

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Lesson objective	Introduction	Main activity	Reflection	Success criteria
What is genetics?	Explain that genetics controls everything about our appearance, health and behavior	Go over the power point slides	Understand what is genetics and its role	I can understand why genetics is important
What is the DNA, how information can flow from DNA to the proteins	DNA contains indication for constructing our body and make us survive. Information contained in each gene are copied to RNA and then translated into a protein	Go over the power point slides	Reflect on	I can understand the differences between DNA, RNA and proteins
How is stored the genetic information	DNA is organized into chromosomes and each chromosome in a couple is passed by one of the parents	Go over the power point slides	How information is passed trough generations	I can understand and explain how genetic information correlates individuals

Genotype vs phenotype & genealogical trees	There's a difference between the genetic information and the appearance	Go over the power point slides and make genetic exercises	Genetic regulation can be complex	I can solve a simple genetic exercise. I can understand the difference between dominant and recessive alleles
Genetic illnesses	Transmission and outcome of a mutation depends on where is located	Go over the power point slides	Genetic illnesses are the (cheap) cost of evolution. They can be triggered by chemicals or radiations	I can understand and explain how comes some genetic illnesses occurs differently between male and females. I can describe the difference between aneuploidies and genetic mutations.

Power point Example

NEUROHEADWAY

Neuroscience Into Education

Part I

Topics:

- What is genetics?
 - What are genes? And where they are?
 - The paradigm of biology
 - What's the genetic code?
 - The genome
 - Chromosomes
-

Part I - What is Genetics



Julianne Moore and her daughter

Part I - What is Genetics



Reese Witherspoon and her daughter

Part I - What is Genetics



The Brangelina

Part I - What are Genes? And where they are?

A gene is a piece of information, it contains the recipe for making you.

Genes tell what our eye, skin, hair color is, how tall are we, etc.

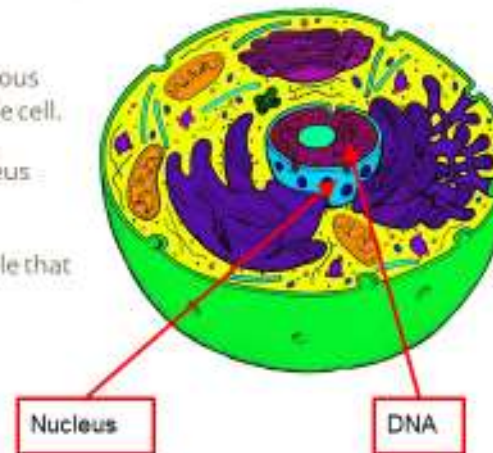


Part I - What are Genes? And where they are?

Since they tell everything about us, they are really precious and they're hidden in a very safe spot, the nucleus of the cell.

We are made of cells and each of them contains a nucleus which is the cockpit of the cell.

Inside the nucleus there's the DNA, which is the molecule that contains the genes...



Part I - What are Genes? And where they are?

The nucleus works like a caveau, the informations that are stored inside, cannot go out...

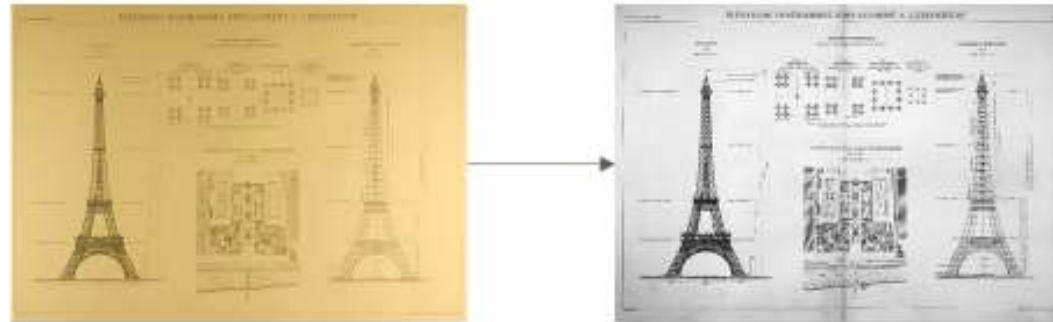
So imagine that inside the caveau are stored the plans for making the Eiffel Tower. You have to build it, but you cannot take the plan with yourself.

What would you do?



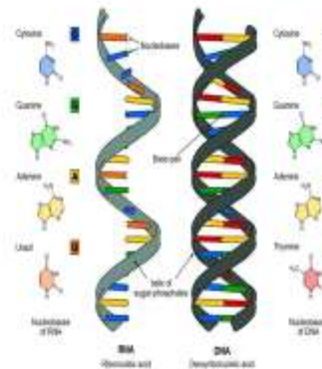
Part I - What are Genes? And where they are?

Simple, you make a copy of it...and as you can see, the copy is a little different



Part I - What are Genes? And where they are?

RNA: Is the molecule that is used to copy the information stored in the DNA. Is made of a single helix and instead of Thymine (T), there's Uracile (U) in order to distinguish the copy from the original



DNA: Is where genes are stored. Is a double helix made of little bricks named nucleotides. There are 4 of them: Adenine (A), Thymine (T), Cytosine (C), Guanine (G)