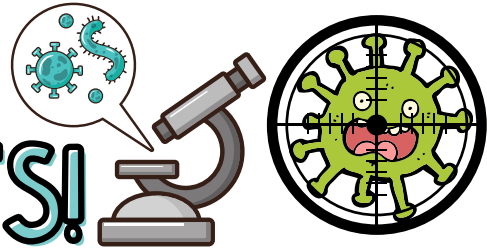




# D-BUG FUN FACTS!



## MUTATIONS

**A virus is basically genetic code in a capsule.**

The genetic code is stored in **DNA** (DeoxyriboNucleic Acid) or **RNA** (RiboNucleic Acid) and it contains all the instructions for making the virus.

DNA and RNA are long chains of molecules. The specific sequences of the molecules are the instructions for building and assembling all of the virus parts.

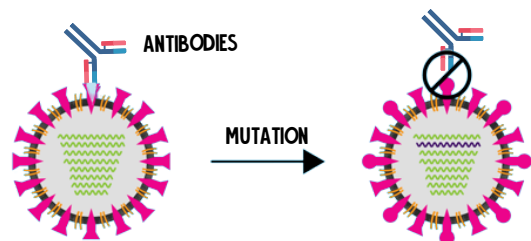
The sequences are **read like sentences on a page** by machinery in our cells - a **step by step instruction manual for building the virus!**



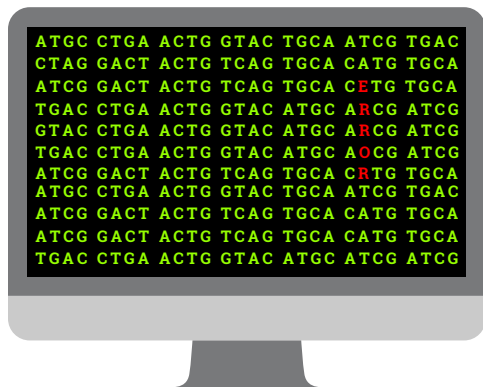
Each time a virus replicates, all of its DNA or RNA is copied. If an **ERROR** is made when the code is copied, a **MUTATION** is created.

Viruses that store their genetic code in RNA tend to make more mutations than DNA viruses. This is because **DNA** copying machinery (*DNA polymerase*) **proofreads** its work, catching & fixing mistakes. **RNA** copying machinery doesn't, so mistakes are not picked up.

**MUTATIONS can result in changes to the virus that give it new abilities.** Many mutations have no major effect, but some help the virus spread more easily, or make illness more severe. Some even enable a virus to infect a new species!



*A mutation might be located in an area that helps the virus evade our immune system defences!*



*Imagine writing the same sentence over & over & over again. Eventually you might make a mistake and change the sentence!*

### MIXING IT UP!

When 2 viruses infect the same cell at the same time, they can mix up their genetic material to create a new virus.

Flu viruses are masters at this **RECOMBINATION**

