



Lesson Plan

Title	DNA
Aims of the lesson:	Terms such as DNA, genes are familiar even to children in primary school. The program does not address the teaching of this topic, but ambitious and willing person can enter the world of genetics at this stage of education. Aim: to present the topic of DNA isolation in interesting and accessible way for students
Learning Outcomes	Additional activities in genetics, in which students learn basic information about the hereditary substance called DNA, and will have the opportunity to isolate and see the strands of fruits and vegetables DNA with the help of well-known methods, using reagents available in every kitchen.
Methodology	Lecture (introduction) Work in groups on experiment
Resources	Classroom equipped with basic laboratory devices Fruit and vegetables Water
Content of the classes	Basics of genetics The teacher explains what it is DNA, which is located in the cells and what is responsible for. Teacher moderates a talk with students aiming to foster curiosity of subject of classes. Teacher asks questions, and students are trying to find answers: What are the qualities we inherit from our parents? How does each tiny cell could contain 2 meters of DNA chain? Do plants also have genetic material? Why do scientists isolate DNA from cells?
Practical exercise	Isolation of DNA from fruit and vegetables Students with the teacher perform the following experience. Pour about 100 ml of water to the beaker, add a teaspoon of dishwashing liquid and 2 teaspoons of salt, then mix. Cut half a tomato (or other vegetable or fruit) into smaller pieces and mix (a few seconds) using a blender. Add reconstituted fluid and salt to pieces of tomato. Put the beaker with a mixture for about 15 minutes in the water with a temperature of about 60 ° C , then move in a bowl of ice or cold water for 5 to 10 minutes to cool it. Then pour the tomato mixture through a coffee filter. The collected filtrate pour into a test tube and add to it a small amount of concentrated, cold ethyl alcohol (from the freezer) , gently pouring the walls . DNA precipitates from the solution in the form of visible threads and lint (accompanied by air bubbles). The role of the various stages of DNA isolation:





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	<p>mixing - mechanically destroys the cell walls salt and dish soap (detergent) - break down cell membranes and nuclear, in which DNA is hidden incubation at 60 ° C - accelerates the disintegration of membranes and destroys the DNA -degrading enzymes filtering – enables the separation of cellular debris from the solution (filtrate), which contains the DNA ethanol - causes the dissolved DNA is precipitated from the solution and is visible in the form of threads.</p>
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