

## About Poolster



Many years ago when I was completing my PhD, a colleague and myself would often play pool on the PC. However, there was a serious lack of good pool games and those that were available just didn't seem to obey the laws of physics: balls would disappear off the table when they came close to a pocket (the black hole effect); the angles of the collisions were not always correct; and you could not give the cue ball any spin at all. Most people may find this slightly annoying, but as physicists, we found it almost unbearable. At that point in time, I decided that I would write a pool simulation that was very realistic and also fun to play.

A few years later, I started writing Poolster in my spare time. As the game progressed, I increased its features and improved the graphics until it was in its current form. I believe that Poolster is one of the best pool simulations available for the Windows environment, if it gives you as much pleasure as it has given me in creating it then I am pleased, if you purchase the registered copy, then I am overjoyed. Please distribute the unregistered (shareware) version to your friends so that they to may enjoy it!

Have fun...

Dr. James H. Clark.

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## Poolster's System Requirements








Poolster is not a resource hungry “bloat-ware” application. It has been designed to be relatively lean in terms of the hardware required to run it. However, due to the nature of the numerical calculations required, a fast(ish) processor is recommended. Moreover, it will only run under a 32-bit Windows operating system (i.e., Windows95 or NT3.51 or greater). This is because 16-bit Windows was just too slow!

The basic requirements are thus:

- 486DX 33MHz or higher. A fast Pentium is recommended as this will greatly improve the animation, especially when there are lots of calculations being performed, for example during the break. Note: Poolster was developed on a 486DX4/100 with 12Mb RAM! Not exactly cutting edge technology.
- 256 colour video card is a must, more colours only mean that Poolster doesn't have to keep changing the Windows palette. To ensure that the animation is acceptable, the video card should be accelerated—though most are nowadays. The resolution should ideally be 800x600 or higher. Poolster will run in 640x480 mode but the bottom of the game window will be off of the screen. This may make adjusting the spin and the power tricky. If you must run in 640x480 mode, then try hiding the Windows taskbar and moving Poolster to the top of your screen.
- 8Mbytes of RAM minimum (this is really the minimum for Windows anyway). The more RAM the better. Whilst Poolster doesn't itself need much RAM, all your other applications will run much better with more memory.
- Windows95/NT(3.51 or greater) is required! It will NOT run on Windows 3.1.
- A mouse is essential. Poolster uses mouse input as its only way of aiming shots and controlling the power and spin. However, a mouse-like object (trackball, touchpad, etc.) will also work so long as it produces a mouse pointer in Windows.

## Ball Positioner

The ball positioner allows you a simple way to position all the balls in the Poolster simulation environment, allowing you to:

-  Set up new game layouts that you have invented.
-  Set up the game layout to be the one that you are used to playing (there are a too many versions of pool rules in existence to attempt to include them all) .
-  Devise trick shots for others to try and solve.
-  When you encounter a difficult situation in a real game of pool (e.g., in the pub the previous evening) use the ball positioner to build a simulation of that game and practice different shots to learn what is the best way out of that situation.
-  Arrange the balls to investigate some of the Physics involved in billiard ball collisions and their motion. Note: Poolster has been designed as far as possible to accurately obey the laws of physics of the game of pool.
-  Some rules of pool require that the black ball should be respotted if it is pocketed whilst there are still both reds and yellows on the table. The ball positioner can be used to do this by creating a new ball and recolouring it black.
-  Finally, the ball positioner may be used to "cheat" during a game. If a ball is in a really awkward position for you to do a wonderful clear-up of all the balls, just use this tool to remove it and (if required) place it somewhere else and/or change its colour.

Note: the ball positioner feature is only available in the purchased (i.e., Registered) version of Poolster. This feature alone is a great reason to [Register today!](#)

## Using the Ball Positioner

The ball positioner is activated by selecting the "Ball Positioner" option on the "Position" menu. When it is activated, a tick mark is placed along-side this menu item. To deactivate the ball positioner, simply reselect the menu option. *Note:* that when the ball positioner is active, many of the other menu options will be disabled. For example, the cue ball cannot be positioned with the ball positioner. Instead you must use the separate cue ball positioner feature, but first the ball positioner tool must be deselected.

Once active the mouse cursor changes. Depending where the mouse is, a different cursor will be displayed, as described below:



When this cursor is displayed, a new ball can be positioned here by clicking the left mouse button. The new ball will be coloured yellow. There is a limit to the number of balls that may be created on the table. Once this limit has been reached, no more balls can be placed on the table. To add other balls, one or more balls will first have to be removed from the table.



If the mouse is moved over an existing ball, then the cursor changes to a colour wheel. Clicking the left mouse button will change the colour of the ball that the cursor is touching. *Note:* the ball does not have to be directly under the cursor to have its colour changed, it only has to be touching it. There can be any number of red, yellow and black balls on the table at any one time, up to the maximum number of balls. You cannot create another white ball, there can only

be one cue ball. Clicking the right mouse button will **delete** the ball that is currently touching the cursor.



If the cursor is moved somewhere it cannot go, this “NO” cursor is displayed. Clicking the left mouse button will do nothing.


Right-clicking the mouse button (except when the cursor is a colour wheel) will pop up a small help window.

## Physics of Pool and Tips for Playing

The game of Pool and all other Pocket billiard games alike, have a great deal of Physics involved in them. As a physicist, I was interested in investigating the motions of billiard balls in these games and one of the results was Poolster itself. This section briefly describes some of the mechanisms involved in the game of pool that are implemented in Poolster. Knowing something about these mechanics gives you a better understanding of the game and ultimately makes you a better player.

### Aiming a shot.

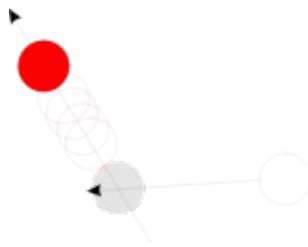
The object of pool (and other similar billiard games) is to use the cue ball to pocket other balls that are on the table. Whilst this seems simple when you are watching an accomplished player, beginners can find this very difficult indeed. However, with some simple guidance you will find that there are some simple rules to follow that are easy to remember and to apply.

In poolster, a shot is aimed using the  cursor. This cursor is exactly the same size as the pool balls which makes aiming much easier than you may first imagine.

To aim a shot, simply draw an imaginary line through the centre of the ball you want to hit in the direction you want to hit it, as below:



Next you want to place the cursor carefully so that the edge of the cursor just touches the edge of the ball you are aiming to pocket, and line up the centre of the cursor with the imaginary line you have drawn through the ball. (This imaginary line joins the centre of the cursor, and the centre of the ball along the path you want the ball to travel.) When you click the left button to play the shot, the cue ball will move exactly to where the cursor is positioned (assuming that it is not coming from the wrong side of the object ball and that there are no obstacles in its way) and the object ball will move along the imaginary line as shown:



### Cue ball after a collision.

When the cue ball strikes an object ball, the object ball moves in the direction as described above. An important question is what direction does the cue ball move in after such a collision. Well, the laws of physics tell us (take my word for it, or look it up) that if the collision is elastic (i.e., no energy is lost in the collision) and the masses of the two balls are the same, then the cue ball will move off at right angles to the direction of the object ball. Clearly there are two possible directions that are at right angles to the direction of the object ball. Working out which is the correct one is simple because only one of them looks right—the wrong one sends the cue

ball in an impossible direction.

Poolster uses this theory and assumes that the collisions between balls is elastic. Realistically, the collision is inelastic and energy is lost—we know this because we hear a click when the balls collide and this sound is a release of energy. In real pool, the energy lost is only around 5% of the total energy meaning that deviations from the ideal case are negligible.

Knowing that the angle that the cue ball moves off in will be at right angles to the direction of the object ball is extremely useful, allowing you to more accurately estimate where the cue ball will go after a shot. However, this simple case is complicated by the spin of the cue ball which will cause the cue ball to follow an arc. Initially the cue ball will move at right angles to the object ball and this direction will be modified by the spin of the ball. If there is not much spin on the ball, then the simple case with no spin is approximated. If, however, there is a large degree of cue ball spin, after the collision the cue ball will follow a very curved path. Knowing exactly where the cue ball will go in this case is difficult and it usually requires some practice to get the cue ball to go exactly where you want.

## Momentum transferred in a collision.

The amount of momentum (or velocity) transferred to an object ball by the cue ball depends on the angle that the cue ball strikes the object ball. In other words, the angle between an imaginary line joining the centres of the balls together and the direction that the cue ball is moving in. If this angle is zero or very small, the collision is head-on and most of the cue ball's momentum is transferred to the other ball (the cue ball almost stops while the object ball moves off). However if the angle is large (it cannot be larger than 90 degrees as this is a physical impossibility) the collision is grazing and the object ball hardly moves while the cue ball continues almost unhindered. In between these two extremes momentum is transferred from the cue ball to the object ball in varying amounts depending on the angle of the collision.

## Ball spin and velocity are different.

When a billiard ball is moving on a table, it may possess both spin and velocity. The velocity part is analogous to the case where the ball was sliding over a surface rather than rolling over it. This idea of sliding is important because the laws of physics are easier to understand in this case. Because the ball is sliding it doesn't even have to be spherical, it could for example be a box. If you imagine pushing a box across a table-top then you are observing the simple velocity part of a billiard ball's motion: once you push it and start it moving, it gradually slows down and stops. If it hits another box of the same size, this other box will move off whilst the first box will stop. This is simple billiard-ball motion when only velocity is considered and is, in fact, the way most pool simulations handle the motion. However, billiard balls are spherical and they roll rather than slide, therefore, they possess some spin.

When considering a spinning ball, it is simpler if you think of the horizontal spin (parallel to the table surface) and the vertical spin (perpendicular to the table surface) separately. The horizontal spin is simpler so it is considered first.

If you take a coin and spin it on its edge on a table, then generally it will remain in the same place (assuming the table is level). In other words, the horizontal spin interacts with the surface uniformly, and the friction of the table slows the spinning coin uniformly. If the friction was not uniform then the coin would begin to move in a preferred direction. In pool, the table is not a uniform surface, but has a baize which is flattened in one direction only. This has the result that a ball spinning horizontally will actually move depending on the lay of the cloth. However, this subtlety is not actually included in the Poolster simulation (I thought that it might confuse some people). Therefore, you can think of horizontal spin as having no effect on the velocity (motion)

of the ball just like the spinning coin. However, vertical spin is different.

When a ball spins vertically it is acting just like a wheel on a car. If a car accelerates very quickly from a standstill, it will perform a *wheelspin*: for a few seconds the tyres will spin whilst the car remains stopped. Gradually, the car will begin to move off and the *wheelspin* will end. This is exactly what happens with a ball which has vertical spin and no velocity: for a few moments it will remain still then it will gradually accelerate in the direction of the spin.

The horizontal spin really only comes into play when the ball hits a cushion. Here, the horizontal spin can interact strongly with the cushion, resulting in a change in direction of the ball. For example, if a ball with lots of left-hand spin is aimed head-on at a cushion, the ball will bounce from the cushion moving to the left rather than back towards where it came from (as would be expected if there were no spin). The amount the ball changes direction depends on a number of factors including the amount of spin, the actual velocity of the ball, the mass (inertia) of the ball and the amount of friction between the ball and the cushion. Generally, the more side spin that is applied, the more the ball will tend towards that direction when it is reflected from the cushion.

The main motion of a billiard ball in a game of pool comes from a combination of the velocity and the vertical spin. Both of these quantities may be thought of as trading-off against each other. If you consider the wheelspinning car, above, the tyres are initially have no velocity but lots of spin. Then during acceleration, the amount of spin is reduced whilst the velocity of the car increases. Eventually, the velocity and the spin will be the same, i.e., the speed of the outside of the tyre will match the speed of the car; there is no slipping. Conversely, if a ball is pushed along with some velocity so that it has no vertical spin, then as it rolls, the interaction (friction) with the table will cause the ball to start spinning. Eventually, both the vertical spin and the velocity will be the same just as in the case of the car tyre. Obviously, this process can become quite complex when balls with arbitrary spins begin to collide with other balls with their own spins. You don't have to worry about all of this too much because Poolster takes care of all those calculations. But, knowing some basics will improve your game.

## Ball spin; friend or foe.

If a ball is moving it will usually possess some spin. If this ball collides with a second ball such that it stops whilst the second ball moves off, the first ball, although stopped (i.e., having no velocity) still has some vertical spin. This will cause the ball to gradually accelerate in the direction of the spin. This may be a good or a bad thing, depending on the circumstances.

Imagine an object ball hanging on the edge of a pocket. If you aim the cue ball so that it contacts squarely with the object ball such that the object ball falls into the pocket, the cue ball will still possess some forward spin (not momentum as some people might say) which will cause it to move forward after the collision and most likely fall into the pocket too. This is obviously a bad thing.

Using spin carefully allows you to avoid this scenario. For example, in the same shot as just described, if you hit the cue ball on the bottom so that you give it some back spin, then when it collides with the object ball and stops, if it still has some back spin, rather than moving towards the pocket as in the first case, the cue ball will actually move away from the pocket—it has screwed back! If the spin is controlled even more precisely, the shot can be played so that the cue ball has no spin when the collision happens and it really does stop. Using spin in this way allows you to carefully control the position of the cue ball during play, enabling you to plan ahead for the next shot, ultimately pocketing more balls and becoming a better player.

## Summary.

To play pool, you must learn how to aim the cue ball to pockets the other balls—this is essential.

Once this has been mastered, you should try to anticipate where the cue ball will go after a collision (to start with do not put any spin on the cue ball). By carefully controlling the velocity given to the cue ball, you should become proficient at positioning the cue ball after a shot. Once this is mastered, using spin will provide you with all the tools you need to position the cue ball where you want (within reason).

Remember, the aim is to have fun. If you play a bad shot and taking it again will make you happier, then UNDO the shot and have another go. This is the advantage Poolster has over the real thing, you can undo mistakes. Retaking shots using different conditions is also an excellent way of learning how to play better, in particular how to play for cue ball position. UNDO is not a cheat, it is the best learning tool.



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## Special Features

Poolster has some special features to make the game more flexible and enjoyable:

The Ball Positioner

The Boss Feature

## Boss Feature

The boss feature is so named because it gives you some protection from your “Boss”.

### **Its concept is very simple:**

If your boss walks in to see you and you are playing Poolster, then he/she may be very annoyed indeed (well, they may want a game too). Moreover, some companies view game-playing as a serious—if not a sacking—offense. But we all know that Poolster is not so much a game as an accurate simulation of the Physics of pool. The boss feature gives you some protection against possible nasty outcomes of playing (sorry, simulating) pool in work-time.

### **Operation:**

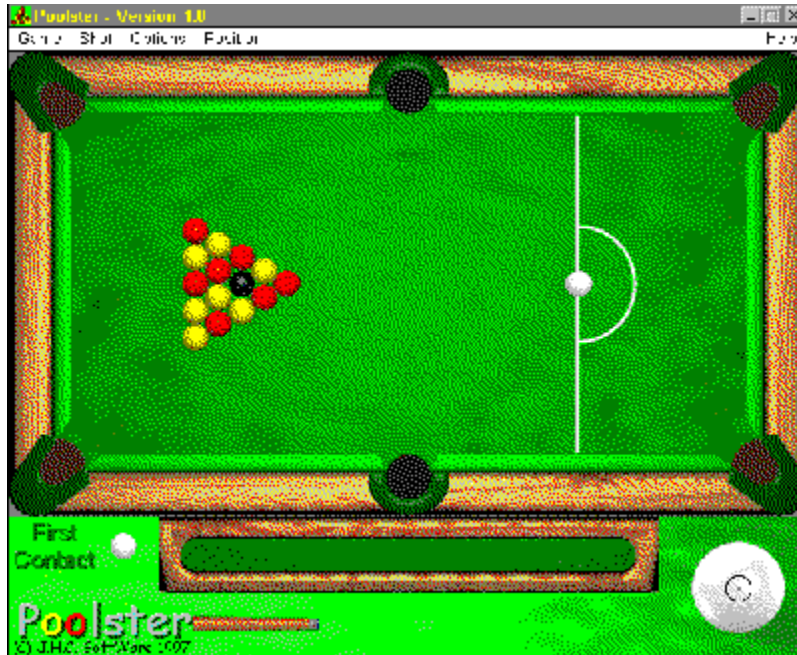
By quickly minimising the Poolster window, and blanking the title, no obvious signs of the poolster game will be present other than a rather non-descript item on the task-bar. Clicking this item, reactivates Poolster to the state it was in before the “boss” feature was implemented. Thus, you don’t have to exit the game. If, however, Poolster has been “bossed” for more than 5 minutes, it will terminate and the game will be lost—although your job will be saved if you have to quickly leave your computer.

### **Activation:**

The quickest way to activate the “boss” feature is to press the *escape* <ESC> key at any time, even during a shot. Alternatively, it may be activated from the Game menu. The use of the escape key is preferred as it is the quickest way of activating this feature.

## Playing Instructions

Poolster has been designed to be an easy-to-use windows application so anyone even slightly familiar with windows should be able to use Poolster. All control of the game is via the mouse, with the exception of the menu options and the “boss” feature which can also use the keyboard. The Poolster window is divided into several regions which either convey information or allow you to use a particular feature. An example of the Poolster window that you see is shown below. Simply place the mouse over different regions of this picture and click with the left mouse button. Tips on the features of this window will be shown.



Remember, at any time during the game, clicking the *right* mouse button will show you these small help windows identifying which region of the window you are in and what you can do there.

When Poolster first starts, the balls are racked in the formation of a standard UK pub game. The positions of the balls can be changed by either loading in another game with the File|Open Game menu option, or by using the ball positioner.

To take your first shot, aim the cursor on the table where you want the cue (white) ball to go. Pressing the left mouse button will start the shot. The cue ball will move towards the point where you aimed, colliding with other balls and cushions as it goes. Now wait until all the balls have stopped moving and the mouse pointer has changed back to normal.

If the cue ball ends up in a pocket you will be prompted (if Display Messaged is on) to reposition the cue ball. Commonly, the cue ball would be positioned inside the “D” or semi-circle on the table, but sometimes it is positioned anywhere to the right of the white line (depending on which rules are being played). For maximum flexibility, Poolster permits you to position the cue ball anywhere on the table. So you must judge where is and is not a valid position for the cue ball.

For maximum effectiveness, you should always consider how hard you want to hit the cue ball and if you want to give it some spin. The spin and power are automatically reset after you have


taken your shot if the Reset Spin option is checked in the Options Menu. It is not necessary to adjust the power or spin before every shot as the previous setting will be used anyway. Beginners should use the default settings most of the time until they are used to the ball motions, otherwise balls can seem to move in strange directions.


To change how hard you hit the ball, click with the left mouse button on the cue (bottom middle of the game window) and drag the cue. The further the cue is to the left (i.e., away from the cue ball) the harder the shot will be played. Conversely, moving the cue to the right will reduce the power of the shot.


Similarly, spin may be applied to the ball by clicking with the left mouse button on the large cue ball on the bottom right of the game window and dragging the cursor. Moving the cursor to the top will cause the cue ball to move forward after a collision, moving it to the bottom will cause the cue ball to move backwards after a collision (or screw back). Use side spin to change how the cue ball deflects from the cushions.

The aim of the game is to pocket all the balls of one colour before your opponent, and then to pocket the black ball. For more information, see the [Rules of Pool](#).

For more information on how to aim to cue ball to pocket balls and for a better description of spin, see [Physics of Pool](#).

**Table:** Select where you wish the cue (white) ball to go using the  cursor and click the left mouse button to take your shot. The cue ball will be struck with the power and spin currently set and will move towards the mouse cursor in a straight line.


**Power:** The cursor shown is: . Click and hold the left mouse button and drag the cue to change the power applied to the large cue ball. The further the cue is from the cue ball (i.e., to the left) the more power will be applied to the shot. The power is automatically reset after you have taken your shot if the Reset Power option is checked in the Options Menu.


**Spin:** The cursor shown is: . Click and hold the left mouse button and drag the target marker to change the spin applied to the cue ball. Moving the cursor to the top will cause the cue ball to move forward after a collision, moving it to the bottom will cause the cue ball to move backwards after a collision (or screw back). Use side spin to change how the cue ball deflects from the cushions. The spin is automatically reset after you have taken your shot if the Reset Spin option is checked in the Options Menu.




**First Contact:** The colour of the ball displayed here indicates the colour of the first ball that the cue ball hit during the shot. If this indicator is white, then no other ball contacted the cue ball. Use this to decide if a foul shot was played.

**Ball Chute:** This shows the balls that have already been pocketed, and the order that they were pocket in.

**Ball Positioner:** To position a new ball, move the cursor so that no balls are beneath it (the  cursor is displayed) and click the *left* mouse button. (Note that the maximum number of balls is 15!) To change the colour of a ball, move the cursor so it “touches” a ball (the pointer changes) so that the

 cursor is displayed and click the *left* mouse button. To remove a ball, move the cursor so it “touches” a ball (


 is displayed) and click the *right* mouse button.


**Cue Ball Positioner:** The cursor shown is:  . To position the cue ball, move the cursor to a location on the table where there is no other ball and click with the *left* mouse button. The cue ball will be positioned here.


## Poolster Menu Options


The menus in Poolster allow you to access a range of features to enhance the functionality of and the enjoyment from the Poolster game. In the following section, all the menus are described in the order that they appear (left-to-right / top-to-bottom). Most of the options are single-click selections that are activated by simply pressing the left mouse button. However, some options are "toggled" on or off by clicking with the mouse. In these cases, the feature is enabled if a tick-mark is placed beside the menu text.


### Game

 **Re-Rack:** If a game is currently in progress, you will be asked if you want to abandon it, if you select "Yes" the current game will end and the balls will be re-positioned in the standard UK pool positions ready for the next game.


 **Open Game:** Opens a previously saved game file. If a game is currently in progress, you will be asked if you want to abandon it, if you select "Yes" the current game will end and the balls will be re-positioned according to their saved positions. The colours of the balls may also change: for example, a saved game may have 4 blacks, 4 reds and 4 yellows! A game file may also be dragged and dropped onto the Poolster window.


 **Save Game:** Saves the current positions of all the balls (together with their colours if they have been changed) to a file of your choice. This feature allows games in mid-progress to be saved for future use, used as examples, e-mailed to colleagues to play pool-by-post (a bit like postal chess, I suppose) and to save game configurations composed with the ball positioner tool. "Save Game" is only available in the Registered version.

 **"Boss" Esc:** Activates the special Boss feature. Use the escape key for the fastest activation of this option.


 **Exit:** If all the balls have stopped moving Poolster exits and the window closes. If, however, a shot is still in progress, all the balls are halted (as if "Halt Balls!" was selected) but the program does not exit. To exit in this case, simply select the "Exit" option once more.

### Shot


 **Undo:** Reverts the game back to the state it was in before the last shot was taken. This can be a very useful feature. Windows is a multitasking environment. Sometimes, the operating system will decide to do some activity such as accessing the hard disk. Normally, such *background* activity is not noticed. But, in a processor intensive application such as Poolster, such activity can interrupt the calculations of the ball motions for a sufficient time that the motion is not correct. This may sound pedantic, but it can mean that the cue ball can seem to pass through another ball if the background activity lasts for a suitable period of time. In other words, your shot was ruined by the multitasking. To overcome this, use the UNDO facility to reposition the balls and retake your shot. Alternatively, if you feel that your shot was *perfect* to start with, then use the Re-Simulate feature to take it exactly as you had intended in the first place.


 **Re-Simulate:** This command remembers these parameters of your last shot: power, spin, and the cue ball aim. It simply runs the simulation again using these values to attempt to replicate your last shot. This may be used if the animation is interrupted by some background task to retake your last shot (see UNDO, above). It may also be used to reshow your last shot allowing you to investigate what happened in more detail. The "Replay" and "Replay Slow"


functions are the recommended way to review previous shots, as it can never be guaranteed that the Re-Simulate will perform exactly the same each time—Re-Simulate is the only means to review shots in the UnRegistered Version.

 **Replay:** During the simulation of a shot, the positions of all the balls are monitored every 1/20 of a second. The Replay command displays these positions as a movie to show you exactly what happened during the simulation. The actual simulation runs much faster than the 20 frames per second displayed in the replay, so fast moving balls will appear to move jerkily. However, these are the EXACT positions that the balls actually moved in during the simulation—this has been thoroughly investigated.


 **Replay Slow:** As its name suggests, this command replays the previous shot but at a slower speed—in fact 4 times slower than in the Replay function. Remember, that if the slow motion replay seems to be taking an age to stop, just use the Halt Balls! Menu option, or press <CTRL>Z. The replay and slow motion replay features are only available in the Registered Version.


 **Open Shot:** Loads a previously saved shot into memory and replays it. This allows fellow Poolster players to exchange games mid-way (a sort of Poolster by post). It is also used to display teaching shots that show you some of the techniques involved in pool. Once a shot has been loaded, it can be replayed using one of the Replay options mentioned above. A shot file may also be dragged and dropped onto the Poolster window and run automatically.


 **Save Shot:** You have played a shot and you thought it was so good you wanted to keep it for future reference or for showing your friends. Alternatively, your pool-playing friend lives too far away to play pool with but you still want to play over long distances (like postal chess). The save shot feature is for you. This creates shot files (used in Open Shot, above) that can be replayed, used to restart a game in mid-session, or used for tutoring or as trick shots. Games can only be saved in the Registered Version.

 **Halt Balls!:** During the simulation, the only way to stop the balls moving is to use this command. This is useful in many circumstances. For example, if you have just taken a bad shot and you want to undo it. Use Halt Balls! to stop the simulation immediately, then use UNDO. It is also usually desirable to use this feature towards the end of a slow motion replay. The fastest way to use this feature is to use the <CTRL>Z key combination.


## Options


 **Auto Spin Reset:** Once a shot has been taken, the spin will automatically reset back to having no spin. This is the commonest shot played and this resetting is thus convenient. It also prevents inexperienced users getting confused over the seemingly strange motions of the cue ball when in fact they have applied maximum back spin to the ball. To prevent this resetting, uncheck this menu option by selecting it. To reactivate it, just check it again.

 **Auto Power Reset:** Similar to Auto Spin Reset, above, this feature resets the power back to a default value after each shot. To disable this auto-setting, just uncheck the menu option.

 **Display Reminders:** When some actions occur, for example pocketing the cue ball, a reminder pops up telling you what to do next. Whilst this is useful for beginners, it gets tedious for experienced users. Therefore, unchecking this option prevents the displaying of these messages.


## Position

 **Position Cue Ball:** If the cue ball has been pocketed, it is necessary to reposition it on the table. The valid places for this depend on the rules being played but generally it should be placed inside the “D” on the table. This function can be used to reposition the cue ball at any time during the game.


 **Position Balls:** Toggles the "Ball Positioner" tool on and off. When active, this menu option has a check-mark placed beside it. To deactivate it, just reselect it to remove the check mark. This tool is only available in the Registered version.

## Help

 **Contents:** Displays this help file.

 **Playing Instructions:** Displays help on how to play Poolster, just like clicking here.

 **Registration Info:** Displays information on how to register, just like clicking here.

 **About:** This shows copyright information, the current Poolster version number, distribution information and whether the copy is registered or shareware.

## Registration and Purchasing

Poolster is NOT Freeware. It is distributed as Shareware and as such requires that, after a reasonable evaluation period has elapsed, the product be registered (purchased). If the Poolster software (or any part of it) remains in use beyond this evaluation period then it may be considered to be illegal! (In the context of Poolster, a reasonable evaluation period may be taken to mean 30 days or 30 games, whichever lasts the longest).

By not registering you are not hurting a big company, instead you are inhibiting the development of future Poolster versions and derivatives in addition to other software by J.H.C. SoftWare (and James H. Clark). Substantial effort has been invested in the Poolster application to ensure that it gives the most enjoyment to the widest range of people. In addition it aims to be the most realistic 2D pool (billiard-ball type) simulation for the Windows95/NT platform. If you think that it fulfills this aim (for you at least) then why not register it? J.H.C. SoftWare believes in top-quality software at affordable prices: if software is less expensive, more people can afford to use it legally. By reducing the price of software, the incentives for piracy are greatly reduced!

## Benefits of Registration

- It ensures that the copy you have is legal for ever more. Upon registration the program becomes the sole property of you (not the author). However, no copies of the software must be made for anything other than backup purposes. The exception to this is that the software may be installed on any number of machines in the same domestic residence (i.e., home) or small office, up to a maximum of 3 machines.
- The ball positioner is enabled in the registered version allowing you to easily create scenarios and new game layouts for more enjoyment.
- The "Save Game" option is enabled allowing games to be stored for future use. This option works well in conjunction with the ball positioner.
- "Shot Tracking" is available. This allows the shots to be saved and viewed as exact replays of the shot taken. The unregistered version only replays approximately by re-simulating the shot played. In some cases, the resimulated shot does not match the real shot accurately. Shot tracking removes these problems.
- Messages displaying "Unregistered" are removed.
- The application does not exit after a preset number of Re-Racks.
- 2 further free J.H.C. Software applications: "**span**" a program for splitting large files and spanning them across multiple floppy disks—a very useful program indeed! And "**tutor**", a memory tutoring program that helps you learn things such as foreign language vocabulary by repeatedly by asking you pertinent questions (that you provide). I have used this for years for learning Latin, Italian and even mathematical formulae. You will find both these utilities truly useful.

## To Register

- Payment should be made (where possible) in pounds UK sterling (£).
- Registration of Poolster costs £14.
- A site license is available which covers up to 20 PCs. The price for this is only £30!



● Postage and packaging is charged at £2 inside the United Kingdom and mainland Europe and £5 overseas.

● Payment in other currencies cannot guarantee the shipment of Poolster, although every effort will still be made. Though you may also wish to add about 10% extra to cover possible commission charges and exchange rate fluctuations!!!!

● Payment should be made by Cheque or Postal Order payable to: "James H. Clark". Cash is also acceptable, although if you send cash you should be careful how it is packaged to prevent anyone knowing that it is cash, otherwise I may never receive it. Send payment to the following address:

James H. Clark  
46 Rivington Drive  
Burscough  
Ormskirk  
L40 7RP.  
England, UK.

For a registration form [click here](#).

# Registration Form



Print (or duplicate) this form, fill it in and send it to:

James H. Clark  
46 Rivington Drive  
Burscough  
Ormskirk  
L40 7RP.  
England, UK.

## *Registration Request for Poolster Version 1.0 (or the latest version available).*

I enclose remittance (payable to “James H. Clark”) for:

the registration fee of: £14  
or a site license fee of: £30  
and delivery charge of: £2(UK, Europe) or £5(overseas) *(circle as appropriate)*  
Total: \_\_\_\_\_ *(complete as necessary)*

Please send my copy of the Registered Version of Poolster to:

Name: \_\_\_\_\_  
House No. and Street: \_\_\_\_\_  
Town: \_\_\_\_\_  
City: \_\_\_\_\_  
(State): \_\_\_\_\_  
(Zip) Post Code: \_\_\_\_\_  
Country: \_\_\_\_\_

Send Payment in UK pounds sterling (where possible). Payment will be accepted in cash, cheque or postal order (or equivalent) made payable to “James H. Clark”. See [Registration and Purchasing](#) for more details. Proof of postage is not a guarantee of proof of delivery. If the registration form and appropriate fee are received, Poolster *will* be dispatched, normally within 28 days.

## Rules

Beginners should read the [JHC rules](#).

The game of Pool is one of the most popular games the world over—played in pubs, sports clubs and (where I spent a lot of my pool-time) at universities. Such popularity surely stems from the fact that anyone from a professional to a total beginner can play the game and enjoy it. Because of this, many people who play pool tend to follow their *own* rules of the game, which are usually some subtle variation on what others may call the “correct” rules. This problem of non-standardisation of rules is compounded by the fact that, in the UK at any rate, many different regions play their own brand of “official” rules. For Poolster to be widely accepted, it must fit everyone’s idea of the correct rules. This, understandably, is a near-impossible task.

Poolster circumvents the problem of different rules by not enforcing any rules at all! At first, this may appear to be biased towards the expert player, but why should Poolster force the user to play what they might consider to be the incorrect rules? If certain rules were enforced, the catchment of Poolster would be greatly reduced.

Poolster provides a range of facilities that enables any player to set-up and to play any variation of pool rules that they like, within obvious limits. These features include: the [Ball Positioner](#) (to re-spot pocketed balls, create new game lay-outs, change the number of red, yellow and black balls, etc.); the [Save Game](#) feature to save game lay-outs created by the ball positioner tool; and the facility to reposition the cue-ball anywhere at any time during the game.

The Billiard Congress of America (BCA) has issued guidelines on the world standardised rules of pool. These are very detailed and cover all eventualities arising during a game. To help you in your pool playing, these have been included below. Note: the BCA rules assume that the balls used are numbered balls with “spots and stripes”. Poolster uses the increasingly common red and yellow balls instead. Where you read spots and stripes in the BCA rules, just substitute reds and yellows.

### [\(BCA\) World Standardised Rules](#)

The BCA rules above are very thorough indeed. Whilst reading this will give you a vast amount of information on the game of pool, it is time-consuming to read and remember it. Moreover, the BCA rules are quite different to the rules that I have played to for a number of years, and incidentally the rules that most people in the UK I know play to. Therefore, I have also included a brief outline of the rules that I play, and hence I have called them the JHC rules—although I cannot take any credit for the invention of these rules. The section on the JHC rules below is short and is recommended for beginners. For more detailed information not covered in the JHC rules, refer to the BCA rules and assume that similar rules apply.

### [JHC \(UK\) rules—for beginners](#)

## JHC Rules

The JHC rules are so named because I have just jotted them down in a form that I hope is useful to beginners. These rules are just what I consider to be a frequently played version of the pool, and which I have played (more or less) for a number of years. The rules are explained in the context of Poolster. Normally there are two players (although you can play with 2 teams, where each person in the team takes alternate shots).

### Summary:

When the game begins the balls are racked in a certain way (use the Re-Rack menu option to set the balls up). They are arranged so that neither the reds or the yellows are favoured on the first shot, and so that there is less chance of potting the black. The cue ball is the white ball that is struck with the cue (the ball that is directed in Poolster). The point of the game is to pocket all the balls of one colour (by using the cue ball), then pocketing the black ball. The player who pockets the black after they have pocketed all their own coloured balls is the winner. If a player pockets the black before all of his balls are pocketed, then he loses the game.

### The break:

Position the cue ball somewhere inside the white semi-circle, or “D”. Aim the cue ball towards the pack of balls (move the mouse pointer) and click the left mouse button. The cue ball will move and *break* up the pack of balls. At this point, the table is *open*, that is, the player can strike either reds or yellows.

If any balls are pocketed (except the black) then that player is playing for those colours and he continues to play. If no balls are pocketed, then the next player takes his shot.

### General play:

When a player takes a shot, the colour of the first ball that the cue ball strikes is critically important—Poolster shows this in the “First Contact” region of the game window. Whilst the table is open, any coloured ball, except the black, can be hit with the cue ball. But once a player has pocketed one coloured ball, then that player can only hit balls of that colour. Similarly, the opponent, can only strike balls of the other colour. For example, if Bob pockets a red on the break then he can only hit reds, whilst Joe (his opposition) can only hit yellows.

If a player strikes a ball that is not his colour then the opponent is awarded “two shots”. See below.

When a player is at the table, he remains there until he has failed to pocket a ball or has committed a foul. This means that after a ball of that player’s colour has been pocketed, then he can continue to attempt to pocket more balls of that same colour. When there are no balls of his colour remaining on the table, the player may attempt to pocket the black ball to win the game.

Any pocket may be used for any ball. It is not necessary to nominate any pocket for the intended shot.

### Fouls:

During play, it is likely that one of the following fouls may happen. As a penalty after a foul, the opposing player is granted “two shots” (see below).

Hitting a ball that is not of that players colour. If any coloured ball (including the black) hits the cue ball first (before any other ball hits it) then it is a foul. Similarly, if the cue ball does not strike a ball, it is also a foul.

If the cue ball is pocketed, the opposing player chooses where to position the cue ball inside the “D”. He then has two shots. Once repositioned, the player can direct the cue ball anywhere on the table.

If a player pockets the black ball before all of his coloured balls have been pocketed, then he loses the game. The black must be pocketed on a separate shot to any other. This means that a player cannot, *on the same shot*, pocket his last coloured ball followed by the black ball.

**Two Shots:**

If a player commits a foul then the opponent is awarded “two shots”. This means that on his first shot, if the opponent does not pocket any ball, but plays a legal shot, then he has another attempt to pocket one of his balls. If, however, he does pocket one of his balls on the first shot, then the “two shots” carry meaning that once he fails to pocket a ball he can still use the second shot to continue.

These rules are intended to be brief to give a guide to newcomers. They are not definitive or exhaustive. Feel free to play to what you (or your friends) consider to be the correct rules. Alternatively play the [World Standardised Rules](#).

## Billiard Congress of America “World Standardised Rules”

The rules below are reproduced with permission from the Billiard Congress of America (BCA). These rules are current as of 5 June 1997. For recent changes to these rules, and for further information, contact the BCA at:

<http://www.bca-pool.com/rules>

email: [bca@netins.net](mailto:bca@netins.net)

### World Standardized Rules

Cue Sports have exploded worldwide! Organizing the expansion in the numbers of people playing, and standardizing the formats and rules being used for the greater amount of competitions have become a necessary and responsible challenge.

The World Confederation of Billiard Sports delivered the first-ever official application for recognition of cue sports to the International Olympic Committee in Lausanne, Switzerland, in September, 1992. Since that time the Billiard Congress of America (representing the various federations of North America) has worked in cooperation with the other confederations of WPA - the European Pocket Billiard Federation (representing 24 national federations), the Asian Pocket Billiard Union (representing 7 national federations), and the Australasian Pool Association (representing 2 national federations) to produce the first-ever world standardized rules for the major tournament games:

Eight Ball

Nine Ball

14.1 Continuous

In order to promote the standardized rules throughout the various countries and languages, a moratorium on future rules changes is necessary. With the consistency in rules now stabilized in the three most prevalent "competition" games in the sport, the BCA in cooperation with the mandates of the World Pool-Billiard Association has agreed on a moratorium on changes to the rules for a period of 5 years - through the end of 1998.

The WPA Board and the annually held WPA General Assembly will consider amendments to the rules, but only in proposals strengthening the textual interpretation of a rule so it is better understood - not a change in the spirit of the rule itself.

The Billiard Congress of America is proud to make these rules available on the Internet. You will find that the interest of the sport is best served both recreationally and competitively when you play by the official rules.

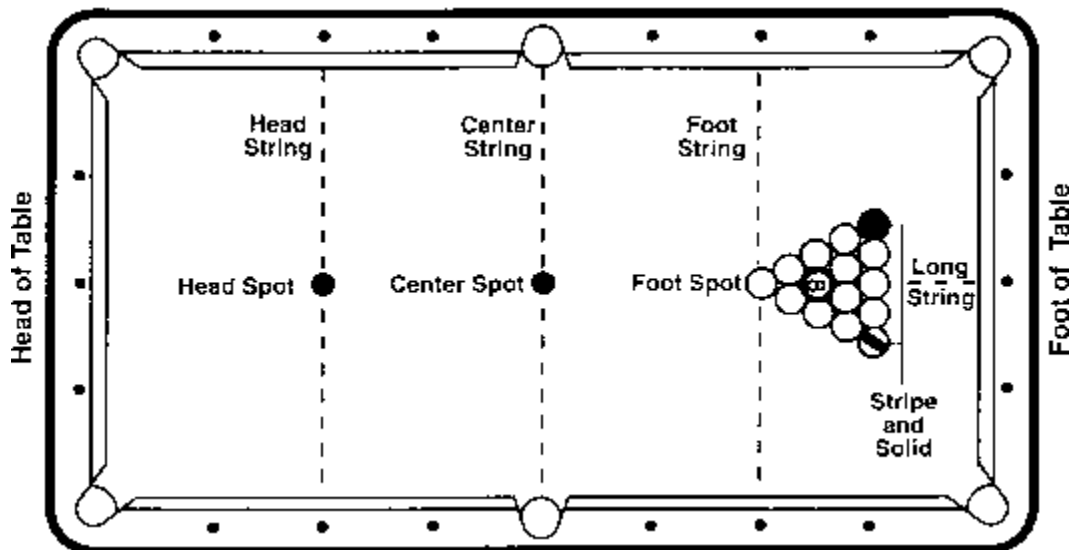
John Lewis  
BCA League and Program Director  
WPA Secretary

## Rules of 8-BALL

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Except when clearly contradicted by these additional rules, the General Rules of Pocket Billiards apply.

1. OBJECT OF THE GAME. Eight Ball is a call shot game played with a cue ball and fifteen object balls, numbered 1 through 15. One player must pocket balls of the group numbered 1 through 7 (solid colors), while the other player has 9 thru 15 (stripes). THE PLAYER POCKETING HIS GROUP FIRST AND THEN LEGALLY POCKETING THE 8-BALL WINS THE GAME.



2. CALL SHOT. In Call Shot, obvious balls and pockets do not have to be indicated. It is the opponent's right to ask which ball and pocket if he is unsure of the shot. Bank shots and combination shots are not considered obvious, and care should be taken in calling both the object ball and the intended pocket. When calling the shot, it is NEVER necessary to indicate details such as the number of cushions, banks, kisses, caroms, etc. Any balls pocketed on a foul remain pocketed, regardless of whether they belong to the shooter or the opponent.

The opening break is not a "called shot." Any player performing a break shot in 8-Ball may continue to shoot his next shot so long as he has legally pocketed any object ball on the break.

3. RACKING THE BALLS. The balls are racked in a triangle at the foot of the table with the 8-ball in the center of the triangle, the first ball of the rack on the footspot, a stripe ball in one

corner of the rack and a solid ball in the other corner.

4. ALTERNATING BREAK. Winner of the lag has the option to break. During individual competition, players will alternate breaking on each subsequent game.

5. JUMP AND MASSE SHOT FOUL. While "cue ball fouls only" is the rule of play when a match is not presided over by a referee, a player should be aware that it will be considered a cue ball foul if during an attempt to jump, curve or masse the cue ball over or around an impeding numbered ball that is not a legal object ball, the impeding ball moves (regardless of whether it was moved by a hand, cue stick follow-through or bridge).

6. LEGAL BREAK SHOT. (Defined) To execute a legal break, the breaker (with the cue ball behind the headstring) must either (1) pocket a ball, or (2) drive at least four numbered balls to the rail. If he fails to make a legal break, it is a foul, and the incoming player has the option of (1) accepting the table in position and shooting, or (2) having the balls racked and having the option of shooting the opening break himself or allowing the offending player to rebreak.

7. SCRATCH ON A LEGAL BREAK. If a player scratches on a legal break shot, (1) all balls pocketed remain pocketed (exception, the 8-ball: see rule 9), (2) it is a foul, (3) the table is open. PLEASE NOTE: Incoming player has cue ball in hand behind the head string and may not shoot an object ball that is behind the head string, unless he first shoots the cue ball past the headstring and causes the cue ball to come back behind the headstring and hit the object ball.

8. OBJECT BALLS JUMPED OFF THE TABLE ON THE BREAK. If a player jumps an object ball off the table on the break shot, it is a foul and the incoming player has the option of (1) accepting the table in position and shooting, or (2) taking cue ball in hand behind the head string and shooting.

9. 8-BALL POCKETED ON THE BREAK. If the 8-ball is pocketed on the break, the breaker may ask for a re-rack or have the 8-ball spotted and continue shooting. If the breaker scratches while pocketing the 8-ball on the break, the incoming player has the option of a re-rack or having the 8-ball spotted and begin shooting with ball in hand behind the headstring.

10. OPEN TABLE. (Defined) The table is "open" when the choice of groups (stripes or solids) has not yet been determined. When the table is open, it is legal to hit a solid first to make a stripe or vice-versa. Note: The table is always open immediately after the break shot. When the table is open it is legal to hit any solid or stripe or the 8-ball first in the process of pocketing the called stripe or solid. However, when the table is open and the 8-ball is the first ball contacted, no stripe or solid may be scored in favor of the shooter. The shooter loses his turn; any balls pocketed remain pocketed; and the incoming player addresses the balls with the table still open. On an open table, all illegally pocketed balls remain pocketed.

11. CHOICE OF GROUP. The choice of stripes or solids is not determined on the break even if



balls are made from only one or both groups. THE TABLE IS ALWAYS OPEN IMMEDIATELY AFTER THE BREAK SHOT. The choice of group is determined only when a player legally pockets a called object ball after the break shot.

12. LEGAL SHOT. (Defined) On all shots (except on the break and when the table is open), the shooter must hit one of his group of balls first and (1) pocket a numbered ball, or (2) cause the cue ball or any numbered ball to contact a rail.

PLEASE NOTE: It is permissible for the shooter to bank the cue ball off a rail before contacting his object ball; however, after contact with his object ball, an object ball must be pocketed, OR the cue ball or any numbered ball must contact a rail. Failure to meet these requirements is a foul.

13. "SAFETY" SHOT. For tactical reasons a player may choose to pocket an obvious object ball and also discontinue his turn at the table by declaring "safety" in advance. A safety shot is defined as a legal shot. If the shooting player intends to play safe by pocketing an obvious object ball, then prior to the shot, he must declare a "safety" to his opponent. If this is NOT done, and one of the shooter's object balls is pocketed, the shooter will be required to shoot again. Any ball pocketed on a safety shot remains pocketed.

14. SCORING. A player is entitled to continue shooting until he fails to legally pocket a ball of his group. After a player has legally pocketed all of his group of balls, he shoots to pocket the 8-ball.

15. FOUL PENALTY. Opposing player gets cue ball in hand. This means that the player can place the cue ball anywhere on the table (does not have to be behind the headstring except on opening break). This rule prevents a player from making intentional fouls which would put his opponent at a disadvantage. With "cue ball in hand," the player may use his hand or any part of his cue (including the tip) to position the cue ball. When placing the cue ball in position, any forward stroke motion contacting the cue ball will be a foul, if not a legal shot. (Also see Rule 39 in the General Rules of Pocket Billiards)

16. COMBINATION SHOTS. combination shots are allowed; however, the 8-ball cannot be used as a first ball in the combination except when the table is open.

17. ILLEGALLY POCKETED BALLS. An object ball is considered to be illegally pocketed when (1) that object ball is pocketed on the same shot a foul is committed, or (2) the called ball did not go in the designated pocket, or (3) a safety is called prior to the shot. Illegally pocketed balls remain pocketed.

18. OBJECT BALLS JUMPED OFF THE TABLE. If any object ball is jumped off the table, it is a foul and loss of turn, unless it is the 8-ball, which is a loss of game. Any jumped object balls are spotted in numerical order according to General Rules for spotting balls.

19. PLAYING THE 8-BALL. When shooting at the 8-ball, a scratch or foul is not loss of game if the 8-ball is not pocketed or jumped from the table. Incoming player has cue ball in hand. Note: A combination shot can never be used to legally pocket the 8-ball.

20. LOSS OF GAME. A player loses the game if he commits any of the following infractions:

- a. Fouls when pocketing the 8-ball (exception: see 8-Ball Pocketed On The Break).
- b. Pockets the 8-ball on the same stroke as the last of his group of balls.
- c. Jumps the 8-ball off the table at any time.
- d. Pockets the 8-ball in a pocket other than the one designated.
- e. Pockets the 8-ball when it is not the legal object ball.

Note: All infractions must be called before another shot is taken, or else it will be deemed that no infraction occurred.

21. STALEMATED GAME. If, after 3 consecutive turns at the table by each player (6 turns total), the referee judges (or if no referee, both players agree) that attempting to pocket or move an object ball will result in loss of game, the balls will be racked with the original breaker of the stalemated game breaking again. The stalemate rule may only be used when there are only two object balls and the 8-ball remaining on the table. PLEASE NOTE: Three consecutive fouls by one player is not a loss of game.

## 14.1 Continuous

DISCLAIMER: This file contains property copyrighted by the Billiard Congress of America. Any modification or sale of the information herein is strictly prohibited by the laws governing that copyright. Please direct questions regarding interpretation of the following, or information on how to receive the current BCA "Billiards - The Official Rules and Records book" to the Billiard Congress of America at 910 23rd Avenue, Coralville, IA 52241. Phone: 319-351-2112, Fax: 319-351-7767.

Except when clearly contradicted by these additional rules, the General Rules of Pocket Billiards apply.

1.1. OBJECT OF THE GAME. 14.1 is a nomination game. The player must nominate a ball and a pocket. The player is awarded one point for every correctly nominated and pocketed ball on a legal stroke, and is allowed to continue his turn until he either fails to pocket a nominated ball or commits a foul. The player can pocket the first 14 balls, but before he can continue his turn by shooting at the 15th (and last remaining) ball on the table, the 14 pocketed balls are racked as before, except with the apex space vacant. The player then attempts to pocket the 15th ball in a manner so that the racked balls are disturbed and he can continue his run.

The player who scores the pre-determined point total for a game (usually 150 in major tournament play or any agreed upon total in casual play) prior to his opponent, wins the game.

2. PLAYERS. 2, or 2 teams.

3. BALLS USED. Standard set of object balls numbered 1-15, plus cue ball.

4. THE RACK. Standard triangle rack with the apex ball on the foot spot, 1-ball on the racker's right corner, 5-ball on left corner. Other balls are placed at random and must touch their neighbors.

5. SCORING. Any ball legally pocketed counts one point for the shooter.

6. OPENING BREAK. Starting player must either (1) designate a ball and a pocket into which that ball will be pocketed and accomplish the shot, or (2) cause the cue ball to contact a ball and then a cushion, plus cause two object balls to contact a cushion. Failure to meet at least one of the above requirements is a breaking violation. Offender's score is assessed a two point penalty for each breaking violation. In addition, the opponent has the choice of (1) accepting the table in position, or (2) having the balls reracked and requiring the offending player to repeat the opening break. That choice continues until the opening break is not a breaking violation, or until the opponent accepts the table in position. The three successive fouls rule does not apply to breaking violations.

If the starting player scratches on a legal opening break, he is charged with a foul and assessed

a one point penalty, which applies toward the "Successive Fouls Penalties." The incoming player is awarded cue ball in hand behind the head string, with object balls in position.

## 7. RULES OF PLAY.

1. A legally pocketed ball entitles a shooter to continue at the table until he fails to legally pocket a called ball on a shot. A player may shoot any ball he chooses, but before he shoots, must designate the called ball and called pocket. He need not indicate any detail such as kisses, caroms, combinations, or cushions (all of which are legal). any additionally pocketed ball(s) on a legal stroke is scored as one point for the shooter.
2. On all shots, a player must cause the cue ball to contact an object ball and then (1) pocket a numbered ball, or (2) cause the cue ball or any numbered ball to contact a cushion. Failure to meet these requirements is a foul.

When an object ball is not frozen to a cushion, but is within a ball's width of a cushion (referee to determine by measurement if necessary), a player is permitted only two consecutive legal safeties on that ball using only the near rail. If such safety play is employed, that object ball is then considered frozen to the rail on the player's next inning. The General Rules of Pocket Billiards "Frozen Balls" requirements apply if the player chooses to make his first cue ball contact with that object ball on his third shot.

(Note: If a player has committed a foul on the shot immediately before or the shot immediately after playing this ball, then he must immediately meet the requirements of the "Frozen Ball" rule when playing this object ball. Also, if he has committed two consecutive fouls, he must immediately meet the requirements of the "Frozen Ball" rule when playing this object ball. If such player fails to meet the requirements of the "Frozen Ball" rule, he is considered to have committed a third successive foul and the appropriate point penalty is assessed as well as one point for each of the previous fouls. All fifteen balls are then reracked and the player committing the infraction is required to break as at the beginning of the game.)

3. When the fourteenth ball of a rack is pocketed, play stops momentarily with the fifteenth ball remaining in position on the table; the fourteen pocketed balls are then racked (with the space at the foot spot vacant in the triangle). Player then continues, normally pocketing the fifteenth (or "break" ball) in such manner as to have the cue ball carom into the rack and spread the balls to facilitate the continuance of his run. However, player is not compelled to shoot the fifteenth ball; he may shoot any ball he desires.
4. A player may call a safety rather than an object ball (for defensive purposes). Safety play is legal, but must comply with all applicable rules. Player's inning ends when a safety is played, and pocketed balls are not scored. Any object ball pocketed on a called safety is spotted.
5. A player may not catch, touch, or in any way interfere with a ball as it travels toward a pocket or the rack area on a shot (to include catching a ball as it enters a pocket by having a hand in the pocket). If he does, he is charged with a special "deliberate foul" and is penalized one point for the foul and an additional fifteen point penalty, for a total of sixteen points. The incoming player then has choice of (1) accepting the table in position with the cue ball in hand behind the head string, or (2) having all fifteen balls reracked and requiring the offending player to shoot under the requirements of the opening break.
6. If the fifteenth (unpocketed) ball of a rack and/or the cue ball interferes with the triangle

being lowered straight down into position for racking, refer to the diagram , which indicates the proper manner of relocating balls. (The lined out boxes are those situations in which there is no interference, both balls remain in position.)

7. When a player has the cue ball in hand behind the head string (as after a scratch) and all object balls are behind the head string, the object ball nearest the head string may be spotted at his request. If two or more balls are an equal distance from the head string, the player may designate which of the equidistant balls he desires to have spotted.

14.1 - What to do if:

<b>15th Ball Lies \ Cue Ball Lies</b>	<b>IN THE RACK</b>	<b>NOT IN THE RACK AND NOT ON HEAD SPOT*</b>	<b>ON HEAD SPOT*</b>
<b>IN THE RACK</b>	15th Ball: foot spot Cue Ball: in kitchen	15th Ball: head spot Cue Ball: in position	15th Ball: center spot Cue Ball: in position
<b>POCKETED</b>	15th Ball: foot spot Cue Ball: in kitchen	15th Ball: foot spot Cue Ball: in position	15th Ball: foot spot Cue Ball: in position
<b>BEHIND HEAD STRING, BUT NOT ON HEAD SPOT</b>	15th Ball: in position Cue Ball: head spot		
<b>NOT BEHIND HEAD STRING AND NOT IN THE RACK</b>	15th Ball: in position Cue Ball: in kitchen		
<b>ON HEAD SPOT*</b>	15th Ball: in position Cue Ball: center spot		*On spot means to interfere with spotting a ball on the head spot

8. ILLEGALLY POCKETED BALLS. All spotted. No penalty.

9. OBJECT BALLS JUMPED OFF THE TABLE. The stroke is a foul. Any jumped ball(s) is spotted after the balls come to rest.

10. CUE BALL AFTER JUMPING OFF THE TABLE OR SCRATCH. Incoming player has cue ball in hand behind the head string, unless the provision of Rule of Play 7.2., 7.5. or 12." (below) apply to the offender's foul and dictate alternate choices or procedures.

11. PENALTIES FOR FOULS. One point deducted for each foul; NOTE: more severe penalties for deliberate fouls (Rule of Play 7.5.) and third "Successive Fouls" (12. below). Incoming player accepts cue ball in position unless foul was a jumped cue ball, pocket scratch, deliberate foul (Rule of Play 7.5.) or third successive foul.

12. SUCCESSIVE FOUL PENALTIES. When a player commits a foul, he is penalized one point (or more as appropriate) and a notation is made and posted by the scorer that he is "on a foul."

The player remains "on a foul" until his next shot attempt, at which time he may remove the foul by successfully pocketing a called ball, or completing a legal safety. If he fails to meet these requirements on his next turn at the table, he is penalized one point. The notation is changed to "on two fouls." If he fails to meet the requirements of successfully pocketing a called ball or completing a legal safety on his third consecutive turn at the table, a penalty of fifteen points is assessed.

The commission of a third successive foul automatically clears the offender's record of fouls.

All balls are then reracked and the player committing the infraction is required to break as at the beginning of the game. Rules for the opening break apply.

It should be emphasized that successive fouls must be committed in successive turns (or playing attempts), not merely in successive innings. For example, if a player ends inning 6 with a foul, steps to the table for inning 7 and fouls (he is "on two fouls"), and then starts inning 8 with a legally pocketed ball before scratching on his second shot attempt of the inning, he has not committed three successive fouls, even though there were fouls in three successive innings. As soon as he legally pocketed the ball to start inning 8, he cleared the two fouls. he is, of course, "on one foul" when he plays the first stroke attempt of inning 9.

13. SCORING NOTE. The deduction of penalty points can result in negative scores. A running score can read "minus one," "minus two," "minus fifteen," etc. (a player can win a game with a score of 150 while his opponent has scored but two fouls. The final score would read 150 to -2.)

If a player fouls on a shot that has not pocketed a ball, the point penalty is deducted from his score at the end of the previous inning. If a player fouls and pockets a ball on the same shot, that ball is spotted (not scored) and the point penalty is deducted from his score at the end of the previous inning.

# General Rules of Pocket Billiards

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These general rules apply to all pocket billiard games, UNLESS specifically noted to the contrary in the individual game rules.

1. TABLES, BALLS, EQUIPMENT. All games described in these rules are designed for tables, balls and equipment meeting the standards prescribed in the BCA Equipment Specifications .

2. RACKING THE BALLS. When racking the balls a triangle must be used, and the apex ball is to be spotted on the foot spot. All the balls must be lined up behind the apex ball and pressed together so that they all have contact with each other.

3. STRIKING CUE BALL. Legal shots require that the cue ball be struck only with the cue tip. Failure to meet this requirement is a foul.

4. FAILURE TO POCKET A BALL. If a player fails to pocket a ball on a legal shot, then the player's inning is over, and it is the opponent's turn at the table.

5. LAG FOR BREAK. The following procedure is used for the lag for the opening break. Each player should use balls of equal size and weight (preferably cue balls but, when not available, non-striped object balls). With the balls in hand behind the head string, one player to the left and one to the right of the head spot, the balls are shot simultaneously to the foot cushion and back to the head end of the table. The player whose ball is the closest to the innermost edge of the head cushion wins the lag. The lagged ball must contact the foot cushion at least once. Other cushion contacts are immaterial, except as prohibited below.

It is an automatic loss of the lag if: (1) the ball crosses into the opponent's half of the table, (2) the ball fails to contact the foot cushion, (3) the ball drops into a pocket, (4) the ball jumps the table, (5) the ball touches the long cushion, (6) the ball rests within the corner pocket and past the nose of the head cushion, or (7) the ball contacts the foot rail more than once. If both players violate automatic-loss lag rules, or if the referee is unable to determine which ball is closer, the lag is a tie and is replayed.

6. OPENING BREAK SHOT. The opening break shot is determined by either lag or lot. (The lag for break procedure is required for tournament and other formal competition.) The player winning the lag or lot has the choice of performing the opening break shot or assigning it to the opponent.

7. CUE BALL ON OPENING BREAK. The opening break shot is taken with cue ball in hand behind the head string. The object balls are positioned according to specific game rules. On the opening break, the game is considered to have commenced once the cue ball has been struck by the cue tip and crosses the head string.

8. DEFLECTING THE CUE BALL ON THE GAMES OPENING BREAK. On the break shot, stopping or deflecting the cue ball after it has crossed the head string and prior to hitting the racked balls is considered a foul and loss of turn. The opponent has the option of receiving cue ball in hand behind the head string or passing the cue ball in hand behind the head string back to the offending player. (Exception: ball in hand on the whole table: see rule 1.3 for 9-Ball). A warning must be given that a second violation during the match will result in the loss of the match by forfeiture. (See Rule 28.)

9. CUE BALL IN HAND BEHIND THE HEAD STRING. This situation applies in specific games whereby the opening break is administered or a player's scratching is penalized by the incoming player having cue ball in hand behind the head string. The incoming player may place the cue ball anywhere behind the head string.

The shooting player may shoot at any object ball as long as the base of the object ball is on or below the head string. He may not shoot at any ball, the base of which is above the head string, unless he first shoots the cue ball below the head string and then by hitting a rail causes the cue ball to come back above the head string and hit the object ball. The base of the ball (the point of the ball touching the table) determines whether it is above or below the head string.

If the incoming player inadvertently places the cue ball on or below the head string, the referee or the opposing player must inform the shooting player of improper positioning of the cue ball before the shot is made. If the opposing player does not so inform the shooting player before the shot is made, the shot is considered legal. If the shooting player is informed of improper positioning, he must then reposition the cue ball. If a player positions the cue ball completely and obviously outside the kitchen and shoots the cue ball, it is a foul, if called by the opponent or referee.

When the cue ball is in hand behind the head string, it remains in hand (not in play) until the player drives the cue ball past the head string by striking it with his cue tip.

The cue ball may be ADJUSTED by the player's hand, cue, etc., so long as it remains in hand. Once the cue ball is in play per the above, it may not be impeded in any way by the player; to do so is to commit a foul.

10. POCKETED BALLS. A ball is considered as a pocketed ball if as a result of an otherwise legal shot, it drops off the bed of the table into the pocket and remains there. (A ball that drops out of a ball return system onto the floor is not to be construed as a ball that has not remained pocketed.) A ball that rebounds from a pocket back onto the table bed is not a pocketed ball.



11. POSITION OF BALLS. The position of a ball is judged by where its base (or center) rests.

12. FOOT ON FLOOR. It is a foul if a player shoots when at least one foot is not in contact with the floor. Foot attire must be normal in regard to size, shape and manner in which it is worn.

13. SHOOTING WITH BALLS IN MOTION. It is a foul if a player shoots while the cue ball or any object ball is in motion (a spinning ball is in motion).

14. COMPLETION OF STROKE. A stroke is not complete (and therefore is not counted) until all balls on the table have become motionless after the stroke (a spinning ball is in motion).

15. HEAD STRING DEFINED. The area behind the head string does not include the head string. Thus an object ball that is dead center on the head string is playable when specific game rules require that a player must shoot at a ball past the head string. Likewise, the cue ball when being put in play behind the head string (cue ball in hand behind the head string), may not be placed directly on the head string; it must be behind it.

16. GENERAL RULE, ALL FOULS. Though the penalties for fouls differ from game to game, the following apply to all fouls: (1) player's inning ends; (2) if on a stroke, the stroke is invalid and any pocketed balls are not counted to the shooter's credit; and (3) any ball(s) is respotted only if the rules of the specific game require it.

17. FAILURE TO CONTACT OBJECT BALL. It is a foul if on a stroke the cue ball fails to make contact with any legal object ball first. Playing away from a touching ball does not constitute having hit that ball.

18. LEGAL SHOT. Unless otherwise stated in a specific game rule, a player must cause the cue ball to contact a legal object ball and then (1) pocket a numbered ball, or (2) cause the cue ball or any numbered ball to contact a cushion. Failure to meet these requirements is a foul.

19. CUE BALL SCRATCH. It is a foul (scratch) if on a stroke, the cue ball is pocketed. If the cue ball touches an object ball that was already pocketed (for example, in a pocket full of object balls), the shot is a foul.

20. FOULS BY TOUCHING BALLS. It is a foul to strike, touch or in any way make contact with the cue ball in play or any object balls in play with anything (the body, clothing, chalk, mechanical bridge, cue shaft, etc.) EXCEPT the cue tip (while attached to the cue shaft), which may contact the cue ball in the execution of a legal shot. Whenever a referee is presiding over a match, any object ball moved during a standard foul must be returned as closely as possible to its original position as judged by the referee, and the incoming player does not have the option of restoration.

21. FOUL BY PLACEMENT. Touching any object ball with the cue ball while it is in hand is a foul.

22. FOULS BY DOUBLE HITS. If the cue ball is touching the required object ball prior to the shot, the player may shoot towards it, providing that any normal stroke is employed. If the cue stick strikes the cue ball more than once on a shot, or if the cue stick is in contact with the cue ball when or after the cue ball contacts an object ball, the shot is foul. If a third ball is close by, care should be taken not to foul that ball under the first part of this rule.

23. PUSH SHOT FOULS. It is a foul if the cue ball is pushed by the cue tip, with contact being maintained for more than the momentary time commensurate with a stroked shot. (Such shots are usually referred to as push shots.)

24. PLAYER RESPONSIBILITY FOULS. The player is responsible for chalk, bridges, files and any other items or equipment he brings to, uses at, or causes to approximate the table. If he drops a piece of chalk, or knocks off a mechanical bridge head, as examples, he is guilty of a foul should such an object make contact with any ball in play (or the cue ball only if no referee is presiding over the match).

25. ILLEGAL JUMPING OF BALL. It is a foul if a player strikes the cue ball below center ("digs under" it) and intentionally causes it to rise off the bed of the table in an effort to clear an obstructing ball. such jumping action may occasionally occur accidentally, and such "jumps" are not to be considered fouls on their face; they may still be ruled foul strokes, if for example, the ferrule or cue shaft makes contact with the cue ball in the course of the shot.

26. JUMP SHOTS. Unless otherwise stated in rules for a specific game it is legal to cause the cue ball to rise off the bed of the table by elevating the cue stick on the shot, and forcing the cue ball to rebound from the bed of the table. Any miscue when executing a jump shot is a foul.

27. BALLS JUMPED OFF TABLE. Balls coming to rest other than on the bed of the table after a stroke (on the cushion top, rail surface, floor, etc.) are considered jumped balls. Balls may bounce on the cushion tops and rails of the table in play without being jumped balls if they return to the bed of the table

under their own power and without touching anything not a part of the table. The table shall consist of the permanent part of the table proper. (Balls that strike or touch anything not a part of the table, such as the light fixture, chalk on the rails and cushion tops, etc., shall be considered jumped balls even though they might return to the bed of the table after contacting items which are not parts of the table proper).

In all pocket billiard games when a stroke results in the cue ball or any object ball being a jumped ball off the table, the stroke is a foul. All jumped object balls are spotted (except in Nine Ball) when all balls have stopped moving. See specific game rules for putting the cue ball in play

after a jumped cue ball foul.

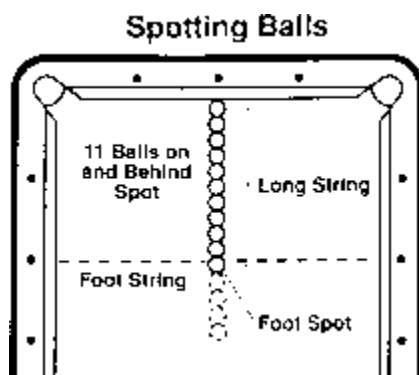
28. **SPECIAL INTENTIONAL FOUL PENALTY.** The cue ball in play shall not be intentionally struck with anything other than a cue's attached tip (such as the ferrule, shaft, etc.). While such contact is automatically a foul under the provisions of Rule 19., if the referee deems the contact to be intentional, he shall warn the player once during a match that a second violation during that match will result in the loss of the match by forfeiture. If a second violation does occur, the match must be forfeited.

29. **ONE FOUL LIMIT.** Unless specific game rules dictate otherwise, only one foul is assessed on a player in each inning; if different penalties can apply, the most severe penalty is the factor determining which foul is assessed.

30. **BALLS MOVING SPONTANEOUSLY.** If a ball shifts, settles, turns or otherwise moves "by itself," the ball shall remain in the position it assumed and play continues. A hanging ball that falls into a pocket "by itself" after being motionless for 5 seconds or longer shall be replaced as closely as possible to its position prior to falling, and play shall continue.

If an object ball drops into a pocket "by itself" as a player shoots at it, so that the cue ball passes over the spot the ball had been on, unable to hit it, the cue ball and object ball are to be replaced to their positions prior to the stroke, and the player may shoot again. Any other object balls disturbed on the stroke are also to be replaced to their original positions before the shooter replays.

31. **SPOTTING BALLS.** When specific game rules call for spotting balls, they shall be replaced on the table on the long string after the stroke is complete. A single ball is placed on the foot spot; if more than one ball is to be spotted, they are placed on the long string in ascending numerical order, beginning on the foot spot and advancing toward the foot rail.



When balls on or near the foot spot or long string interfere with the spotting of balls, the balls to be spotted are placed on the long string as close as possible to the foot spot without moving the interfering balls. Spotted balls are to be placed as close as possible or frozen (at the referee's discretion) to such interfering balls, except when the cue ball is interfering; balls to be spotted

against the cue ball are placed as close as possible without being frozen.

If there is insufficient room on the long string between the foot spot and the foot rail cushion for balls that must be spotted, such balls are then placed on the extension of the long string "in front" of the foot spot (between the foot spot and the center spot), as near as possible to the foot spot and in the same numerical order as if they were spotted "behind" the foot spot (lowest numbered ball closest to the foot spot).

32. JAWED BALLS. If two or more balls are locked between the jaws or sides of the pocket, with one or more suspended in air, the referee shall inspect the balls in position and follow this procedure: he shall visually (or physically if he desires) project each ball directly downward from its locked position; any ball that in his judgement would fall in the pocket if so moved directly downward is a pocketed ball, while any ball that would come to rest on the bed of the table is not pocketed. The balls are then placed according to the referee's assessment, and play continues according to specific game rules as if no locking or jawing of balls had occurred.

33. ADDITIONAL POCKETED BALLS. If extra balls are pocketed on a legal scoring stroke, they are counted in accord with the scoring rules for the particular game.

34. NON-PLAYER INTERFERENCE. If the balls are moved (or a player bumped such that play is directly affected) by a non-player during the match, the balls shall be replaced as near as possible to their original positions immediately prior to the incident, and play shall resume with no penalty on the player affected. If the match is officiated, the referee shall replace the balls. This rule shall also apply to "act of God" interference, such as earthquake, hurricane, light fixture falling, power failure, etc. If the balls cannot be restored to their original positions, replay the game with the original player breaking. This rule is not applicable to 14.1 Continuous where the game consists of successive racks: the rack in progress will be discontinued and a completely new rack will be started with the requirements of the normal opening break (players lag for break). Scoring of points is to be resumed at the score as it stood at the moment of game disruption.

35. BREAKING SUBSEQUENT RACKS. In a match that consists of short rack games, the winner of each game breaks in the next. The following are common options that may be designated by tournament officials in advance: (1) Players alternate break. (2) Loser breaks. (3) Player trailing in games score breaks the next game.

36. PLAY BY INNINGS. During the course of play, players alternate turns (innings) at the table, with a player's inning ending when he either fails to legally pocket a ball, or fouls.

When an inning ends free of a foul, the incoming player accepts the table in position.

37. OBJECT BALL FROZEN TO CUSHION OR CUE BALL. This rule applies to any shot where the cue ball's first contact with a ball is with one that is frozen to a cushion or to the cue ball

itself. after the cue ball makes contact with the frozen object ball, the shot must result in either (1) a ball being pocketed, or (2) the cue ball contacting a cushion, or (3) the frozen ball being caused to contact a cushion (not merely rebounding from the cushion it was frozen to), or (4) another object ball being caused to contact a cushion to which it was not already in contact with. Failure to satisfy one of those four requirements is a foul. (Note: 14.1 and other games specify additional requirements and applications of this rule; see specific game rules.)

An object ball is not considered frozen to a rail unless it is examined and announced as such by either the referee or one of the players prior to that object ball being involved in a shot.

38. PLAYING FROM BEHIND THE STRING. When a player has the cue ball in hand behind the string (in the kitchen), he must drive the cue ball to a point outside the kitchen before it contacts either a cushion or an object ball. Failure to do so is a foul if a referee is presiding over a match. If no referee, the opponent has the option to call it either a foul or to require the offending player to replay the shot again with the balls restored to their positions prior to the shot (and with no foul penalty imposed).

Exception: if an object ball lies on or outside the head string (and is thus playable) but so close that the cue ball contacts it before the cue ball is out of the kitchen, the ball can be legally played.

If, with cue ball in hand behind the headstring and while the shooter is attempting a legitimate shot, the cue ball accidentally hits a ball behind the head string, and the cue ball crosses the line, it is a foul. If with cue ball in hand behind the head string, the shooter causes the cue ball to accidentally hit an object ball, and the cue ball does not cross the headstring, the following applies: the incoming player has the option of calling a foul and having cue ball in hand, or having the balls returned to their original position, and having the offending player replay the shot.

If a player under the same conditions intentionally causes the cue ball to contact an object ball behind the headstring, it is unsportsmanlike conduct.

39. CUE BALL IN HAND FOUL. During cue ball in hand placement, the player may use his hand or any part of his cue (including the tip) to position the cue ball. When placing the cue ball in position, any forward stroke motion contacting the cue ball will be a foul, if not a legal shot.

40. INTERFERENCE. If the nonshooting player distracts his opponent or interferes with his play, he has fouled. If a player shoots out of turn, or moves any ball except during his inning, it is considered to be interference.

41. DEVICES. Players are not allowed to use a ball, the triangle or any other width-measuring device to see if the cue ball or an object ball would travel through a gap, etc. Only the cue stick may be used as an aid to judge gaps, etc., so long as the cue is held by the hand. To do so

otherwise is a foul and unsportsmanlike conduct.

42. **ILLEGAL MARKING.** If a player intentionally marks the table in any way to assist in executing the shot, whether by wetting the cloth, by placing a cube of chalk on the rail, or by any other means, he has fouled. If the player removes the mark prior to the shot, no penalty is imposed.

