Abstract: *The creation of electronic textbooks in mathematics is described as a number of steps: concept creation, computer program development, electronic textbook creation with the use of this program and printed textbook data base, use of the textbook by school teachers, the joint modification of the software by programmers, mathematicians and teachers. The electronic textbook idea lies in the fact that the text of paper textbook becomes the basis, on which tasks of the same kind are created. A teacher requires a kind of a semi-finished textbook where a teacher selects a necessary version from several others. InMA program provides it. Each file has a text on methodic of teaching, where basic formulae, tasks and control elements of the file are indicated.*

InMA program allows creating electronic textbooks, with the use of which interactive pictures, diagrams and texts, with changeable parameters can be reproduced. The program content coincides with the images normally used by teachers and students on the blackboard in the educational process. The representation of formulae is designed taking into consideration appearance and disappearance of brackets, coefficients and powers when interactive coefficients are altered. Interactive formulas ensure the conclusion of the chains of conversions in the customary form. Geometrical objects presentation takes into consideration the common determination of equal elements, right angles, possibility of comparing the objects by moving the surface, posses of a built-in geometrical constructor, and measurement tools. The program ensures the functioning of interactive points and diagrams (limitation of motion by curve, by surface, rational coordinates).

Recently a computer has become an essential part of both a teacher and a pupil's life. Constructor-programs serve as additional and important tools of the educational process amplifying its possibilities by allowing the teacher's creating an interactive picture out of a set of basic elements, save it and publish. However a comprehensive approach is crucial when learning math as separate files dedicated to different topics cannot make any all-embracing deductive material.

InMA projects are based on several sets of text-books popular among Russian teachers. The created electronic software can be downloaded from the content of any text-book of the set. It gives a systematic unified approach to learning math using the chosen text-book. Any task from the text-book serves as a basis for creating several similar tasks. A teacher posses of a semi-ready product allowing him choosing the necessary variant out of multiple options thus creating a suitable logical chain corresponding to the studied material. Each file of the electronic text-book corresponds to a certain topic, is provided with a text explanation of a deductive method, with the indication of basis formulae, incorporated tasks, file guide-lines, necessary definitions, recommended installations, special installations using which the task may have a non-standard solution. After entering a file the teacher may see the tasks from the chosen text-book that can be easily modified by making them more or less complicated, highlighting certain aspects as it is needed for the comprehension of the material to be learnt. The computer page looks almost like the one the teacher used before computerization of the process which allows him explaining the material as he got used to. That makes the process of learning to apply the program easier for the teacher at the same time giving him the possibility of modifying the tasks by inputting new parameters and geometric drawings while the correct result is kept.

Computer games technologies so much loved by most of children are used in InMA electronic text-text book. Special program written using the most advanced computer language with highly dynamic interface is used in InMA program.

Special usage manual allowing using InMA with text-books was created.

InMA electronic text-book gives broader possibilities to teach pupils with different knowledge levels, thus the use of the same product on the one hand visualizes the teaching process in class and on the other hand gives talented pupils the chance of penetrating into mathematics as science. InMa potential is so broad that it can hardly be exhausted in class. It gives both the teacher and its pupils the choice thus securing a creative approach to learning mathematics by turning it into an interesting game with wonderful interactive drawings. The program encourages the young

people's extraordinary way of thinking, they are more interested in experimenting and investigating their ideas while controlling the process themselves rather than in working within strictly set limits. Even more so such interactive math could turn into a favorite subject for the pupils having difficulties remembering formulae the knowledge of which is considered weak. For them a dynamic drawing that can be modified becomes the most important deductive method.

Teachers having used InMA electronic text-books point out that for the thoroughly studying pupils it has become easier to solve dozens of similar tasks and check the answers themselves. The text-book makes the process of controlling their children's solving the tasks easier for their parents lacking mathematical knowledge while the book does it automatically. The text-book makes the process of learning for the pupils who often get ill or disabled ones more efficient.

Normally the teacher uses an electronic text-book while giving a lecture making the demonstration when the best pupil makes manipulations with the computer. Thus the other pupils as usual learn using the text-book very quickly especially when they are honored by an excellent mark. If the classroom is not equipped with an interactive blackboard a multimedia projector is used. The teacher gives orders to a pupil working with a computer for example: "Show a parabola, set $a = 4$ etc" at the same time working at the screen and controlling the others. Using the electronic text-book the teacher easily involves the pupils into a discussion, the subject is studied while the pupils are interested in changing the parameters of the task, alter the drawing while playing with it. The following could be an example of a home task: "To find such parameters of a rational equation when all the numerals but one could be its solution."

These are some peculiarities of InMA project.

The classic mode of mathematical expressions is used in the software, for example, while learning a function diagram the active point with the inscribed coordinates is tangential. It is clear that its coordinates are computer numerals, i.e. approximate not mathematical ones which in Russian school should be exact. If the point moves under parabola $y = 1 / x$ and its abscissa equals 3, it ordinate should equal 1/3, by no means it may equal 0.33 (two numbers after comma). The situation with the coordinates of the cubic parabola diagram is even worse. As its result the principal mathematical differences such as the difference between linear and quadratic function get lost. Under such circumstances even the great Fermat's Theorem could easily be contradicted. So if the abscissa of a point of a root diagram equals 2 its ordinate should equal $\sqrt{2}$, if the abscissa equals $\frac{1}{9}$ its ordinate should equal $\frac{1}{3}$, if the abscissa is 4 its ordinate should equal 2. All this calculations should be done automatically. Otherwise the pupils will show the teacher a calculator with the root taken incorrectly but with more numbers after comma.

InMA *«Formulae»* allow presenting on the screen interactive text information in the way most common for the teacher. For instance, coefficient 1 is not shown, (−1) changes the mark of the numbers coming next, the brackets are put in the multiplication, if the multiplier entails several components, degree 1 is not shown, zero degree is substituted by 1, which depending on the context may either be shown or missing. Negative degree may be shown in the form of a fraction where the numerator occupies a higher position and the denominator is not shown, the horizontal fraction number line between them, the root of the quadratic equation if the root cannot be taken is marked with a root sign, if it can be taken it is written as a whole or a rational number.

InMA «*Control panel*» allows choosing an interactive drawing, input into it numbers of different type (whole numbers, rational numbers in the form of a fraction, etc) with set limits.

InMA «*Interactive points*» allow presenting on the screen drawings that can be altered, set certain movement limits etc

InMA «***Interactive diagrams***» include the drawing of any algebraic function used in school math course, creation of an interactive coordinate system with alternatives of a start point, unit vector and axis length, the applicable formulae and definitions are shown on the screen at every moment.

Interactive InMA tools include contextually dependent library of deductive material and explications to the topic chosen ("Description"), contextually dependent library of formulae, definitions etc ("Vocabulary"), interactive geometric tools, teaching modules for teachers.

The most advanced electronic text-book is created in collaboration of programmers, mathematicians and experienced teachers.

The demo materials can be found at http://www.inma-cmd.ru.