

Complete the sentences. Use the words in the box.

1 The candlestick pictured is made from bronze, a

type of metal.

2 Bronze is heavy and hard and it would be

impossible to carve an object from it.

3 But it is possible to change bronze from a solid into a liquid

by heating it.

4 Metalsmiths and sculptors often make

sophisticated and beautiful objects using liquid bronze and

a technique known as 'lost-wax casting'.

5 It's a complex method with a very long history.



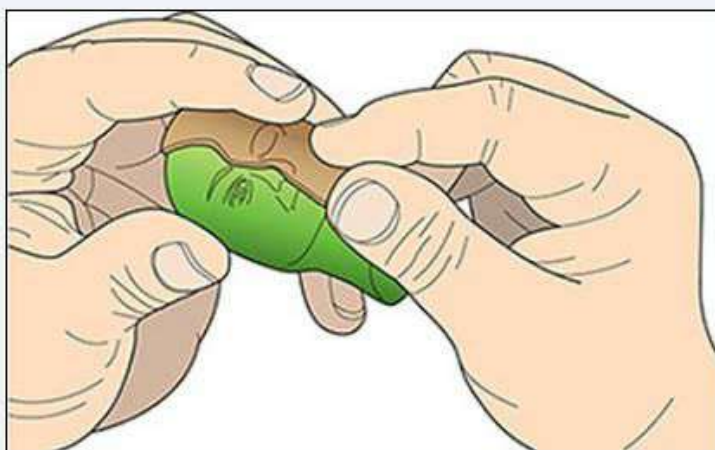
Read the text and match the headings in the box to paragraphs 1-6.

- 1 Metal sculpture production – an overview ✓
- 2 Objects in existence today ✓
- 3 The evolution of lost-wax casting ✓
- 4 Basic ancient methods ✓
- 5 Hollow wax casting ✓
- 6 How to make a replica ✓

then coated in clay and heated in order to melt the wax and harden the clay. This creates a clay mould which is then filled with hot liquid (molten) metal. When the metal has cooled, the clay model can be broken to reveal a solid bronze cast. The limitation of this method is that only small sculptures can be made - the properties of bronze do not allow for large solid objects to be made. Direct hollow wax casting was therefore adopted.

5 _____

In this method, large objects were cast in several pieces. First of all, the sculptor creates a clay 'core' - a model which is the approximate size and shape of the piece of sculpture. Sometimes the clay 'core' is modelled around an iron skeleton or 'armature' to strengthen it. The core is then covered with wax and holes (vents) are added to allow gases to escape and the metal to flow around the core more easily. Next, a layer of clay is



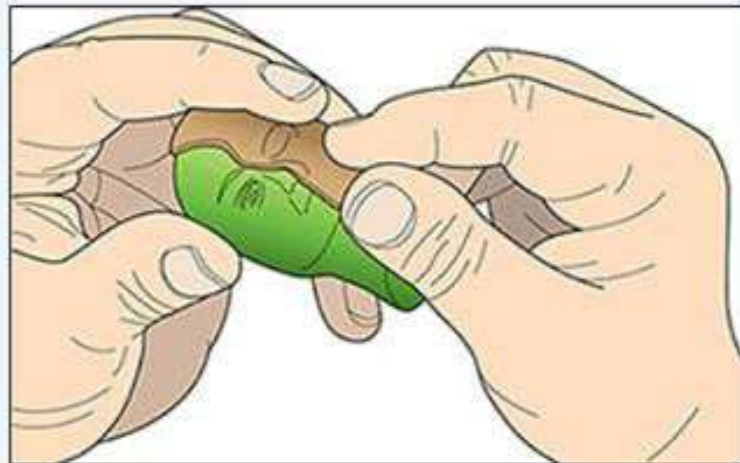
Read the text on lost-wax casting. Complete the sentences.

- 1 In solid wax casting, the artist sculpts a model out of a single piece of wax.
- 2 The artist puts a layer of clay over the wax to make a mould.
- 3 The mould is heated so that the wax melts and the mould hardens.
- 4 Sculptors using the hollow wax casting method often build a core around an armature made of metal.
- 5 A layer of wax is added and vents are made to ease the flow of the metal and to let gases escape.
- 6 A matrix is created by melting the wax between the layers of clay. It is then filled with liquid bronze.
- 7 In the indirect wax casting method, a master model is created out of clay. The advantage of this method is that the model is not destroyed.
- 8 Pieces of clay are layered around the model. They are then reassembled to make a copy of the model.
- 9 Hot, liquid wax is poured into the mould and after that, the wax is cooled so that it becomes solid. The pieces of clay are then removed, to reveal a wax model.
- 10 Funnels, channels and vents are added to the wax head and a clay layer is built over them and the wax. The entire object is heated in order to melt the

model. Using a far simpler method, sheets of bronze metal were hammered into the desired shape and attached to one another. The lost-wax technique allowed for far more sophisticated forms to be made. Three different ways of lost-wax casting exist: solid wax casting, direct hollow wax casting and indirect casting.

Basic ancient methods

The earliest and simplest method involves the artist creating a model for the bronze sculpture out of solid wax. The model is then coated in clay and heated in order to melt the wax and harden the clay. This creates a clay mould which is then filled with hot liquid (molten) metal. When the metal has cooled, the clay model can be broken to reveal a solid bronze cast. The limitation of this method is that only small sculptures can be made - the properties of bronze do not allow for large solid objects to be made. Direct hollow wax casting was therefore adopted.



Put the words into the sentences

- 1 Colleagues need to be **consulted** ☒ before a decision is made.
- 2 You can buy whole coffee beans and **grind** ☒ them into powder.
- 3 Before we can sell the goods, we need to **package** ☒ them.
- 4 Sculptors know that metal needs to be **tempered** ☒ in order to harden.
- 5 Foundation is applied over the skin in order to **conceal** ☒ any spots or lines.
- 6 It is possible to **melt** ☒ glass at a very high temperature.



Unscramble the words. Correct the sentences.

- 1 Bread making has a number of different stages. The first stage is the accurate measurement of ingredients flour, yeast, water, salt and butter. ✓
- 2 The next stage is the kneading of the dough which ensures the even distribution of the yeast. ✓
- 3 The proofing of the dough is the next stage: it is shaped into a round and left to rise. ✓
- 4 A drop in temperature can inhibit the success of the proofing process so the dough is left in a humid environment. ✓
- 5 The division of the dough into smaller pieces follows. It is then left to rest. ✓
- 6 The next step is the formation of the dough into the desired shape. It is then left to rise. ✓
- 7 The final stage is the baking of the dough to make bread. ✓

Complete the sentences. Use the words in the boxes.

1 Would you like to order some drinks while your food is ✓

being prepared ✓ ?

2 If you trespass on private property, you will ✓ be prosecuted ✓

3 200 workers have ✓ been made ✓ redundant by the car
manufacturing plant since January.

4 By the time the emergency services arrived, the factory had ✓

been evacuated ✓

5 Before the cheese making process begins, incoming milk is ✓

tested ✓ for quality and purity.

6 The assembly line worker was ✓ hurt ✓ by a piece of sharp metal

but his hand is now healed.

Read the text. Choose the correct statement.

- 1 ☒ First, the leather is sewn together and then it is stained. ✓
☐ First, the leather is stained and then it is sewn together.
- 2 ☐ A post machine is used and then a flat machine. ✓
☒ A flat machine is used and then a post machine.
- 3 ☐ Eyelets for the shoelaces are inserted then the upper is treated. ✓
☒ The upper of the shoe is treated then eyelets are inserted.
- 4 ☐ A last is removed. The last is only used once to mould shoes. ✓
☒ The last is used to mould the shoe. Then it is removed and used to mould other shoes.
- 5 ☒ First, the leather insole is attached to the last. Then the upper is moulded over the last. ✓
☐ First, the upper is moulded over the last. Then a leather insole is attached to the last.

The manufacturing process of shoe production has approximately seven stages. Many people think that the first step is to stain or colour the leather, but in fact before the leather is stained and polished, it has to be sewn together.

First of all, the top part of the shoe or the 'upper' is made.

After the pieces of leather are sewn together on the flat machine, a post machine is used.

Once treatments are carried out on the shoe's upper, eyelets are inserted for the shoelaces.

As soon as a shoe has been moulded over a last, the last is removed and used to help shape other shoes.

Before the leather upper is moulded over the last, an insole is attached to the bottom of the last.