PCR

Amplifying DNA, and the three temperature steps that do it.

Biology

One cycle doubles the target sequence.

1. **Denaturation — 95°C**
   Strands separate.

2. **Annealing — 50–65°C**
   Primers bind to the flanking sequences.

3. **Extension — 72°C**
   Taq polymerase synthesises the new strand.

4. **Repeat**
   25–35 cycles. Amplification is exponential: 2^n.

WHY TAQ

From Thermus aquaticus, a hot-spring bacterium
Survives 95°C without denaturing
Before it, fresh polymerase was needed every cycle

qPCR measures product as it accumulates, allowing the starting quantity to be determined rather than just detected.