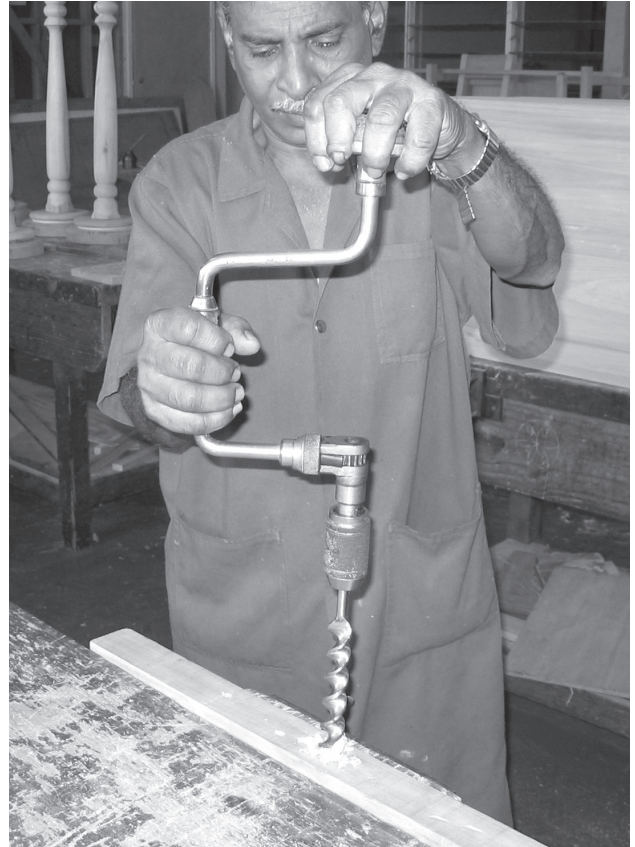


# Brace and bit

This worksheet is about drills that you use to make large holes in timber.



## What you will learn

When you have finished this worksheet, you should be able to:

- Say what a brace and bit is used for.
- Use a brace and bit correctly.

## Things you need before you start

### Materials

You will need some scrap timber to work on.

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### Tools or equipment

A brace drill

Drill bits

Clamp or vice

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### Course resources

Course video. Video player

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# Introduction

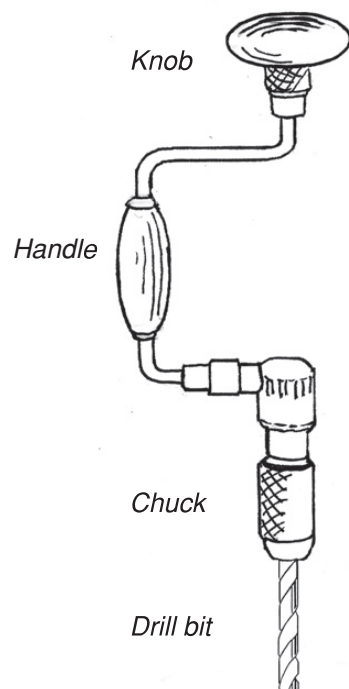
A brace and bit is the name for a type of drill.

These are strong drills that are used to make large holes in timber. They are not good for making very small holes – a hand drill is much better for those.

## What is a brace? What is a bit?

A brace is the simple tool that is used to turn the drill bit.

It has a knob to hold on one end and a chuck to hold the drill bit at the other end. The middle part of the drill is shaped as a handle that turns in a clockwise direction.



A drill **bit** cuts into the timber as it is turned.

It looks like a large screw with a special sharpened cutting end and a shaped end that fits into the chuck of the brace. These bits are a different shape to the dill bits used in the hand drill.

They come in many different shapes and sizes.

Most bits have a cutting edge that first cuts a circle into the timber and then lifts out the wood fibre to make a neat hole. The small screw thread helps to pull the bit into the timber – and keep the drill going straight.



## What is a brace and bit used for?

They are used to drill large holes in timber — for example, the holes for long bolts or for some types of door handles.

The size of the drill bit should be just larger than the bolt size. For example, an 11 or 12mm drill bit would make a good hole for a 10mm bolt. A drill bit of 10mm may make a hole that is too tight a fit.

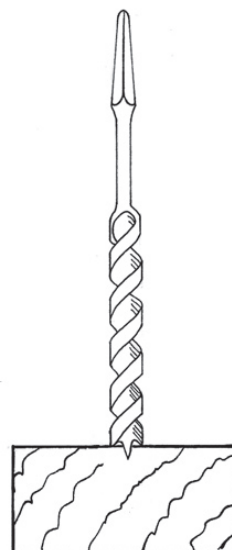
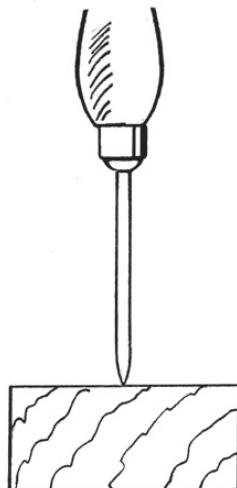
## How do I use a brace and a bit?

### Step 1

- Decide on the size of hole you need.
- Put the correct size drill bit into the chuck and tighten it.
- Make sure your timber will not move as you drill — hold loose pieces with a clamp or vice.
- Use a pencil to mark the centre of where you want the hole to be.

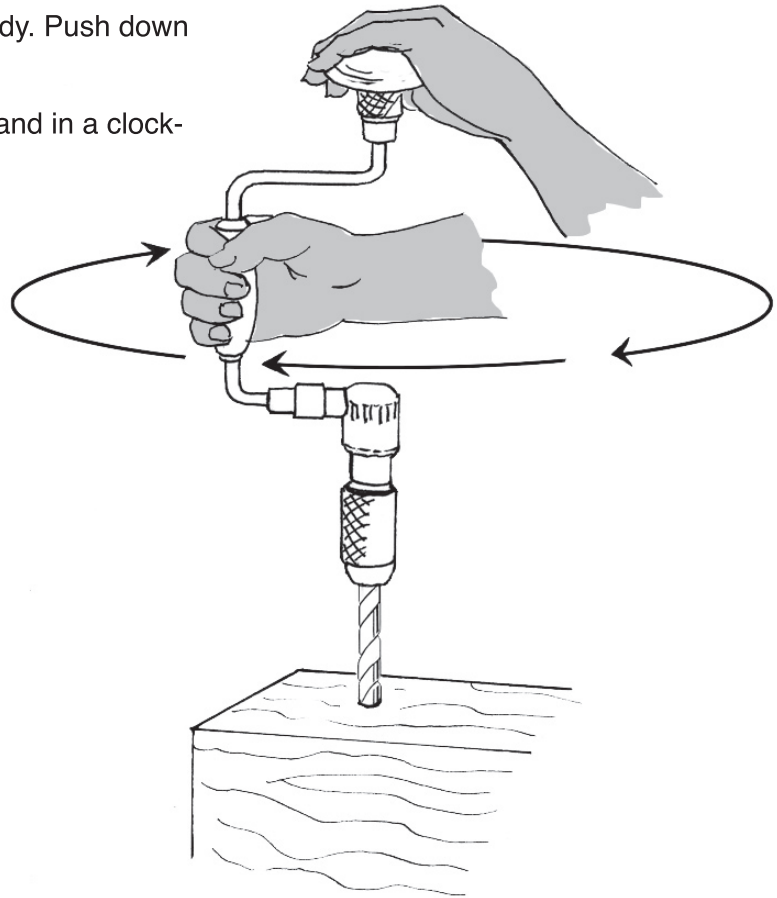
### Step 2

- Make a small dent in the timber on your pencil mark. The point of a screw or nail is good to do this.
- Put the tip of the drill bit in the dent. The dent will help to stop the bit moving off your mark.



## Step 3

- Hold the round knob of the brace with one hand.
- Keep the brace upright and steady. Push down firmly on the knob.
- Turn the handle with the other hand in a clockwise direction — see picture



Carry on turning the handle until you get as deep as you need.

If you are drilling right through — see **step 5**.

If you are drilling in a small space — see **step 6**

## Step 4

When you have finished drilling the hole to the depth you need, don't try and pull the bit out by turning backwards. This is bad for the bit.

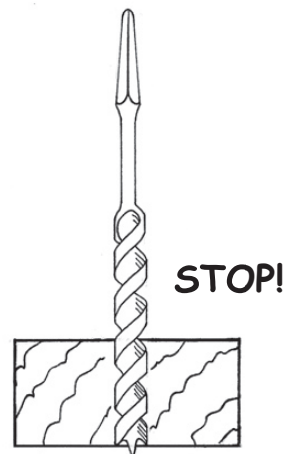
Keep turning the brace clockwise as you pull the bit and brace out of the hole.

## Step 5

If you are making a hole all the way through your piece of timber:

- Stop drilling as the point of the bit just comes through the back of the timber.
- Remove the brace and bit, turn the timber over.
- Place the bit in the small hole that has been made, and drill through to meet your first hole.

Drilling this way makes a neat hole. If you just drill all the way through from one side, the wood splinters and breaks as the bit cuts through the back surface.



## Step 6

Sometimes you may need to drill a hole and you don't have room to turn the handle all the way around. For example, if you are working near a corner of a wall or floor.

Most braces have a **ratchet** included just above the chuck. This lets you turn the handle as much as you can, and then turn it backwards without moving the drill bit. Then you can turn it again clockwise as much as you can — and so on.

When you do this, you will hear the ratchet go click-click-click as you turn the handle backwards.

Ratchets are adjusted in different ways on different makes of tools. Experiment with your brace before you start drilling.

## Things to check:

- Keep the brace steady as you drill.
- If the bit does not go into the timber, you may be turning the handle the wrong way. The bit works in one direction only.
- If the bit wobbles as you turn — it may be loose in the chuck.
- If you hear a click-click-click, you have the ratchet set wrongly.
- If you are going to make a hole all the way through timber — check what is on the other side before you start.

# Safety tips for brace and bit

- The drill and bit can slip off your mark and damage the timber. Hold it tight.
- The end of the drill bit can get hot when you are drilling — don't touch !
- Hold loose timber firmly in place — use a vice or a clamp.
- Think about what the drill will go into on the other side of your timber — make sure it is not a person, an electric cable, a water pipe or something else important.

## Activity

1. Find out what drill and bits you have available.  
What sort of jobs can you do with them ?
2. Practise changing the drill bit and tightening the chuck.
3. Experiment with the ratchet to see how to change it.
4. Practise marking and drilling holes of different sizes and depths
5. Drill right through some scrap timber — and see what happens when the bit breaks through the back surface.
  - Now try drilling from each side — as in step 5 above.
  - Which way has made the best hole?
6. Try drilling a hole using the ratchet and turning the handle only through part of a circle, as in Step 6 above.

**Keep practising !**

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