

## Inheritance *Checklist*

### Genetics and Society (\* = Credit outcomes)

1. **Selective breeding** is when only animals or plants showing the **best characteristics** are used to breed from. This can lead to **increased yield, increased disease resistance** and **increased growth**.
- 2\*. When repeated over many generations this produces an improvement in the herd or population eg **milk yield** or **fat content of milk** can be changed by selective breeding in dairy cattle. In plants **oil content of seeds** or disease resistance can be improved.
3. **Mutations** are changes in genes or chromosomes. This can lead to changed characteristics. eg. **Down's Syndrome** is caused by an extra chromosome being passed on. People with Down's Syndrome have 47 chromosomes instead of 46.
4. **Amniocentesis** is a medical technique that allows doctors to look at a baby's chromosomes when it is still in the womb. It involves putting a needle through the mother's abdomen into the amniotic sac and removing a sample of the amniotic fluid. The chromosomes of foetal cells are then viewed. This procedure can detect Down's Syndrome. However, there is a 1% chance of the baby being spontaneously aborted.
- 5\* Mutagenic agents are chemicals (eg mustard gas) or radiation (eg X-rays or UV light) that can induce mutations.
6. Most mutations produce inferior characteristics but some useful mutations can occur.
- 7\*. An example of a useful mutation is a **polyploid** in plants. These plants have **extra sets** of chromosomes (usually 3 or 4 sets) and often show improved characteristics. Polyploid wheat produces more flour.