

## Programming for math losers

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Many teachers think that a student who is not good at math cannot be good at programming and therefore there is no point in wasting time with him. And that's a mistake. Big mistake. Let's analyze it from several points of view:

- 1) More than 10,000 people are missing in the IT field in Europe. At the same time, programmers are only a minority in the IT field. So, if we limit the education of such students, we might deprive society of a quality data analyst, network administrator, mobile phone repairman, etc. And all this just because of the limitations of the teacher.
- 2) Teaching pupils to programming is primarily about improving their algorithmic and logical abilities. Not about programming. After all, we don't even teach language so that every student becomes a writer, or we don't teach physical education so that every student becomes a professional athlete.
- 3) When we look at the development of any program or game, in addition to the programmer, there are also graphic designers, testers, marketing workers and other positions. It is advisable that everyone understands programming, even if they work in a different position.
- 4) When a student has a positive interest in something, it is a big mistake to prevent him from doing so. Because once we destroy his interest, it will be difficult to restore it again.
- 5) Everyone needs to achieve success. But the term "success" may not mean the same thing to everyone. For some, success is winning a programming competition, for some, success is lighting up all the LEDs on a microbit.

And now we will see how to teach programming to bad students in mathematics. There is a simple answer to that: just like students who are excellent in mathematics. The only difference is in the pace at which individual students will go. Teamwork can help. And it doesn't hurt at all if students program on something that also builds other skills than just programming - for example, LEGO. Because a team of 2 or 3 students can divide their work (designer, programmer, presenter) in such a way that each of them does something that they consider their success and at the same time learn something from the other members of their team.

At our school, we have very good experience with the activity "pupils teaching pupils", where pupils from higher grades teach something to pupils from lower grades. At the end, you can see some photos from such activities.