



# Conditionals and loops

### Detect and Inspect

These three instructions are useful to decide what or if there is a block near the turtle.

The **detect** command detects if there is an existing block ahead, up or below the turtle. If there is not, the turtle can move. Else, you may use the **dig** command to destroy the block.



The following program will make the turtle move 10 blocks. If there is an obstacle, the turtle will destroy it.



The **rep** command stands for repeat.

Repeat is a block which must be written as following:

```
rep <number> do
  <instructions>
end
```

Inside a repeat loop you can nest other instructions as well.

In the next example the turtle will check 10 times if there is a block ahead; if it is true, it will break the block; in any case it will move 10 blocks forward.

The **if** statement is a conditional. It is checked once. If it is true it will execute whatever inside the command. An if statement must be written as following:

```
if <condition> then
  <instructions>
end
```



The next program is an example of the **inspect** block. While the turtle inspects the block ahead and it is not a block of cobblestone, the turtle moves.

The turtle will stop moving when face a cobblestone block.

The **while** loop is the second iterative control statement.

A while loop must be written as following:

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```
while <condition> do
  <instructions>
end
```

In the **while** loop the instructions inside are executed as long as the condition is true. The moment the condition turns false there will be an exit from the loop.

In a **repeat** loop you must state in advance the number of repetitions. In a while loop this number is unknown as the condition may turn false at any point.

## Build a bridge with the while loop

The following code will make the turtle build a bridge, provided that the turtle moves in the air.



In particular, the turtle detects if there is a block below.

If not, the turtle places a block from the first slot of its inventory.

It is required that there are some block items (stone or dirt etc) in the turtle's inventory.

A fully functional program is the following.



The turtle will keep moving until detects a block.

If below the turtle is nothing, a block will be placed.

This way the turtle will build a bridge while walking in the air.

Of course, if there is nothing ahead the turtle will keep moving forward forever.