As we are aware, teaching children lines of code such as:

' A "Hello, World!" program in Visual Basic.

Module Hello

Sub Main()

MsgBox("Hello, World!") ' Display message on computer screen.

End Sub

End Module

Is not really the best way to get children into programming, it looks like loads of lines of text, and when being introduced to something at a young age, it’s not really what you want to see. I’ve looked on the internet and found some free open source software which we can use to teach kids.

**Scratch:** [**http://scratch.mit.edu/**](http://scratch.mit.edu/)

Scratch is web-based so easy to set up, and it teaches the basics of what a program does, such as loops and say commands. It’s very visual and easy to do. I believe this should be one of the first pieces of software we use, as it actually makes programming look fun and interesting. Another feature Scratch as is that you can share your projects, meaning the children can upload/download other projects in order to see what can be created.

Lessons could involve from teaching children the basics such as moving ‘Scratch’, how to make him talk for a specific amount of time, adding sounds to the animation, changing the backgrounds, making a specific section repeat and potentially variables.

**Alice:** [**http://www.alice.org/index.php**](http://www.alice.org/index.php)

***Primarily for girls***: Using Alice you can drag and drop objects in to your scene/story and when you do it pops up windows where you enter properties for the items. Once you have your scene set up you can edit the code by clicking on the object (your alien for example), but the edit screen is not your standard 'code' view, instead it’s friendly to kids by giving them pull down menus of actions.

“Alice requires a download however it is free and can be used for commercial use. In Alice's interactive interface, students drag and drop graphic tiles to create a program, where the instructions correspond to standard statements in a production oriented programming language, such as Java, C++, and C#. Alice allows students to immediately see how their animation programs run, enabling them to easily understand the relationship between the programming statements and the behaviour of objects in their animation. By manipulating the objects in their virtual world, students gain experience with all the programming constructs typically taught in an introductory programming course.”

Another thing about Alice is on the website they actually have teaching materials, and of course we are not allowed to use them in an “commercial endeavour”, however, that doesn’t mean we can’t view them and get ideas.

**Sagan: http://sagan.be/**

***May be a bit to advanced, target audience is around 10/14*** - Sagan is an open source project where you can simulate the Mars rover. It comes with three Mars landscapes and you program your rover to move around. It’s completely free and similar to Alice, it’s got tutorials on the website, however these ones we can use. I didn’t have time to fully test this, however, from a few Youtube videos, it seems possible.

**KTurtle:** [**http://www.kde.org/applications/education/kturtle/**](http://www.kde.org/applications/education/kturtle/)

***Mainly linux however Windows versions have been released:*** Another free piece of software we can use in schools. Similar to Scratch except with a programming side to it aswell, users will put commands in such as:

X = 1

[

forward 100

turn left 120

forward 100

turn right 18 x

x = x + 1

]

and then the turtle will act out the commands. This particular command will make a triangle shape. However, a command after x = 1 is put in, such as repeat 42, the command will repeat 42 times, making the turtle make a triangle slowly going on a different angle 42 times. This shows kids what programming is, but also has a visual representation of what is going on, which can be really effective.