replaced. Once the rocks build up, it provides a good opportunity to practice raises.

Four in the Four

With this drill, the goal is for the team to draw the four-foot, four times in a row. Start with the normal team setup at the beginning of an end. The lead throws a draw to the four-foot with the skip in position and the second and vice sweeping. After the lead throws, the second throws and so on. Continue this until you have drawn the four foot four consecutive times. If one person misses, you must start over. The purpose of this drill is two-fold, to see and understand each delivery for sweeping purposes, and to simply practice drawing to the four-foot. It develops a good sense of draw weight, what your sweepers are capable of, and good practice for the sweepers making weight judgment calls.

This drill is harder than it sounds. If the team rule is to not move to the next drill until four are in the four, then pressure builds up with each four-foot draw. Enjoy this one; it's probably the only aerobic curling drill in existence.

Glossary of Terms and Curling Lingo

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BITER</td>
<td>A stone barely touching the 12-foot ring.</td>
</tr>
<tr>
<td>BLANK END</td>
<td>Neither team scores in the end.</td>
</tr>
<tr>
<td>BONSPIEL</td>
<td>A curling tournament.</td>
</tr>
<tr>
<td><strong>BURNED STONE</strong></td>
<td>A stone touched while in motion.</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><strong>BUTTON</strong></td>
<td>The smallest ring in the house. It is two feet in diameter, also called the &quot;pot&quot;.</td>
</tr>
<tr>
<td><strong>CCA</strong></td>
<td>The Canadian Curling Association</td>
</tr>
<tr>
<td><strong>DELIVERY</strong></td>
<td>The process of throwing a stone.</td>
</tr>
<tr>
<td><strong>DRAW</strong></td>
<td>A shot that comes to rest within the House.</td>
</tr>
<tr>
<td><strong>EIGHT END</strong></td>
<td>An end where all eight stones are counting.</td>
</tr>
<tr>
<td><strong>END</strong></td>
<td>When sixteen stones have come to rest. Similar to an inning in baseball</td>
</tr>
<tr>
<td><strong>FREEZE</strong></td>
<td>A stone coming to rest touching another stone.</td>
</tr>
<tr>
<td><strong>FREE GUARD ZONE</strong></td>
<td>The area between the hog line and the tee line excluding the house.</td>
</tr>
<tr>
<td><strong>FREE GUARD ZONE RULE</strong></td>
<td>The rule that states that an opponent's rock cannot be removed from play until four rocks have come to rest.</td>
</tr>
<tr>
<td><strong>GUARD</strong></td>
<td>A shot that comes to rest in front of another stone for protection</td>
</tr>
<tr>
<td><strong>HACK</strong></td>
<td>The pieces of rubber you push off from at either end of the sheet.</td>
</tr>
<tr>
<td><strong>HAMMER</strong></td>
<td>The last shot of the end.</td>
</tr>
<tr>
<td><strong>HOGGER</strong></td>
<td>A shot that comes to rest short or on the hog line and is removed from play.</td>
</tr>
<tr>
<td><strong>HOG LINE</strong></td>
<td>The thick black line 33 feet from the hack.</td>
</tr>
<tr>
<td><strong>HOUSE</strong></td>
<td>The area within the outside circle at either end of the sheet.</td>
</tr>
<tr>
<td><strong>HURRY!</strong></td>
<td>This means to sweep immediately.</td>
</tr>
<tr>
<td><strong>IN-TURN</strong></td>
<td>A stone that rotates clockwise for a right handed player</td>
</tr>
<tr>
<td><strong>OUT-TURN</strong></td>
<td>A stone that rotates counter clock-wise for a right-handed player.</td>
</tr>
<tr>
<td><strong>PEBBLE</strong></td>
<td>The frozen bumps on the ice that the stones ride on.</td>
</tr>
<tr>
<td><strong>PEEL</strong></td>
<td>A hard takeout designed to remove guards.</td>
</tr>
<tr>
<td><strong>RINK</strong></td>
<td>A curling team.</td>
</tr>
<tr>
<td><strong>SHEET</strong></td>
<td>The total playing area for one game.</td>
</tr>
<tr>
<td><strong>SKIP</strong></td>
<td>The captain of the team.</td>
</tr>
<tr>
<td><strong>SPINNER</strong></td>
<td>A rock thrown with excessive spin.</td>
</tr>
<tr>
<td><strong>STEAL</strong></td>
<td>Scoring a point without last rock advantage.</td>
</tr>
<tr>
<td><strong>TAKE-OUT</strong></td>
<td>A shot thrown hard enough to remove another stone from play. Also called a &quot;HIT&quot;.</td>
</tr>
<tr>
<td><strong>TEE LINE</strong></td>
<td>The line that intersects the house at the centerline.</td>
</tr>
</tbody>
</table>
| **THE "TOSS"**   | The toss of the coin to determine last
The United States Curling Association. The main offices are in Stevens Point, Wisconsin.

<table>
<thead>
<tr>
<th>USCA</th>
<th>World Curling Federation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCF</td>
<td>World Curling Tour</td>
</tr>
</tbody>
</table>

There are other subtle curling terms that may be synonymous with the terms listed above. The more time you spend curling, the more you will hear them.

## Curling Lingo

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Hit the broom&quot;</td>
<td>A rock thrown accurately at the aiming point.</td>
</tr>
<tr>
<td>&quot;On the broom&quot;</td>
<td>Same as above.</td>
</tr>
<tr>
<td>&quot;Lost its handle&quot;</td>
<td>A rock that loses its rotation.</td>
</tr>
<tr>
<td>&quot;Nice rock&quot;</td>
<td>Good shot.</td>
</tr>
<tr>
<td>&quot;Nice Toss&quot;</td>
<td>Same as above.</td>
</tr>
<tr>
<td>Tee weight</td>
<td>A rock thrown hard enough to stop on the Tee Line.</td>
</tr>
<tr>
<td>Back ring weight</td>
<td>A rock thrown hard enough to stop in the back of the house.</td>
</tr>
<tr>
<td>Draw the &quot;lid&quot;</td>
<td>Draw to the button.</td>
</tr>
<tr>
<td>Draw the &quot;pin&quot;</td>
<td>Same as above.</td>
</tr>
<tr>
<td>&quot;Fudge&quot;</td>
<td>The rock hits the heavily slid area in the house and stops quickly.</td>
</tr>
<tr>
<td>Hack weight</td>
<td>A rock thrown hard enough to stop near the hack.</td>
</tr>
<tr>
<td>Normal hit</td>
<td>A rock thrown hard enough to remove another rock from play.</td>
</tr>
<tr>
<td>Heavy hit</td>
<td>A rock thrown hard enough to forcefully remove a rock from play.</td>
</tr>
<tr>
<td>&quot;Split’em&quot;</td>
<td>Hitting a rock at such an angle as to split them apart.</td>
</tr>
<tr>
<td>&quot;You dumped it&quot;</td>
<td>A rock thrown inside the line of delivery, usually at the point of release.</td>
</tr>
<tr>
<td>&quot;You flipped it&quot;</td>
<td>A rock thrown outside the line of delivery, usually at the point of release.</td>
</tr>
<tr>
<td>&quot;Take the rock&quot;</td>
<td>Sweep closest to the rock.</td>
</tr>
<tr>
<td>&quot;The rock picked&quot;</td>
<td>The moving rock picked up a piece of debris that altered its course.</td>
</tr>
<tr>
<td>Weld</td>
<td>A perfect freeze.</td>
</tr>
</tbody>
</table>
A few notes about the zone system and judging weight

- The ten-zone system was popularized by the Canadian Champion team of David Nedohin and Randy Ferbey from Alberta.

- Since it is the sweepers’ responsibility to judge the weight of the stone, this system simplifies the communication with the skip. When the delivering stone is released, the sweepers will each shout out which zone they believe the rock will reach, repeating it along the way. Good sweepers can very accurately judge their zones, and sweep accordingly.

- Sweepers can increase their accuracy at judging zones by using a stopwatch and split-timing a delivery. Split-timing involves measuring the time a stone takes to travel between two points during delivery. Most players will measure from the back line to the hog line, resulting in times ranging from 3 to 4.5 seconds. Depending on a player’s delivery, the ice conditions and how many examples have been taken, the sweepers can very accurately reinforce their judgment based on this time.