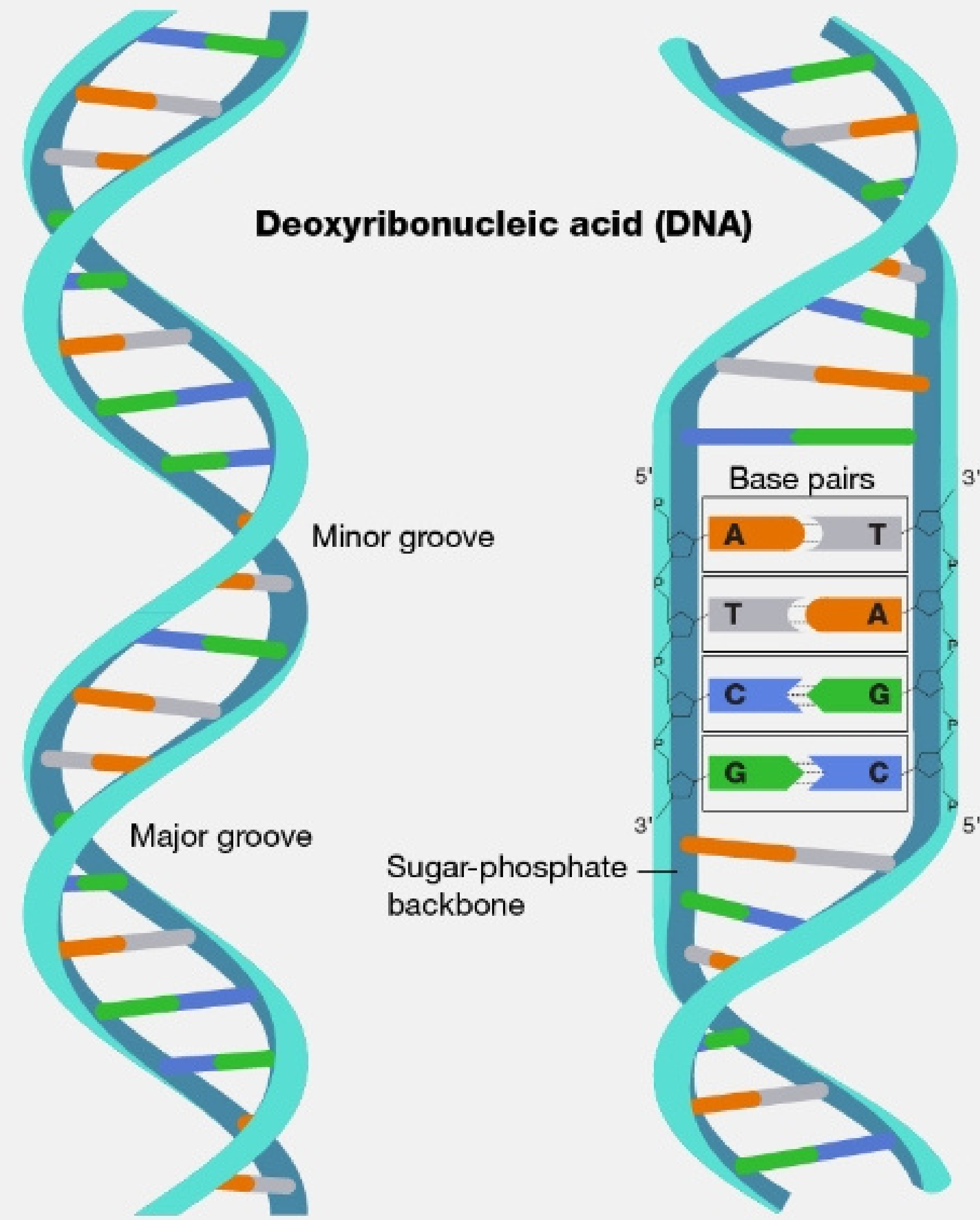




The Instruction Manual of Life

Exploring the Wonders of DNA vs. RNA

DNA: The Master Blueprint



Deoxyribonucleic Acid

Think of DNA as the permanent "Master Book" of your life. It holds all the codes for your eye color, height, and how your body works.

Key Fact: It is kept safely locked inside the cell's nucleus.

RNA: The Messenger Molecule

Ribonucleic Acid

RNA is like a photocopy of a single page from that Master Book. It carries the instructions from the nucleus to the rest of the cell.

Key Fact: Its main job is to help build proteins—the building blocks of you!



| The Cell's Library & Kitchen



DNA = Master Book

Valuable and too important
to leave the library
(Nucleus).



RNA = Photocopy

A portable copy used to
take the instructions
outside.



Proteins = The Meal

Cooked in the kitchen
(Ribosomes) using the
recipe copy.

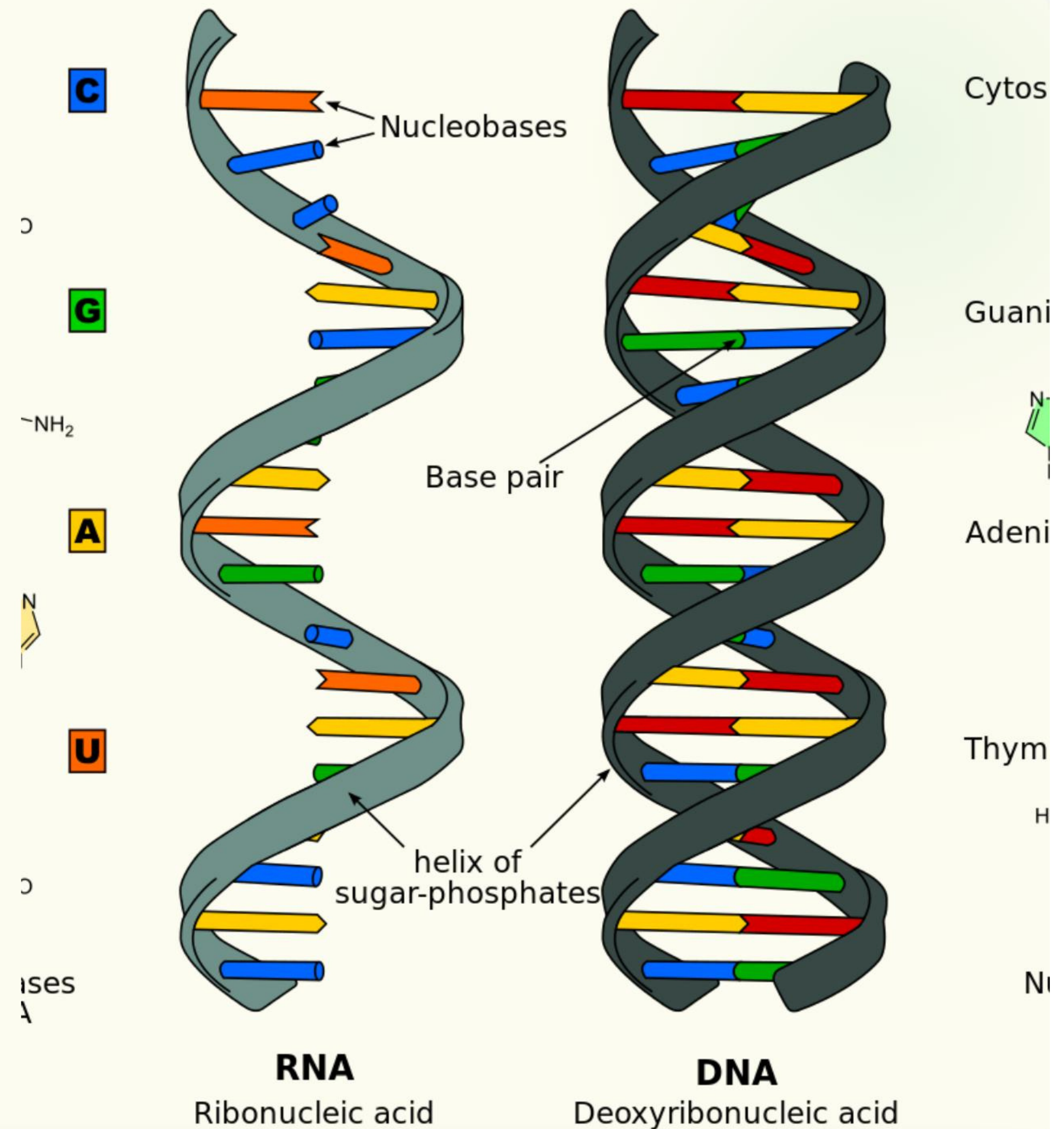
Difference 1: The Shape

DNA: Double Helix

Looks like a twisted ladder with two sides.

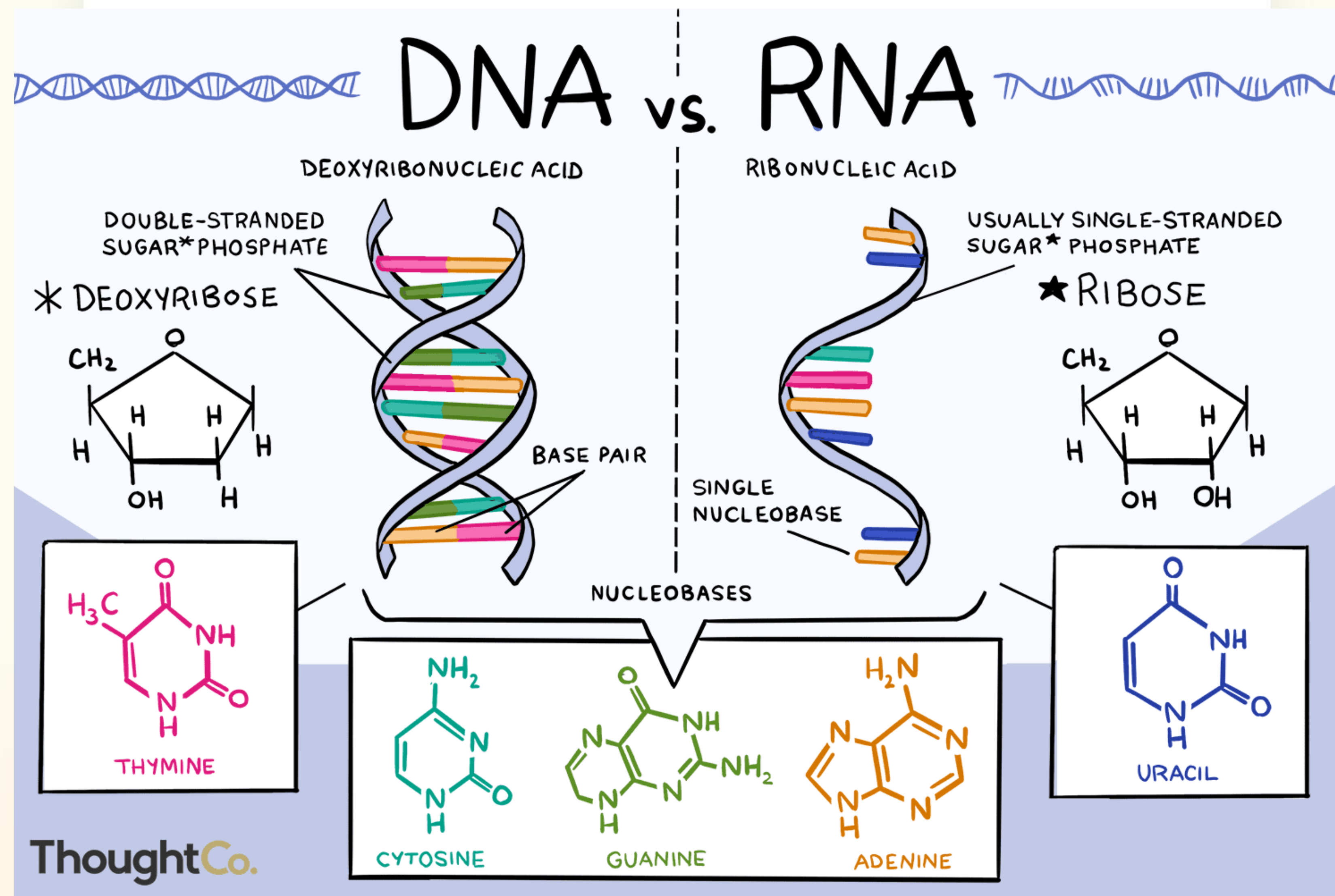
RNA: Single Strand

Looks like a ladder cut perfectly in half.



Difference 2: The Sugar

Ribose vs Deoxyribose



Deoxyribose (DNA)

The "Deoxy" part means it is missing one oxygen atom!

Ribose (RNA)

Uses a complete sugar called Ribose.

| Difference 3: The Alphabet

4

Key Bases

Nitrogenous Bases

Both use A, C, and G. But they have a different 4th letter:

DNA: Uses **T** (Thymine)

RNA: Uses **U** (Uracil)

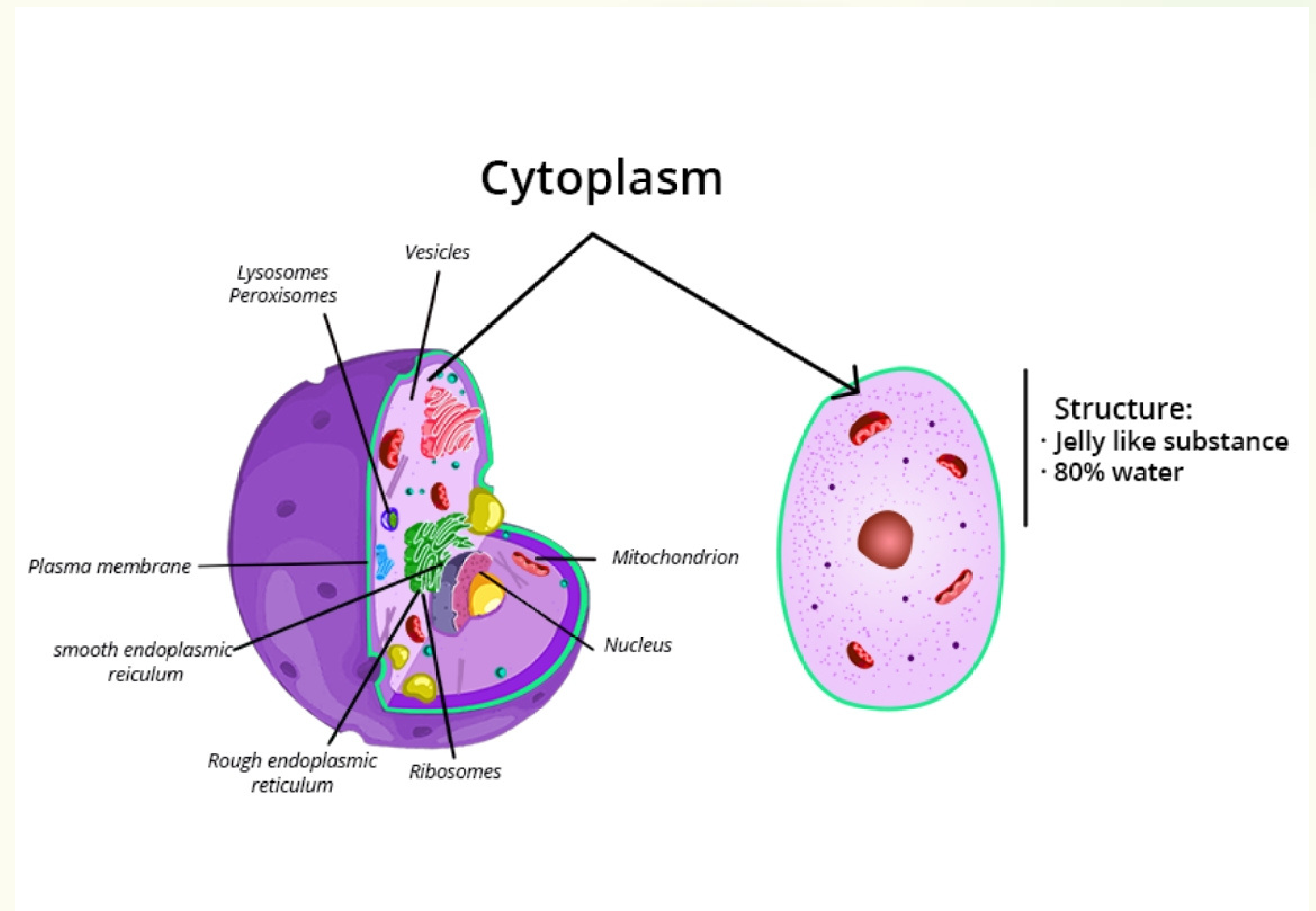
DNA: A-T, C-G / RNA: A-U, C-G

Difference 4: Location

Where do they live?

DNA: Never leaves the **Nucleus**. It stays in the "vault" to keep your data safe.

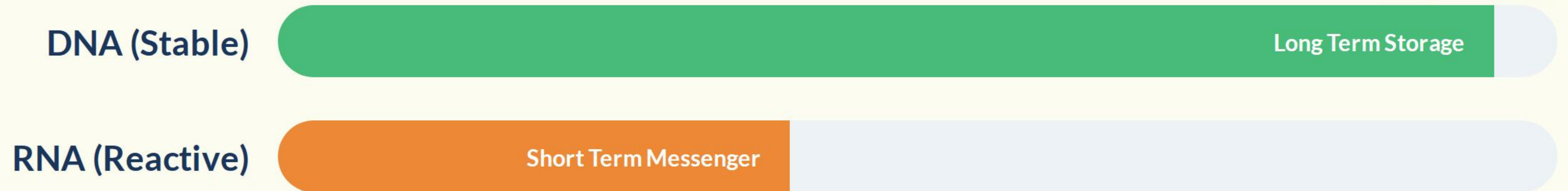
RNA: Starts in the Nucleus, but travels out to the **Cytoplasm** to work.



The Big Comparison

Feature	DNA	RNA
Shape	Double Helix	Single Strand
Sugar	Deoxyribose	Ribose
Bases	A, T, C, G	A, U, C, G
Location	Nucleus only	Nucleus & Cytoplasm
Job	Master Blueprint	Messenger / Builder

Molecule Stability



DNA is designed to last a lifetime, while RNA is built quickly and recycled when its job is done.

| Quick Pop Quiz!

- ✓ Which molecule looks like a twisted ladder? (Answer: DNA)
- ✓ Which molecule can leave the nucleus "library"? (Answer: RNA)
- ✓ What letter does RNA use instead of 'T'? (Answer: Uracil - U)
- ✓ Which one is known as the "Master Blueprint"? (Answer: DNA)