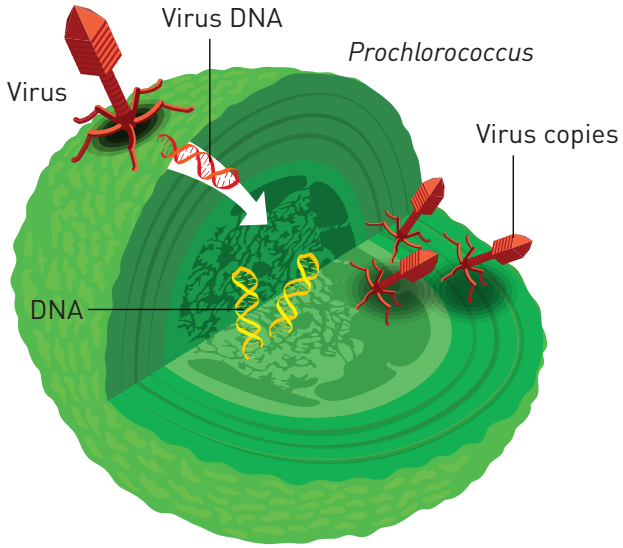
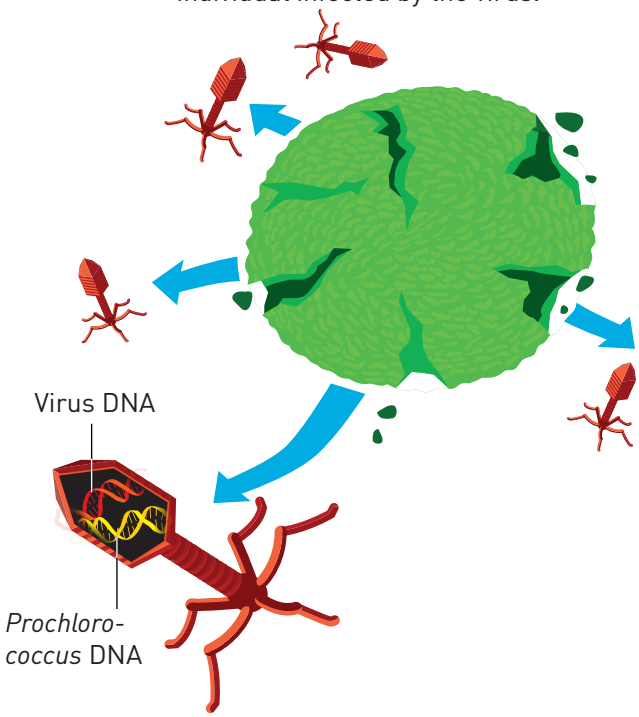
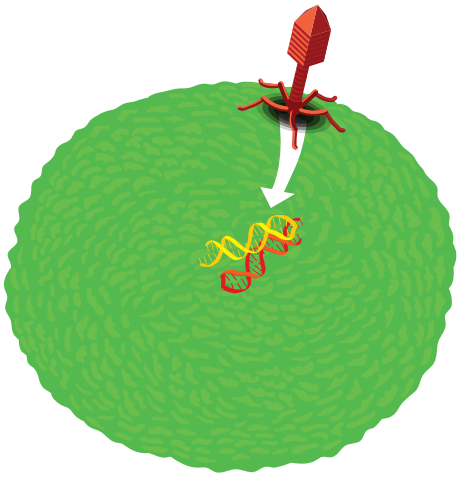
Viruses contribute to evolution

1 Viruses that infect *Prochlorococcus* appear to play an important role in the evolution of cyanobacteria by transporting genes between different populations. The picture shows how a virus particle infects a cell by injecting it with DNA that takes over the cell's activity, making the cyanobacterium a virus factory.



2 When the virus has reproduced itself, the cyanobacterium dies and breaks open, spreading the virus copies. In addition to its own genes, the virus can take DNA from *Prochlorococcus* with it – genes that can be transferred to the next individual infected by the virus.





3 Sometimes, an infected *Prochlorococcus* survives a virus attack. If the virus brought a *Prochlorococcus* gene, this can be inserted in the cyanobacterium's own DNA. Because billions of *Prochlorococcus* are infected every day, these rare gene transfers occur all the time. Occasionally, a valuable gene that provides an evolutionary advantage will be transferred, so viruses contribute to spreading the cyanobacteria's genes and thus its evolution.