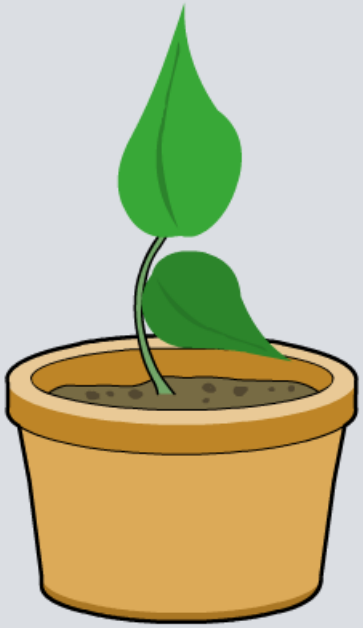
Asexual Reproduction



Sexual reproduction

There are two main ways by which organisms can reproduce: **sexual** reproduction and **asexual** reproduction.

In sexual reproduction, genes from two parent organisms are combined to produce an organism with a unique genetic code.

The advantage of sexual reproduction is that it produces **natural variation** among a species, enabling it to adapt to environmental change.

Most animals and many plants reproduce sexually.

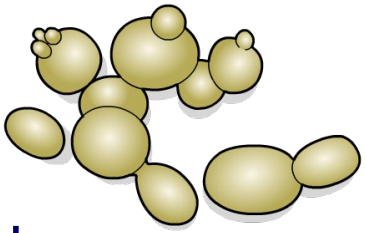
Asexual reproduction

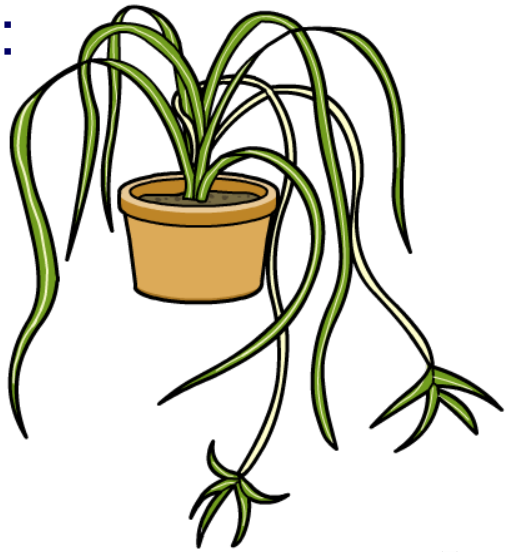
In asexual reproduction, a single organism makes a copy of itself with exactly the same genetic code. The new organism is a **clone** of the original.

Asexual reproduction enables an organism to quickly populate a new habitat and ensures that, if it is well-adapted to its environment, successful characteristics are passed on.

Organisms that reproduce asexually include:

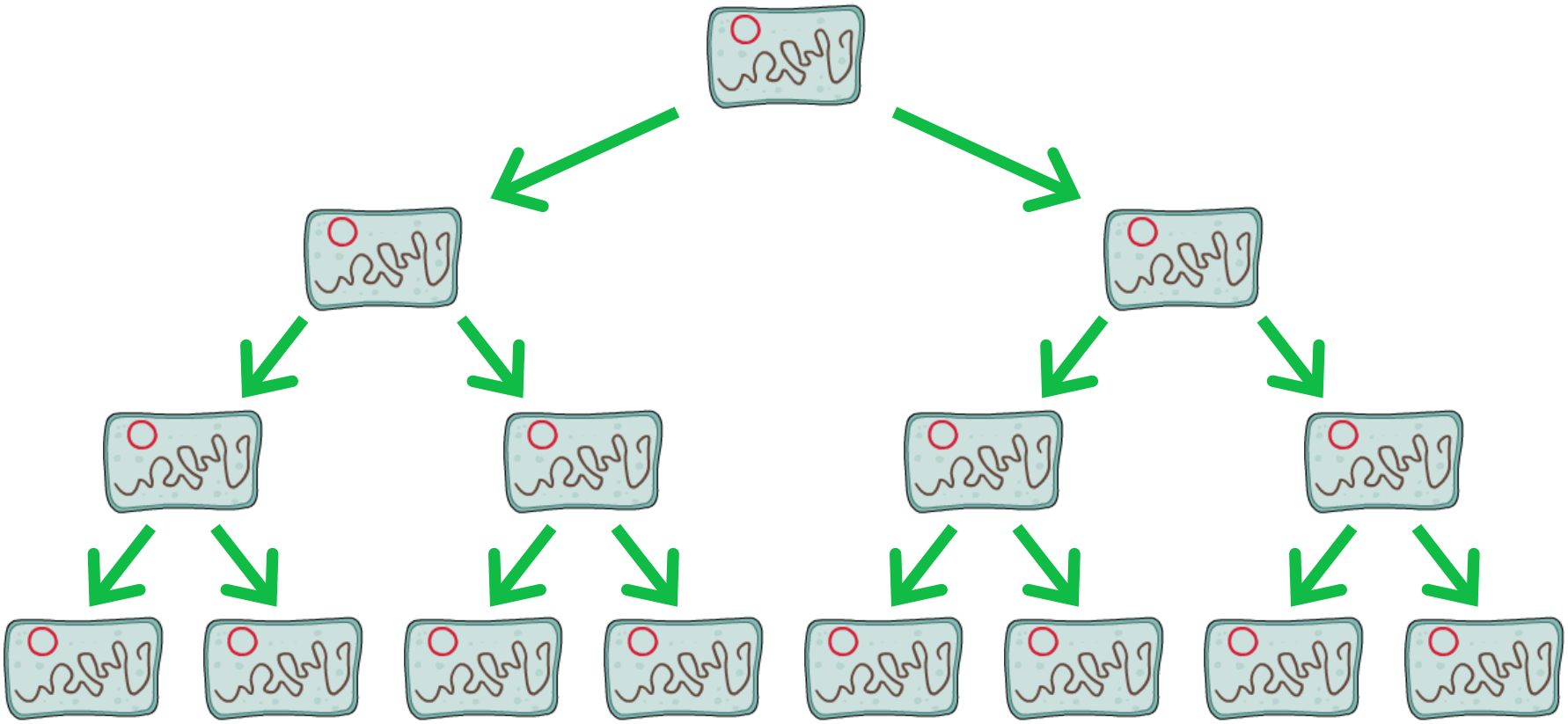
- many plants, such as spider plants, strawberries and potatoes
- microbes, such as bacteria and yeast
- some insects, such as aphids.





Speedy bacterial clones

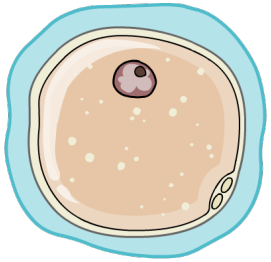
Bacteria can copy themselves very quickly – their numbers can double every **20 minutes**! That's 10 times faster than the quickest animal cells.

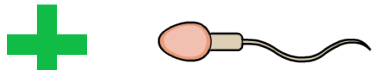


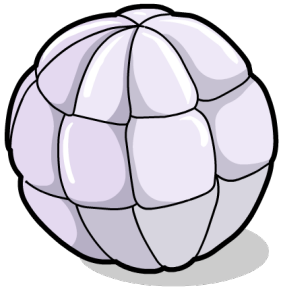
Human clones

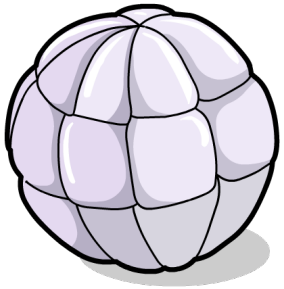
Human clones already exist! Identical twins have exactly the same genes and are therefore clones of each other.

Identical twins are created when a fertilized egg splits in two, creating two separate but genetically-identical embryos.





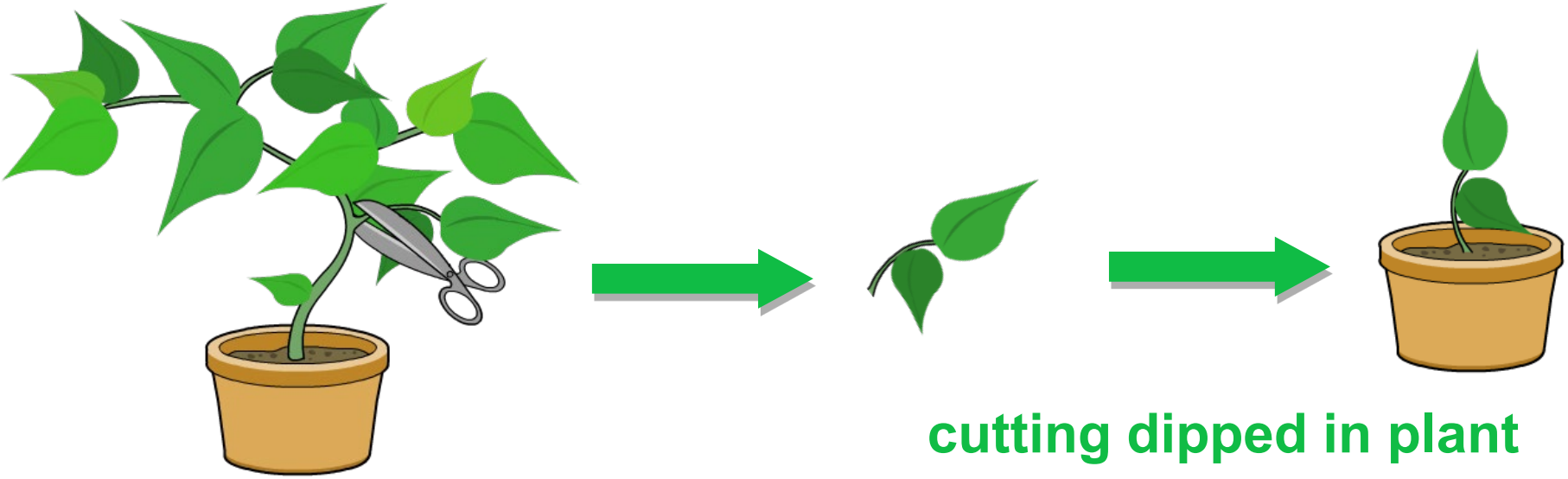




How does the creation of identical twins differ from that of non-identical or fraternal twins?

Taking cuttings

A plant can easily and quickly be cloned by taking a **cutting**. This is a fast way of cloning.



stem cut from parent plant

cutting dipped in plant hormone and planted

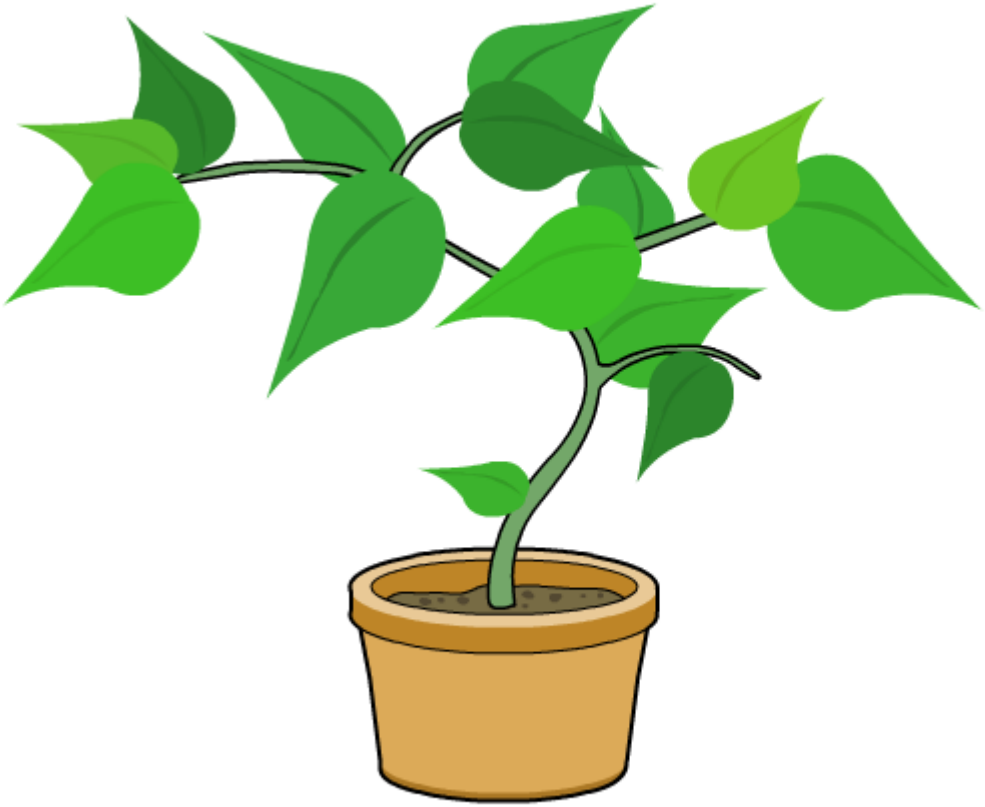
The problem with this method is that it cannot produce many clones at once.

Tissue culture

How can plants be cloned by tissue culture?

Tissue culture enables hundreds of clones to be made from a single plant at the same time.

Click "**start**" to find out it works.



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