**“THE MOLECULE OF LIFE”**

**Biology in third year of secondary school**

**Creator:** Prof.ssaMaddalena Fontana

**Student profile:** 25 students, aged 12-13.

**1st teaching period**

***1st Activity: INTRODUCTION: WE ARE THE STORY***

**Time:** 30 MINUTES

**Type of activity**: ORAL EXPOSURE OF THE PROJECT, WITH REFERENCE TO THE STAGES TO BE TAKEN AND THE PURPOSES TO BE ACHIEVED.

IN THIS FIRST PERIOD OF ACTIVITY, A VIDEO DOCUMENTED SOCIAL EXPERIMENT IS OFFERED TO THE PUPILS, SHOWING OUR GENETIC HISTORY IN REFERENCE TO THE DIFFERENT ETHNIES IN THE WORLD.

**Class organisation:** THE PUPILS ARE PRESENT IN THE CLASSROOM.

**Actions/Tasks:** AT THE END OF THE VISION, THE PUPILS ARE ASKED TO DRAW THEIR FAMILY TREE, USING THE MATERIAL PROVIDED BY THE TEACHER.

**LINK VIDEO:**

<https://youtu.be/7mqWYuKvbXY>

***2nd Activity: STRUCTURE AND FUNCTION OF DNA***

**Time:** 30 MINUTES

**Type of activity**: LET'S ENTER THE TOPIC. THE PUPILS ARE PROVIDED, THROUGH TWO VIDEO LESSONS, ALL THE BASIC KNOWLEDGE ON THE STRUCTURE AND FUNCTION OF DNA. THEN A THIRD VIDEO IS PROVIDED TO GIVE THEM KNOWLEDGE ABOUT THE BUILDING OF A DNA MOLECULE.

**Class organisation**: IN CLASS

**Actions/Tasks:** DEEPENING OF THE LESSON THROUGH VIDEO, VIRTUAL PAGES AND TEXT BOOKS. IN ADDITION THE PUPILS ARE ASKED TO DO A GROUP WORK AS A TASK AT HOME: CREATING THE STRUCTURE OF THE DNA ACCORDING TO THEIR CREATIVITY (DRAWING ON CARDBOARD, 3D STRUCTURES ETC ...)

**Link Video LESSON**

[**https://youtu.be/\_POdWsii7AI**](https://youtu.be/_POdWsii7AI)

[**https://youtu.be/6368Y-OfU9U**](https://youtu.be/6368Y-OfU9U)

[**https://youtu.be/BkHKGSDP55Y**](https://youtu.be/BkHKGSDP55Y)

**2nd teaching period**

***1st Activity: HANDMADE MOLECULE***

**Time**: 30 MINUTI

**Type of activity**: EVALUATION OF THE WORKS ASSIGNED IN THE FIRST LESSON CONCERNING THE REALIZATION OF THE DNA STRUCTURE.

**Class organisation**: IN CLASS.

**Actions/Tasks**: THE PUPILS PRESENT THEIR WORK AND THEY DISCUSS IT WITH THE CLASS.

***2nd Activity: LET'S REVIEW…. THROUGH THE "GAME".***

**Time:** 30 MINUTES

**Type of activity:** THROUGH INTERACTIVE GAMES WE STRENGTHEN THE CONCEPTS ALREADY EXPLORED.

**Class organisation:** IN CLASS

**Actions/Tasks**: PUPILS ARE INVITED TO PRACTICE REVIEWING CONCEPTS ALREADY FACED BY USING THE INTERACTIVE GAMES PREPARED BY THE TEACHER.

**LINK INTERACTIVE GAMES:**

<https://learningapps.org/watch?v=p487s9s0c22>

<https://learningapps.org/watch?v=p3pm75j1j22>

<https://learningapps.org/watch?v=pqvbw4gca22>

**3nd teaching period**

***1st Activity: SCIENTIFIC EXPERIMENT***

**Time**: 15 MINUTES

**Type of activity**: TUTORIAL VIDEO ON THE EXTRACTION OF DNA FROM A FRUIT (BANANA).

**Class organisation**: THE LESSON IS HELD IN THE SCIENTIFIC LABORATORY.

**Actions/Tasks**: PUPILS ARE INVITED TO ORGANIZE THEIR OWN WORK BENCH TO PROCEED WITH THE ACTIVITY.

***LINK TO THE VIDEO-TUTORIAL ABOUT THR EXTRACTION OF DNA :***

***<https://youtu.be/pdDP9OcqcbA>***

***2nd Activity: SCIENTIFIC EXPERIMENT***

**Time:** 45 MINUTES

**Type of activity:** EXTRACTION OF DNA.

**Class organisation:** SCIENTIFIC LABORATORY.

**Actions/Tasks**: EACH STUDENT WILL PROVIDE HIS OWN EXTRACTION UNDER THE SUPERVISION OF THE TEACHER.