

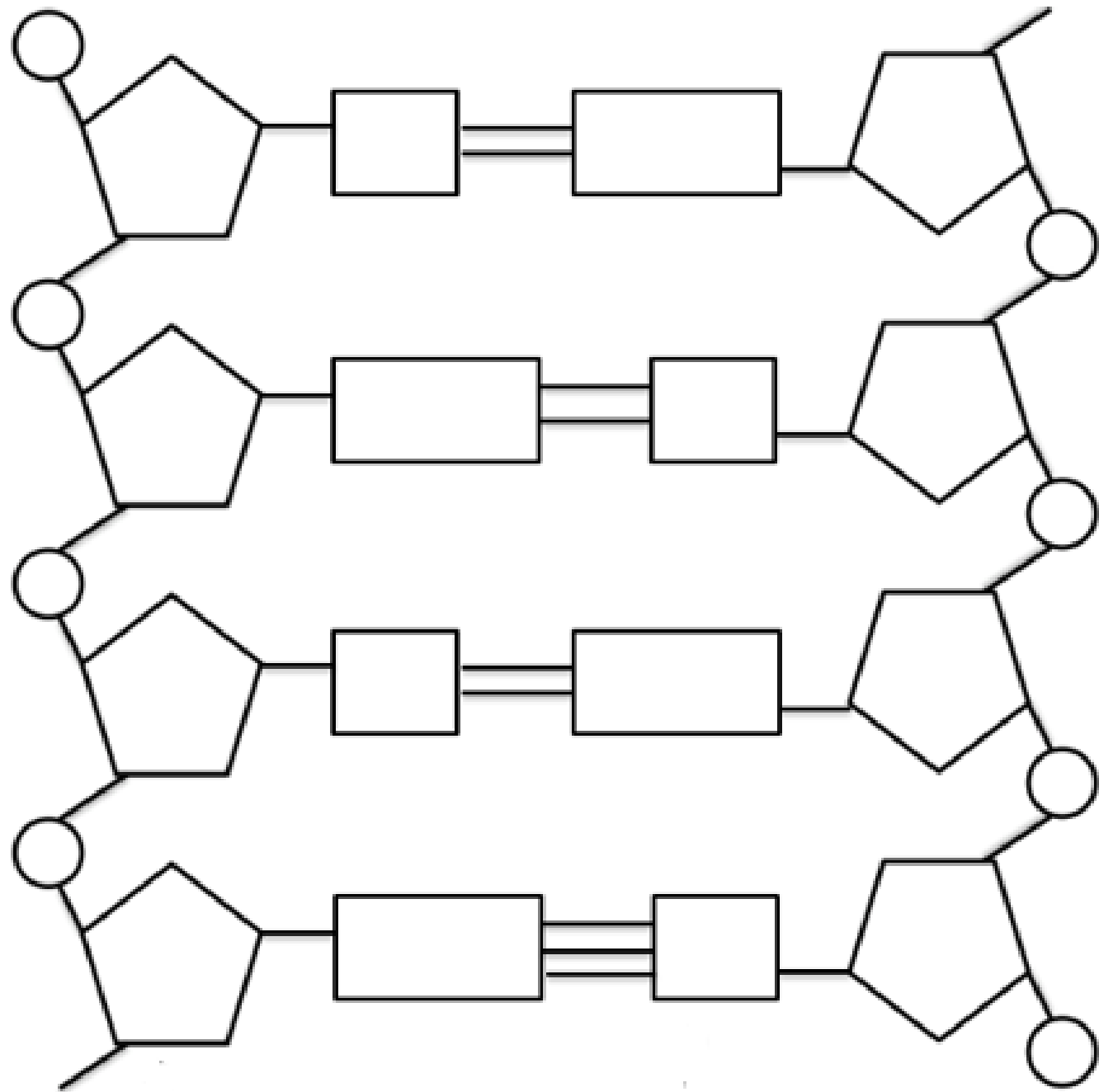
# STRUCTURE OF DNA

A 3D rendering of a DNA double helix structure. The structure is shown in a vibrant, multi-colored style, with the two strands appearing as thick, textured ribbons. One strand is primarily red and orange, while the other is primarily yellow and orange. The strands are intertwined in a classic double helix pattern. The background is a dark, deep blue with glowing, ethereal light effects, including soft halos and faint, wispy patterns that suggest a molecular or biological environment. The overall aesthetic is scientific and futuristic.



STRUCTURE OF DNA

What can you  
remember from  
GCSE?



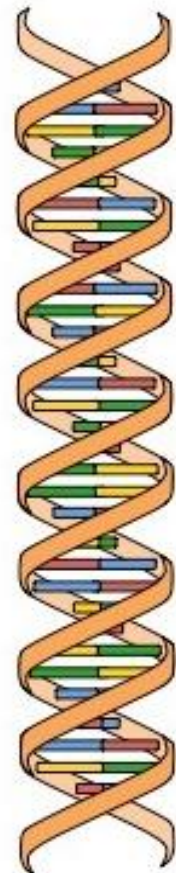
# Describe the structure of DNA

In DNA the **pentose sugar** is **deoxyribose**, and the organic bases are **A, T, C and G**.

DNA is made up of **two strands** of **nucleotides**.

What holds these two strands together?

What do we know about the individual and collective strength of these bonds?

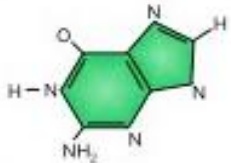


**DNA**

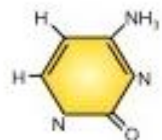
**Adenine**



**Guanine**



**Cytosine**

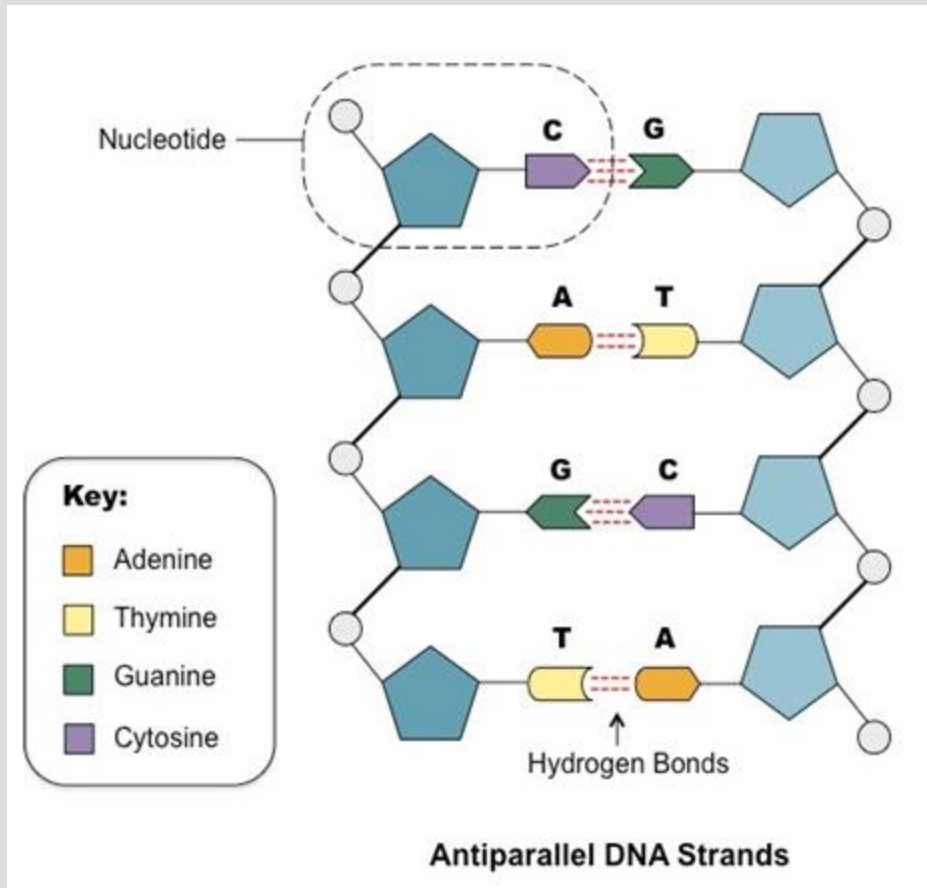


**Thymine**



# Describe the structure of DNA

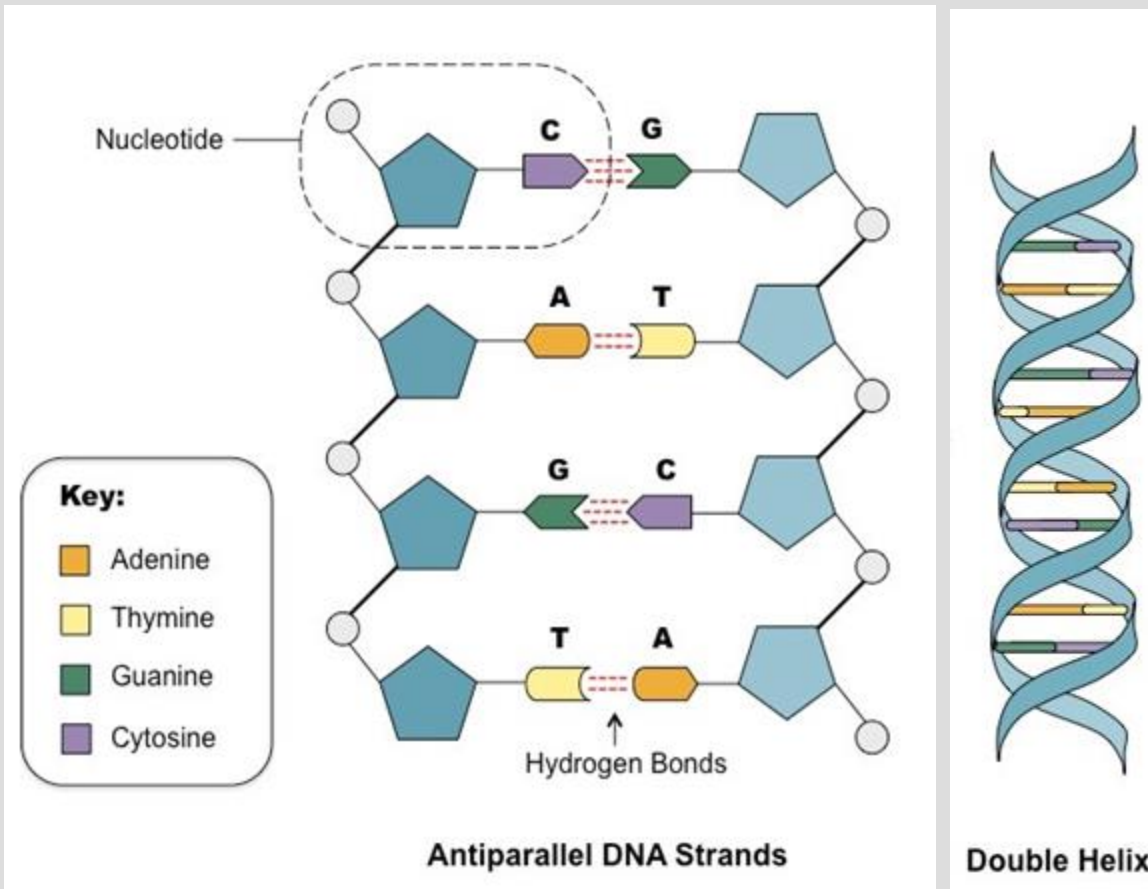
Each of the **two strands** is extremely long and **joined** together by **hydrogen bonds** between bases.



How many bonds are between each bases?

Do you think G-C bonds are stronger than A-T bonds?

# Describe the structure of DNA

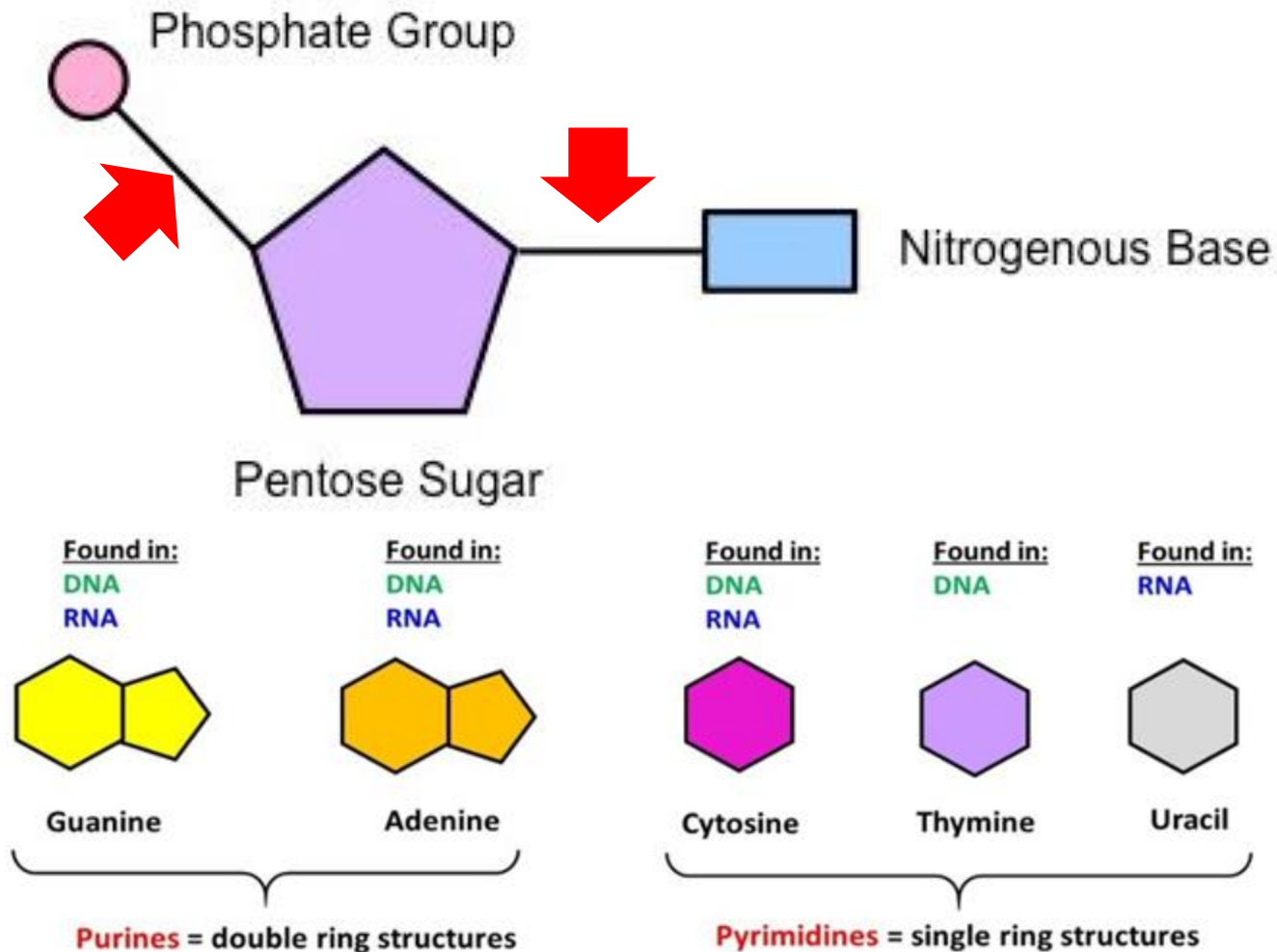


**DNA** is a **stable** molecule because the **3 hydrogen bonds** between **C-G** are stronger than **2 hydrogen bonds** between **A-T**.

If an organism has a higher proportion of C-G. What can we say about their DNA?

Is this organism likely to evolve as quickly?  
Why?

# Describe the structure of a nucleotide

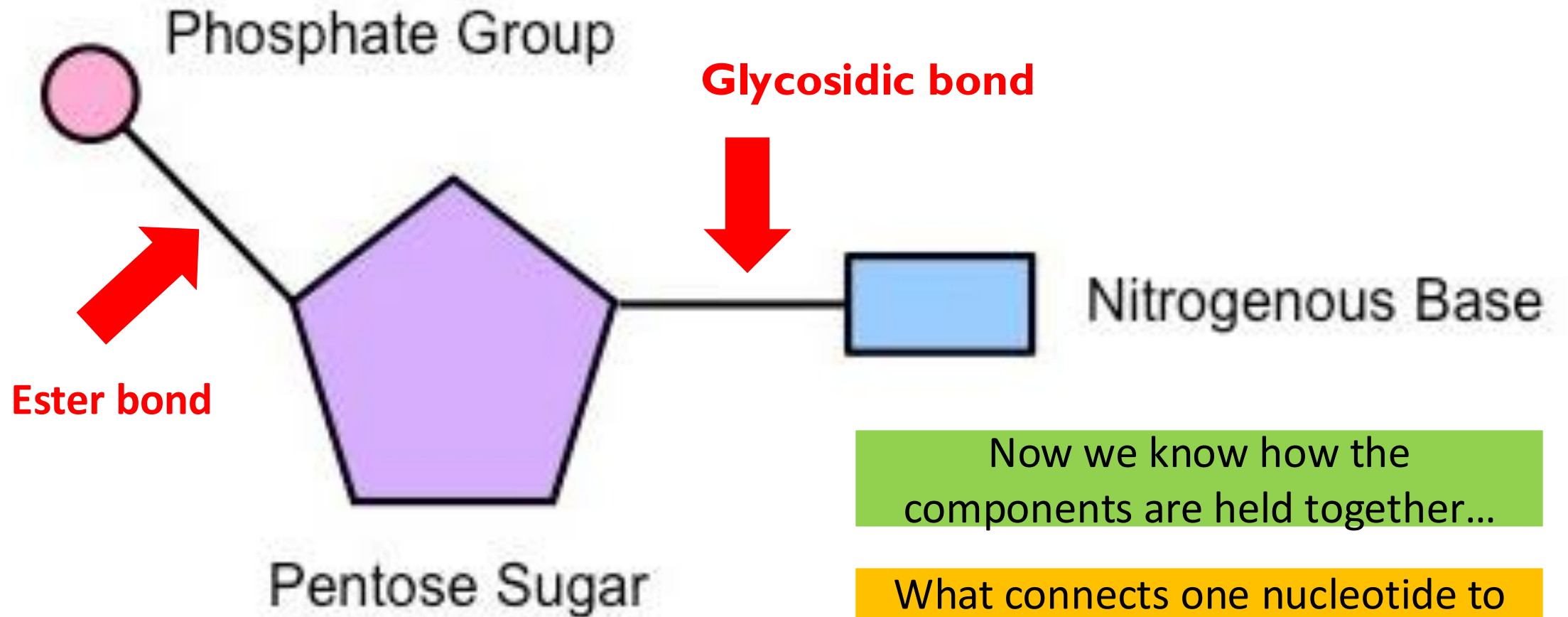


- a **pentose sugar**
- a **phosphate** group
- a nitrogenous **organic base**

Nitrogenous? Organic?

What holds these components together?  
(see arrows)

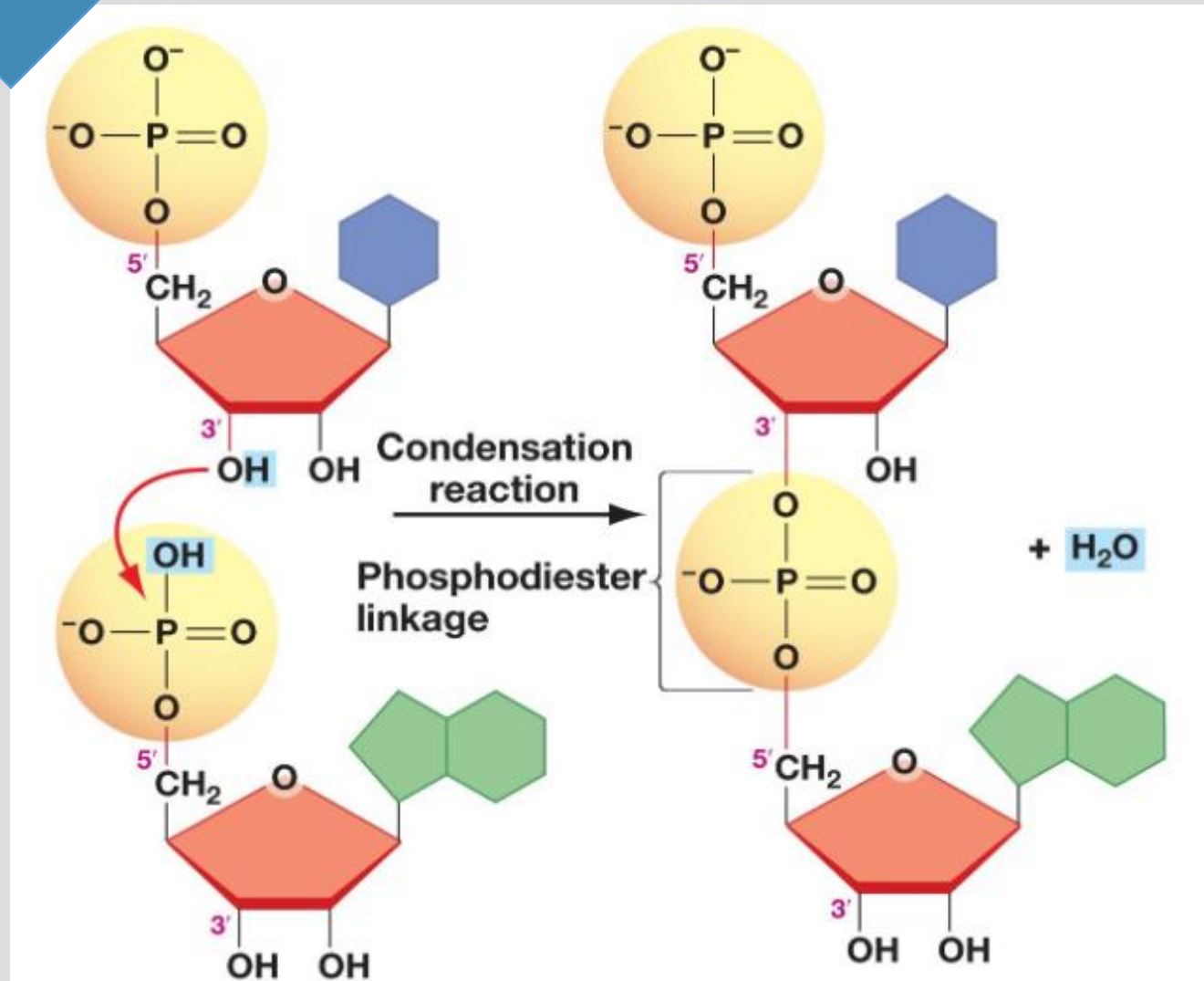
# Describe the structure of a nucleotide



Now we know how the components are held together...

What connects one nucleotide to the next?

# Describe the structure of a nucleotide

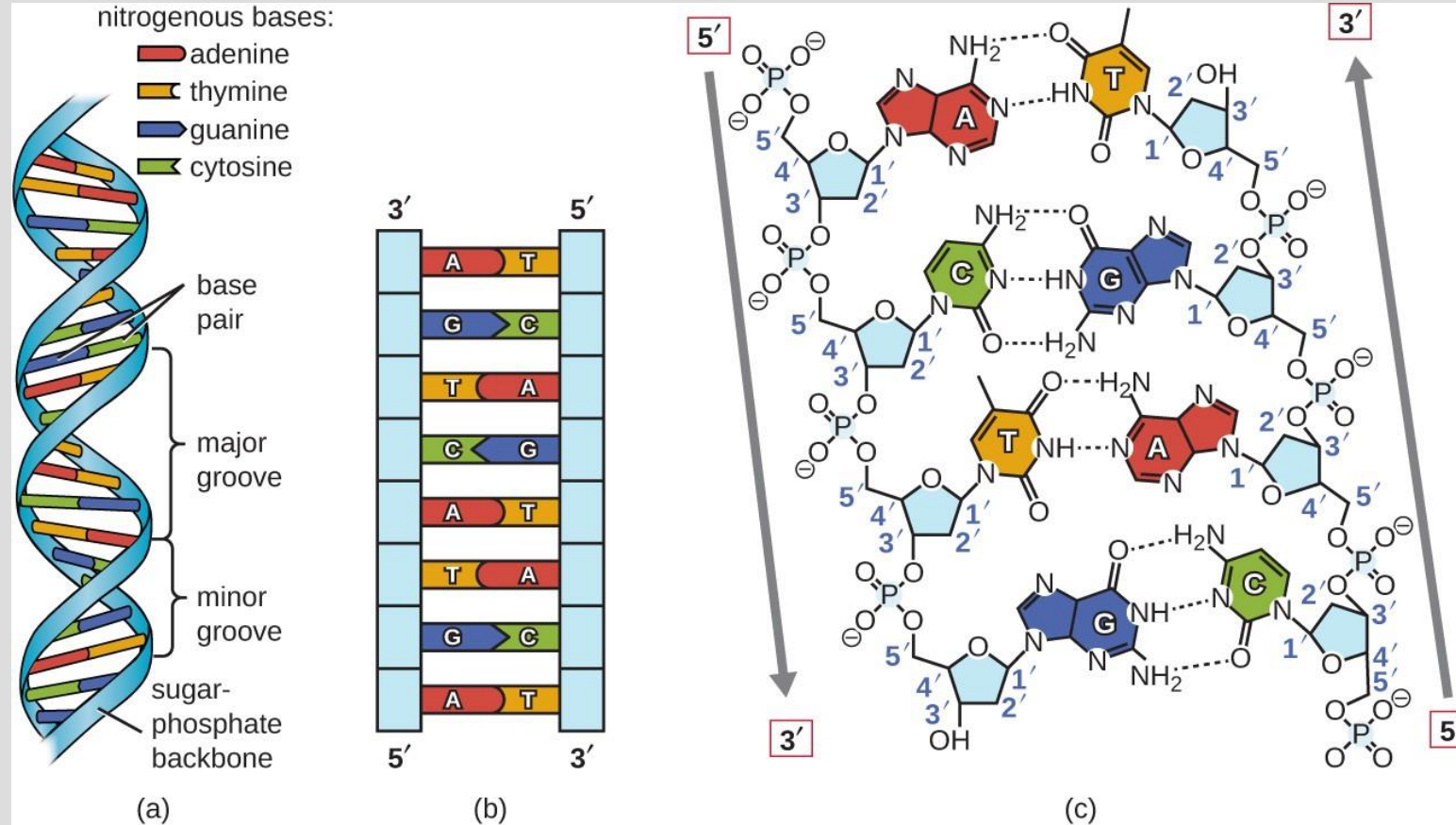


**Nucleotides** join with a **phosphodiester bond**.

# Modelling the structure of DNA

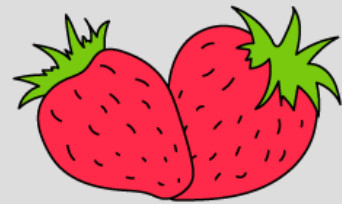


# DNA Structure – A Recap

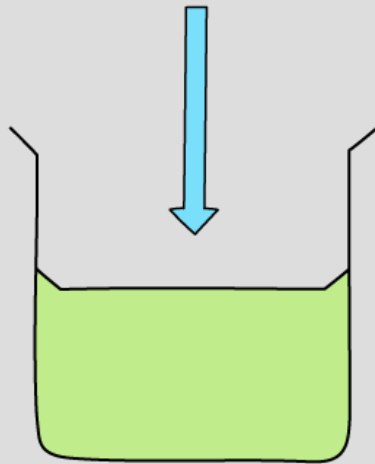


<https://edpuzzle.com/media/5e99d01bbbccf03ef5fc57a4>

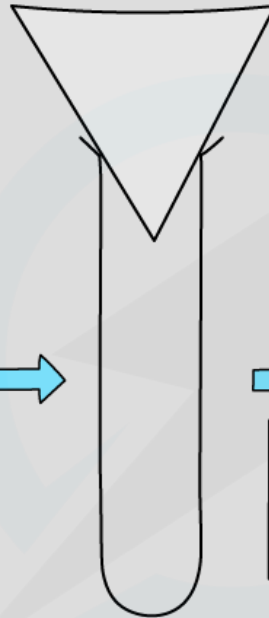
# Extraction of DNA



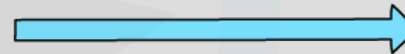
STEP 1:  
MASH FRUIT



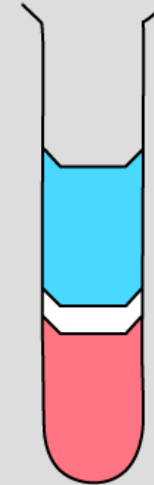
STEP 2:  
ADD DETERGENT  
AND SALT



STEP 3:  
FILTER



STEP 4:  
ADD ICE-COLD  
ETHANOL



STEP 5:  
OBSERVE LAYER OF  
WHITE PRECIPITATE  
(THE DNA) AND  
EXTRACT IF REQUIRED

# Plenary - Quick Calculation

33% of the bases in a DNA molecule are Adenine.  
Calculate the percentage of bases that are Guanine.

**33% A**

**so: 33% T**

**so: A + T = 66%**

**so: % C + G = 100 - 66 = 34%**

**so: G = 34 ÷ 2 = 17%**