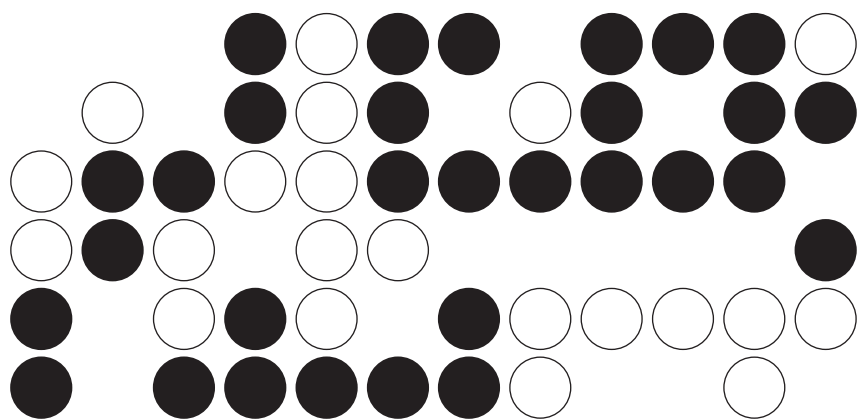
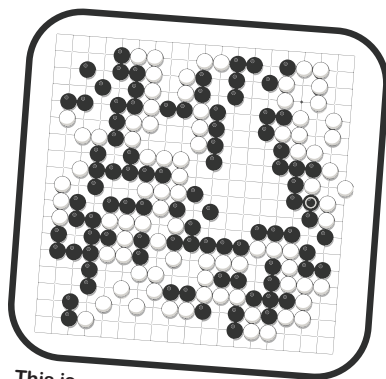


Play the
world's
hardest
game



What is Go?

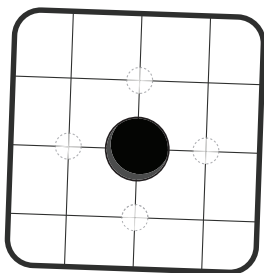
Go is a two player game where each player tries to surround parts of the board with their pieces. The winner will be the person who controls more of the board than the other player!



This is a game of go! A full sized game can seem a little scary, so beginners learn on a smaller board.

It's easy to learn the rules and play with a friend, but it's also the hardest game in the world to master!

How do I play?



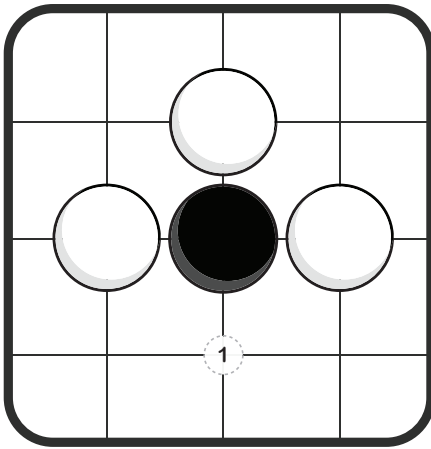
Play on the crosses.
Don't let the enemy surround you!

Black always goes first. Take one of your pieces and place it where the lines of the board cross. You can play wherever lines cross, even the edge of the board.

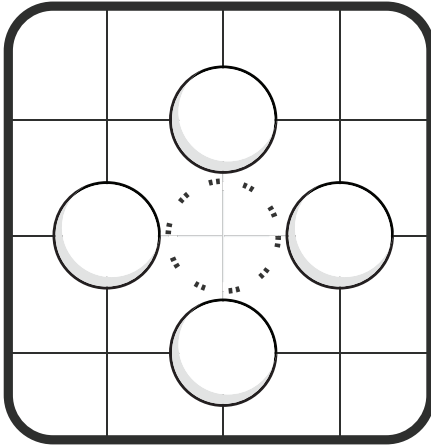
Once you have played a piece, it can't be moved unless the other player captures it. You can play anywhere on the board, so long as the piece wouldn't be captured right away.

Capture? How?

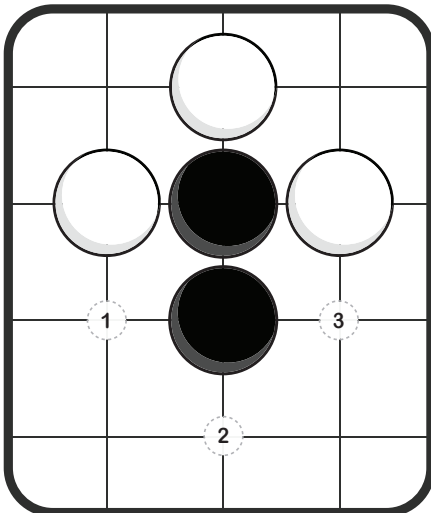
If you surround another player's piece, you capture it! When you do, keep them in a pile next to the board - they count as bonus points at the end!



This black piece is nearly surrounded! It only has one free space next to it.



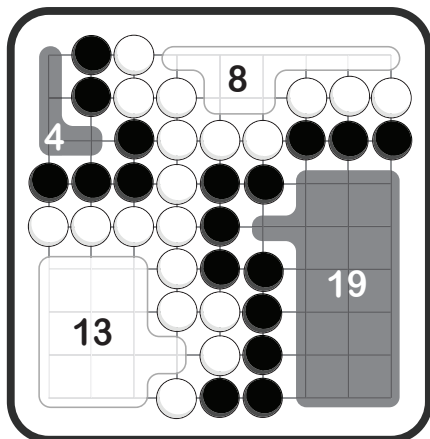
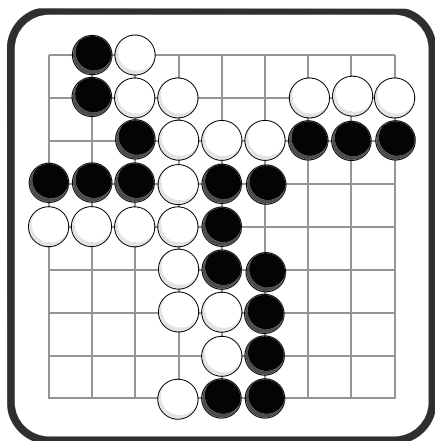
If you let white play in that space, they surround the black piece. It is captured!



Black can try to save the piece before it is captured by ‘attaching’ another friendly piece to it. Now the black group has three empty spaces around it and is safer.

What do I do?

In Go, you are trying to surround areas of the board. If there are no enemy pieces in that area at the end of the game, you count it as your 'territory'. You can make as many territories as you like. The size of each territory is added to your total points.



When does the game end?

If someone quits ('resigns'), they lose. Or, if you can't see any good move, simply 'pass'. If both players pass, the game is finished and they follow these steps to decide the winner:

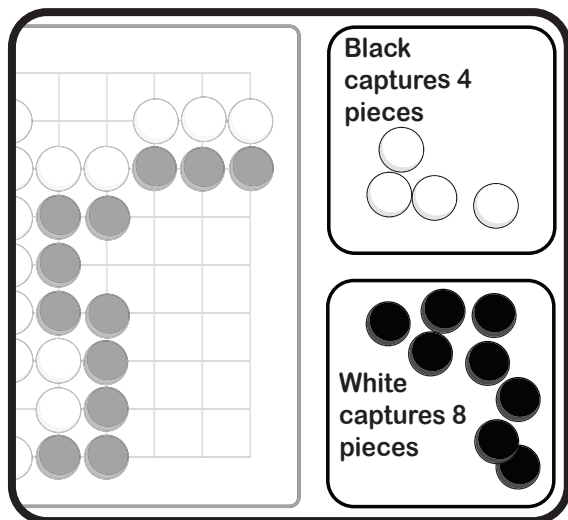
Step 1

This is an example of a finished game. Each player has surrounded areas of the board. These are called 'territories'.

When you count up the empty spaces in each territory, Black has a tiny bit more!

$$\text{White} \quad 8 + 13 = 21$$

$$\text{Black} \quad 4 + 19 = 23$$



Step 2


Now we count the pieces that players have captured. These are bonus points!

 8 points

 4 points

Step 3


White gets extra points to make up for going second. You decide how many before starting a game. 5 is a good amount.

 5 Points for going second.

Add it all together!

 Territory: 23
Captures: 4

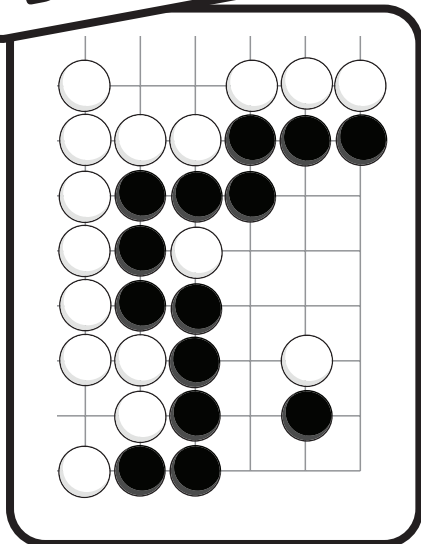
Total **27 Points**

 Territory: 21
Captures: 8
'Second' Bonus: 5

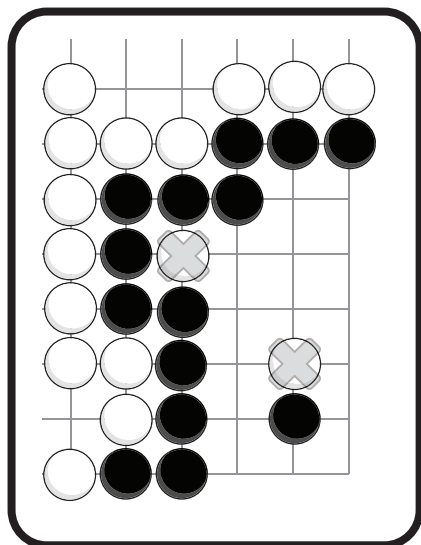
Total **34 Points**

White WINS

'Dead' pieces



At the end of the game there may still be enemy pieces in your territory with no hope of survival. These stones are 'dead'. It feels like a waste of time to capture them.



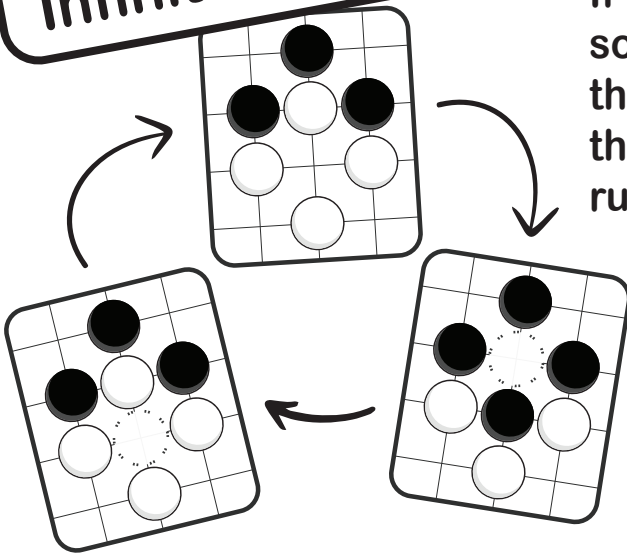
If both players agree that the pieces would eventually be captured, you can simply remove them at the end of the game. They are counted as 'captured' during scoring.



If players don't agree that pieces are 'dead', you should continue playing. Prove that they can be saved!

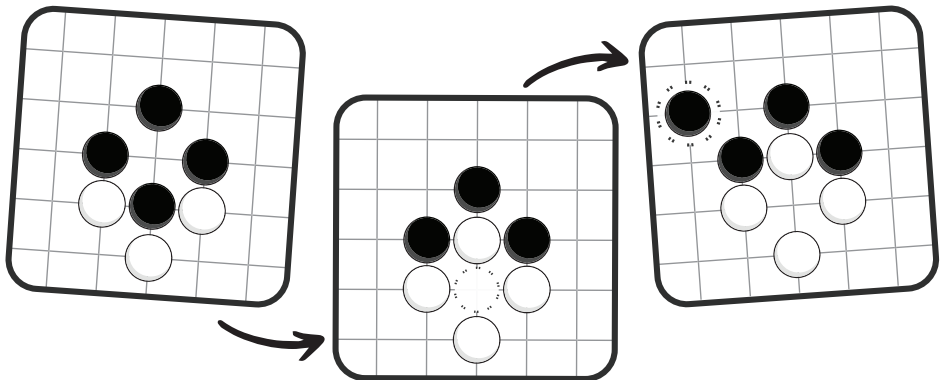
Infinite loops

If you see something like this happening, there is a special rule to stop it.



You are not allowed to play anywhere that would repeat an old board layout.

Instead, you must first play somewhere else. Below is an example. After this, the fight may continue! If white doesn't save their piece, black is now allowed to take it.



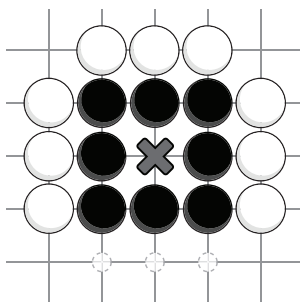
This is called the 'Ko' rule.

Tips and Tricks

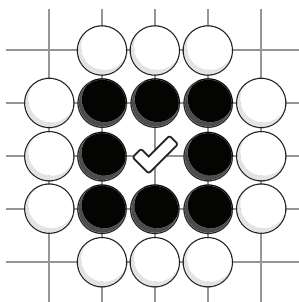
There are lots of ways to win a game of Go, and players have spent thousands of years figuring them out! Here are some basic concepts that will help.

'Eyes'

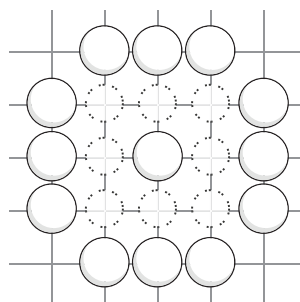
A space inside a group is called an 'eye'. You can capture a group with an eye by surrounding it, then playing in the middle.



Normally, you can't play in a spot where your piece would be captured right away.



However, if it covers the last 'free' space for your opponent's group, you are allowed to play there.

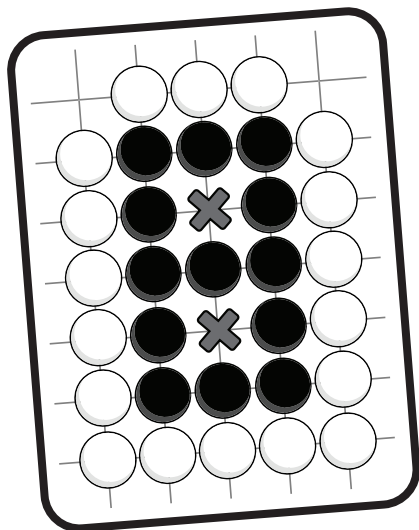


Be careful not to let this happen to you!

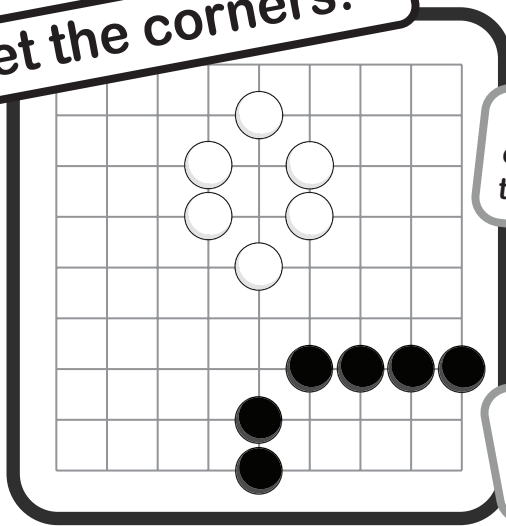
If you make a group with two separate 'eyes', it is

IMMORTAL

as your opponent is not allowed to play in either spot. This means they can't take away that group's last 'free' space. Use this as a last resort when defending!



Get the corners!

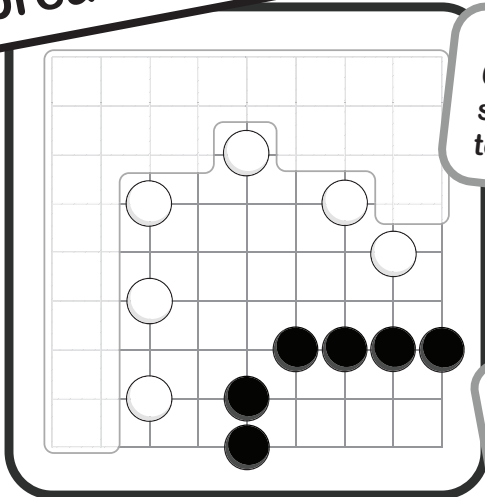


The white player has captured 2 points of territory with 6 moves.

The black player has captured 8 points of territory with 6 moves.

It is easier to build big a big territory in the corner. It is also much easier to defend.

Spread out!



This time, white used those 6 moves to 'sketch out' a space where they want territory in the future.

The black player chose to finish a territory with the 6 moves.

Sketch out where you want territory first. Complete it later. It won't be difficult for white to finish this large territory. Black will struggle to win the rest of this game!

Congratulations!

You have earned the first rank in Go! You are now a 30 kyu player! If you keep playing, you can improve your rank. It's good to have a target while you learn.

Look familiar?

This system was invented for Go hundreds of years ago. Later, it was also used for nearly all Martial Arts grading (especially in Japan). You can be a Dan level Black belt in Karate, for example.

There are lots of places where you can get your rank. For now, you can get a rank by playing at:

online-go.com

**YOU
ARE
HERE**

9 Dan

Dan level players are considered 'expert'. It will take most people many years to reach even 1 Dan.

1 Dan

Reaching 10 kyu is a big milestone. Getting here is difficult, but achievable with effort and persistence.

10 kyu

'Kyu' is what we call the standard ranks in Go. It means 'Class' in Japanese. You start at 30 kyu and work your way up to 1 kyu.

There are lots of learning materials to help you through these ranks.

30 kyu

8
7
6
5
4
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29

Did you know?

Go is the oldest game still played today.

We have evidence that Go is at least 2500 years old, but there are stories suggesting it may be up to 4000 years old. Its rules have barely changed in all that time!

There are around 60 million Go players.

Most Go players are in China, Korea and Japan, where the game is very important. However, there are Go players all over the world!

There are far more ways to play a game of Go than there are atoms in the Universe.

On a standard board, the grid is 19 x 19. Because you can play anywhere on that grid (so long as you aren't captured immediately), there are around 10^{360} different possible variations of a Go game. By comparison, the universe 'only' has around 10^{82} atoms. You can never 'solve' Go - you can always get better. Each game you play is like exploring a different universe!

Atoms in the universe:

[illegible]

Possible ways to play Go:

[illegible]

In some countries, you can leave school at age 8 so you can play more Go.

For China and Korea, Go is so important that children take Go lessons like you would take swimming lessons. Very talented players can leave school as young as 8 to learn Go full time, where they hope to become professional players by their mid teens. Only a handful are able to pass the pro test each year.

Beating Go with Artificial Intelligence was a HUGE deal

For a long time, the mind-boggling complexity of Go meant people thought computers couldn't beat it. Even the fastest computer would take millions of years to check every possible option before it could choose the best one. After AI beat chess in 1997, it took nearly 20 more years before a program called AlphaGo beat Lee Sedol, one of the world's best Go players. It could only do this by developing new ways of 'learning'. This was a critical stepping stone towards the AI that we see today. Many people consider this an achievement similar in scale to the moon landing.

What next?

Ideally, you should pick up a cheap Go set somewhere like Amazon or Temu. However, there are a lot of places you can play and learn right now, for free!



BadukPop is a fantastic app that helps to teach the rules and get you playing games. It was developed to help western players get into Go, and is great for getting started.

GOMAGIC

GoMagic.org has a ton of great interactive courses, along with the 'skill tree' - a tool filled with puzzles to teach different techniques. Has lots of free content, along with paid courses.



There is a lot of free content on **YouTube**, for any stage of learning. Just search for 'Go board game' or sometimes 'Baduk' (its Korean name).



Online-go.com is the most popular place to play Go online in the west. It gives you a rank, and provides opponents. It also has lessons and other tools to help you learn!