

## Cloning

- can be natural (through asexual reproduction)  
Example) Binary Fission
- Asexual means one parent duplicates themselves and split into 2 identical daughter cells  
Example) Budding
- Cloning is the process of forming identical offsprings from a single cell or tissue.  
↳ Clone is identical to parent

### → Clone Plants

- ↳ easier to clone plants that grow under ground Ex.) Carrots
- ↳ need plant hormones to promote cell division (cloning)

### Clone Animals

X → Extracted the nucleus from an unfertilized egg cell and inserted into a glass test tube.

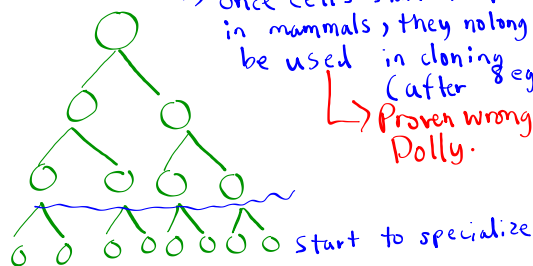
→ egg cell that has no nucleus is called "enucleated"

→ Now place the nucleus of "frog" embryo into enucleated cell

This cell will divide and grow to produce a new frog that is a clone.

→ cells nucleus must be taken at an early stage of the embryo

→ once cells start to specialize in mammals, they no longer can be used in cloning (after 8 egg stage)  
↳ Proven wrong with Dolly.



## Dolly

→ used genetic material from adult sheep to make clone.

→ Extracted genetic material from one sheep. Placed in a cell culture in a test tube (grew). Then placed this material in an unfertilized egg of another female sheep (grew) and she gave birth to a sheep that

## Attachments

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The\_Clone\_Age.asf