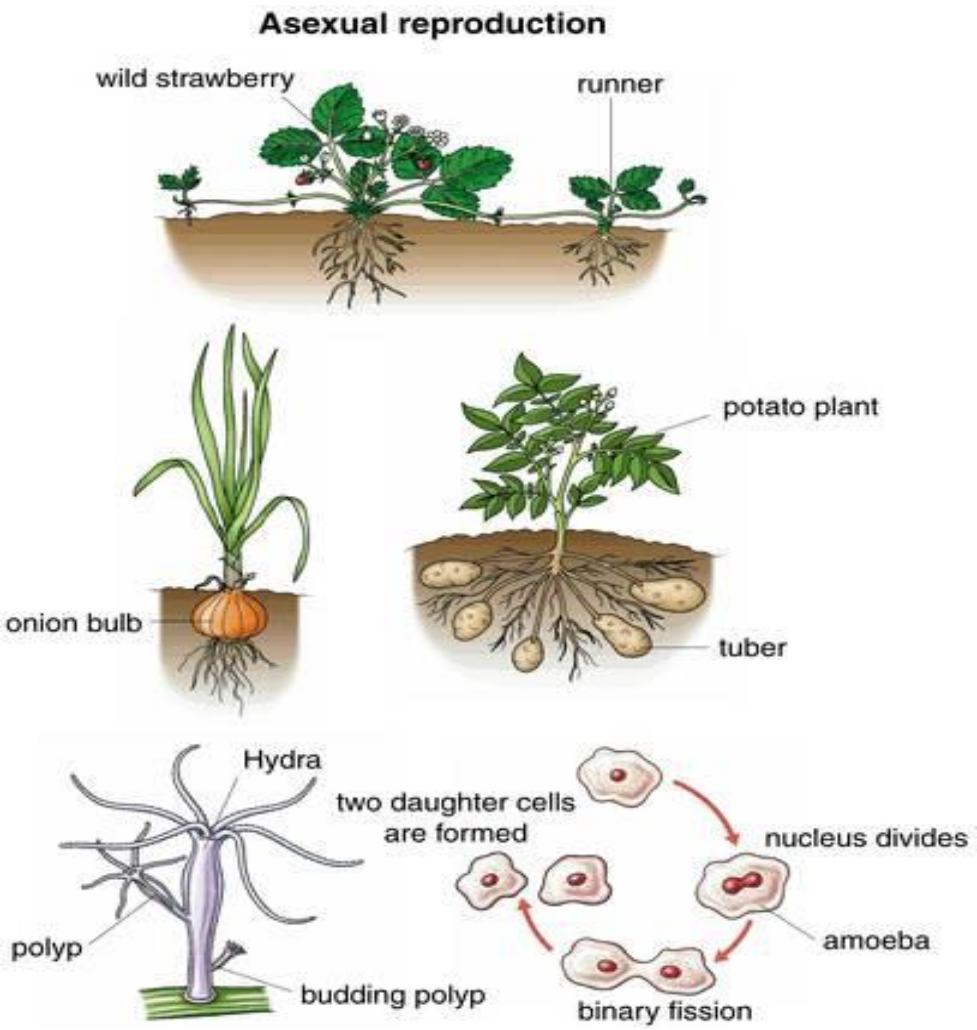
REPRODUCTION

ASEXUAL REPRODUCTION

- New individual is produced from one parent plant only
- Genetically identical to parent
- Occurs naturally or with human help

NATURAL PROCESS

- Some plants (cacti) drop stems or other shoots that establish new roots and become clones
- Other plants (strawberries and grasses) send out runners
- Trees and shrubs send out shoots from the base of their trunks or underground stems



CLONING

- Simplest way is to cut off a leaf or stem and place in soil or water
- Cells at the end of the cut plant develop into roots
- Result in genetically identical plant

PROS OF CLONING

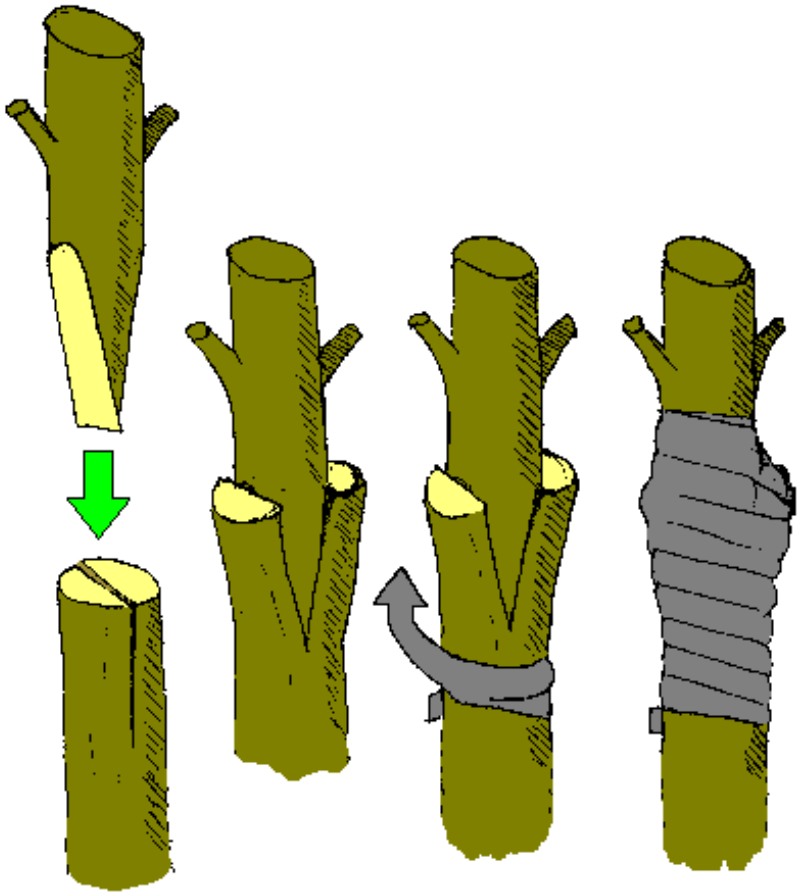
- Can grow plants from single cells
- Plant cells are capable of forming all the tissues and organs of the adult plant
- Allows us to grow useful crops and decorative plants without waiting for seeds produced by plants to develop
- Can grow plants with a desired trait

CONS OF CLONING

- Plants are all genetically identical and can be susceptible to the same disease
- Have the same strengths and weaknesses
- No biodiversity

GRAFTING

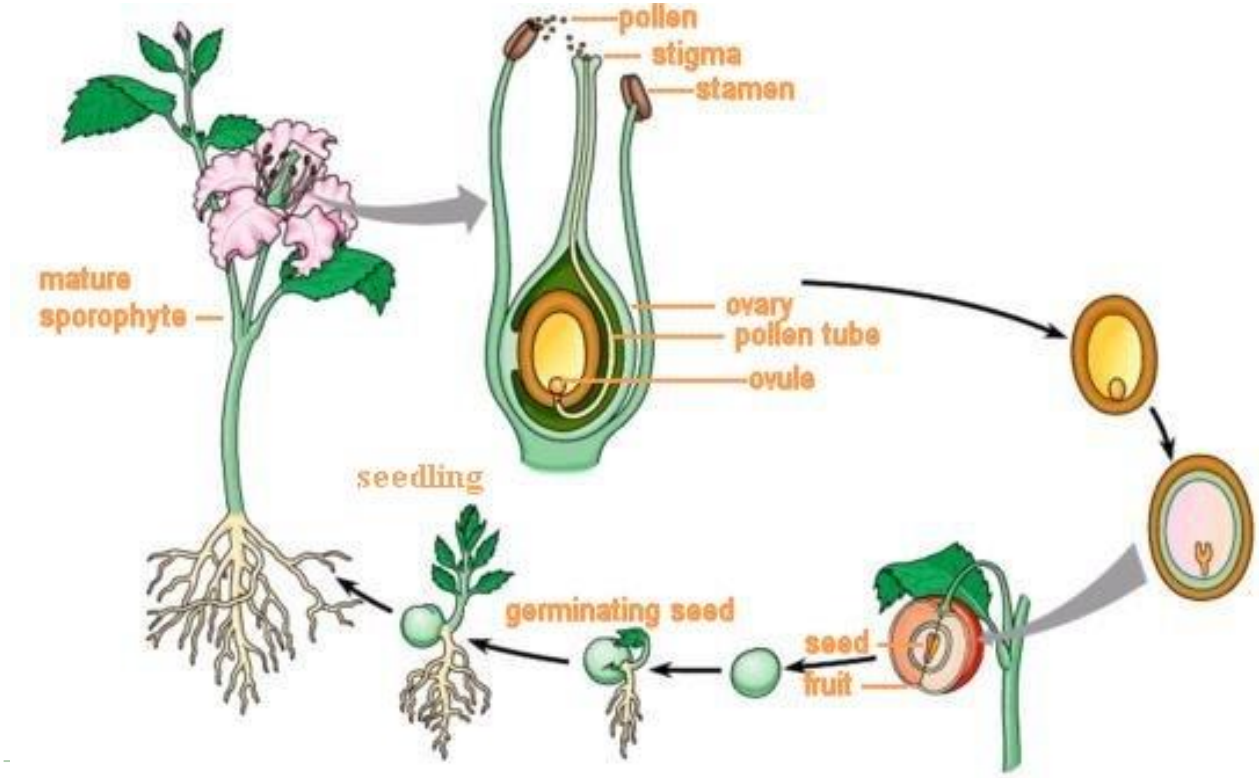
- In wood species, a branch from one plant can be grafted onto a stem from another plant
- Used frequently by fruit growers to combine fruit bearing trees with desired qualities in other trees or to put several varieties of fruit on one tree



CLEFT (OR TOP WEDGE) GRAFT

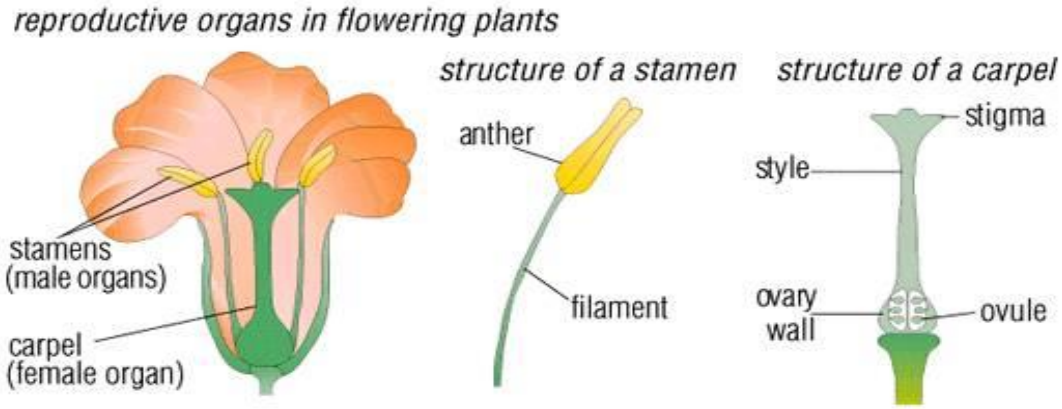
SEXUAL REPRODUCTION

- New individual arises from union of male and female sex cells
- Not genetically identical to the parents



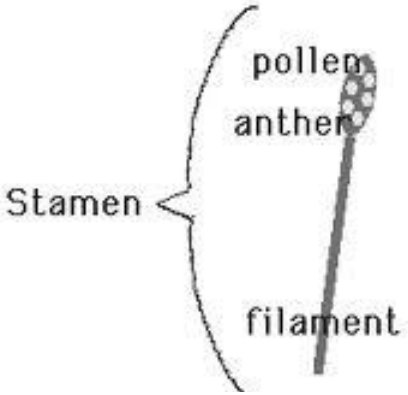
FLOWERS AND SEXUAL REPRODUCTION

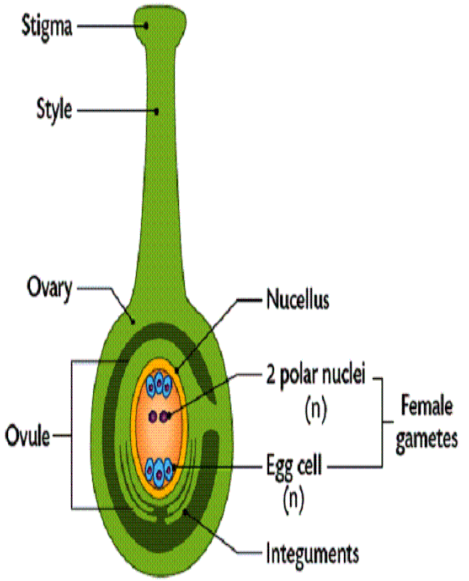
- Stamens – male reproductive structures
- Carpels – female reproductive structures
- Most flowers have multiple stamens surrounding one or more carpels
- Some species have stamens and carpels on separate flowers or separate plants



STAMENS AND CARPELS

- Stamens are long stalks topped with a sac called anthers
- Anthers contain pollen grains
- At the base of the carpel is the ovary
- Inside the ovary are ovules, when fertilized they develop into seeds
- Leading to the ovary is a narrow stalk called the style, which has a sticky tip called the stigma





POLLINATION

- Pollen grains released from anthers land on stigma of flowers
- Pollen is carried by wind or another animal
- Pollen on the stigma absorbs water and extends a pollen tube
- Pollen tube grows towards the ovary through the style
- When the pollen tube reaches the ovary fertilization happens