



Figure 5-5c Evolutionary Analysis, 4/e  
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Mutation is the source of new genetic variation. What is a mutation? Are mutations usually bad, good or neither (neutral)? How often do mutations occur, and why does it matter?

Most mutations have (slightly) deleterious effects on fitness

Mutation rates are (usually) selected to be as low as possible

The important mutation rate for natural selection is the number of mutations per genome per generation

## Estimating mutation rates in different organisms:

Per nucleotide Per replication	Genome size	Cell cycles per generation	per genome per generation
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RNA virus

Bacteria

Worm

Fruitfly

Human

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Consequences of delayed reproduction for the  
mutation rate in humans