

Learning Unit	
Subject	Mathematics
Title	Equation of lines
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Description of the unit	To break the students into three groups Every group receives its task 1. Newton's serpentine 2. Astroid line 3. Agnesi curl The groups give these tasks for two weeks.
Contents	Every group prepares the historical materials concerning the tasks, constructs graphics with help of a computer, every participant constructs manual graphics as well. Then every group presents its work. The teacher evaluates these works.
Learning Outcomes / Skills <i>навыки</i>	Every student can independently find the needed material, studies to work in groups, to see and understand other student work, to respect other opinions, and present his work in the class of students.
Target students/class	The 10th class (students of 16 -17 years old)
Prerequisites	The students have knowledge about the theme concerning the equations of lines, circle, parabole, hyperbole. They know symmetric means and trigonometric functions.
Time expected	7 hours
Interdisciplinary links	Physics
Methodology	Group work
Human Resources (internal and/or external)	Math teacher – Olga Kizikova .
Resources	Computer, Internet



Learning Unit

Lesson Plan

Theme :Equation of lines.

Purpose: To introduce the equations and graphics of such lines as Newton's serpentine, Astroid line, Agnesi curl.

Tasks:

1. To study, how to work with math tasks in the groups.
2. To find study materials independently.
3. To learn, how to evaluate each other

The lesson plan:

The class of students is broken into three groups:

The first group – Newton's serpentine

The second group – Astroid line

The third group – Agnesi curl

Every group prepares its material, where it should be historical information, graphic done at the computer, manual graphic.

The group representatives draw lots, who and when will show their presentations.

Every group presents its work according to the materials that are prepared by this group. Questions and answers.

Questions like this: What is name of the line, which are symmetric to the origin
*answer (hyperbole)

and so on.

After these presentations the students evaluate each other.

It should be / historical information, computer and manual graphics.

The evaluations are put into e.kool.

Feedback - every student answers to one question only

Do you like this lesson or not?



Learning Unit	
Assessment	All students have received ratings 4 and 5.
Remarks	The students have given positive opinion about this lesson. The groups can be smaller, because these units were conducted after usual lessons. In this case it was easy to organize these units.

