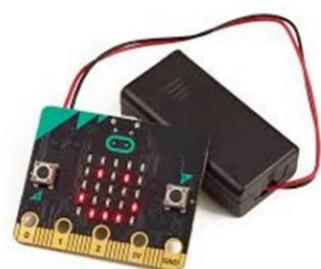


Introduction

During the academic year 2018/2020, a number of teachers from the Fortunaschool in Denmark are working with BBC Microbits and programming. This is for developing the pupil's confidence in solving different mathematical aspects, and abstract thinking. Our primary target group of students are between the ages 10-11.

Why?

The ambition with the programming of the Microbits is to inspire our children to be more than only users of the technology, but creatively create with technology. We know that children are big consumers of technology. Can we as a school make the children more interested to get behind technology and make them understand the meaning with it, and give them possibilities to see the math aspects we can give the children a complete new mindset about Maths and programming.



Challenges with programming

How we manage the groups, some are faster to learn than others, how do we differentiate the tasks?

The teachers have to be very good at programming, do we have the resources?

Key Objectives

Increase children's understanding of the abstract part in Maths.

Increase the technology mindset of the children through programming.

Help the children to see, that problems can be solved more open ended.

To increase the level of enjoyment of Maths and programming.

What do we mean with programming?

To program is to make a code that gives the Microbit a specific function.

The coding is split in different colors (green, yellow and red) Green is the easy coding and red is the most different.

The codes can be used very specific, but can also be used specific for a given task or project.

How can we use Microbits in school and home?

We use the Microbits in different subjects because they have many abilities. Only the imagine limit the possibilities.

We have different programming manuals for each subject, and the students can make their own programs and manuals. Often the children work with the Microbits at home, and then show what they found out in school.

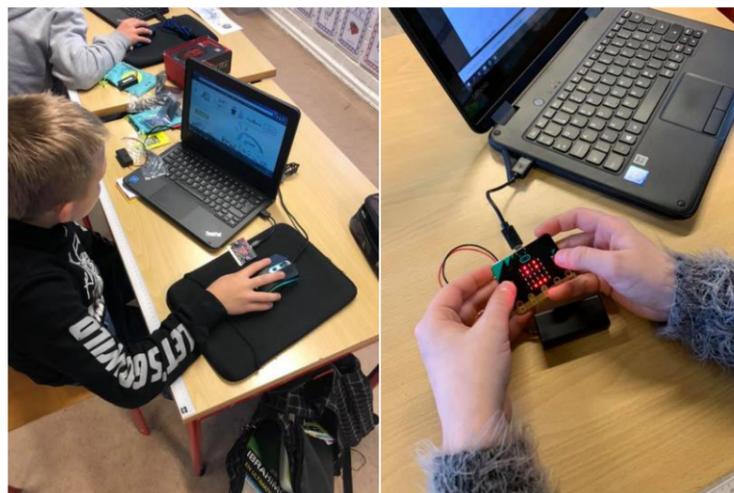
If the program on the Microbit do not work, they can discuss with their parents at home, at maybe problem solve why.

Which problems have we faced?

The teachers and the pedagogues did not have the necessary knowledge about the Microbits, and we had to send them on a course.

To program the Microbits, and understand how they work, requires a lot of time, and sometimes we do not have etc. Maths for 4 hours a day, and we have to put the Microbits away, and the work on it another day, or maybe at home.

If the parents cannot help the children at home, if they are stuck in a programming part or the coding does not work after it transmitted to the Microbit.



What can we program?

- To measure temperature
- To be a dice
- Be used as a calculator
- Be used as a ruler or protractor
- Used for probability calculus
- Code the Microbit for statistics and movement.
- Etc.

Student reflection

It is fun to use the computer and Microbits more in the Math lessons

It is fun to program, and to see how the Microbit works or not works, when we have programmed it.

Some manuals for programming are different to read

It gives Math another dimension

It is fun to use Maths with the Microbits. We have programmed the Microbits to be used as dices.

To use Microbits is more fun, than reading books.

To program, helps me to think more abstract, which helps me in understanding Maths.

Parent reflection

I can see what programming does for my child.

She uses the computer more than usual, because the programming is fun

He is talking more about maths after they started programming in class

Teachers reflection

My students are getting better to solve different tasks in Maths, and do not give up as easily.

The students seems more interested in Maths, when we program, as when we use the books.