

## Great Starter Resources for Programming

### Intro Level

- Scratch: [scratch.mit.edu/](http://scratch.mit.edu/) Drag and drop programming IDE. Really great online community that supports program swapping.
- Alice: [www.alice.org/](http://www.alice.org/) 3D programming environment that makes it easy to create an animation for telling a story, playing an interactive game, or a video to share on the web.
- Computer Science Unplugged: [csunplugged.org/](http://csunplugged.org/) A collection of [free learning activities](#) that teach Computer Science through engaging games and puzzles that use cards, string, crayons and lots of running around.

### More Advanced

- AppInventor: [www.appinventor.org](http://www.appinventor.org)
- Python: Runestone Interactive Project.  
[interactivepython.org/courselib/default/user/login?next=/courselib/default/index](http://interactivepython.org/courselib/default/user/login?next=/courselib/default/index)  
Two interactive textbooks: *How to Think Like a Computer Scientist Learning with Python: Interactive Edition* and *Problem Solving with Algorithms and Data Structures*.
- Python: *Media Computation in Python* [coweb.cc.gatech.edu/mediaComp-teach#Python](http://coweb.cc.gatech.edu/mediaComp-teach#Python)
- *Processing*: Open source programming environment with examples, tutorials, discussion forum
- Codecademy: [www.codecademy.com/learn](http://www.codecademy.com/learn) JavaScript
- Blue Pelican Java: [www.bluepelicanjava.com/](http://www.bluepelicanjava.com/) Free online textbook.
- Alfred Thompson's blog on getting started with making games for Windows using XNA Game Studio at [blogs.msdn.com/b/alfredth/archive/2011/05/10/programming-with-c-and-xna-0-5-jump-start.aspx](http://blogs.msdn.com/b/alfredth/archive/2011/05/10/programming-with-c-and-xna-0-5-jump-start.aspx)

## Microsoft Resources

<b>Microsoft Classroom Tools for Educators</b>		
DreamSpark	DreamSpark provides no-cost access to professional-level development and designer tools for schools and students.	<a href="http://www.dreamspark.com/default.aspx">www.dreamspark.com/default.aspx</a>
Kodu	<b>Game Design:</b> Kodu lets kids create games on the PC and Xbox via a simple visual programming language. Kodu can be used to teach creativity, problem solving, storytelling, as well as programming. Anyone can use Kodu to make a game, young children as well as adults with no design or programming skills. Includes a classroom kit for educators	<a href="http://fuse.microsoft.com/page/kodu">fuse.microsoft.com/page/kodu</a> <a href="http://csamarktng.vo.msecnd.net/kodu/pdf/kodu_curriculum_Xbox_controller.pdf">csamarktng.vo.msecnd.net/kodu/pdf/kodu_curriculum_Xbox_controller.pdf</a> Kodudes: <a href="http://sites.google.com/site/koduxperts/">sites.google.com/site/koduxperts/</a>
Expression	<b>Web design:</b> Microsoft Expression Studio 4	<a href="http://expression.microsoft.com/en-">expression.microsoft.com/en-</a>

Studio	includes four design and development tools for building rich desktop experiences and Silverlight for standards-based websites and streaming video. There are many tutorials, lessons, and curriculum resources available for beginners and more advance students. <b>Available in DreamSpark.</b>	<a href="http://us/default.aspx">us/default.aspx</a>  <a href="http://expression.microsoft.com/en-us/dd252934">expression.microsoft.com/en-us/dd252934</a>
	Advanced Expression tutorials: Includes lessons on including Photosynth and other media.	<a href="http://www.microsoft.com/education/facultyconnection/bz/articles/articledetails.aspx?cid=2266">www.microsoft.com/education/facultyconnection/bz/articles/articledetails.aspx?cid=2266</a>
	Expression Video Gallery: Many short videos on specific topics. Very useful for the independent learner or classroom introductions.	<a href="http://expression.microsoft.com/en-us/cc136535">expression.microsoft.com/en-us/cc136535</a>
Photosynth	Enables students to upload many photos on a single topic (trip to a park or museum) that will be converted to an interactive panoramic image. There are also many great projects posted by others.	<a href="http://photosynth.net/">photosynth.net/</a>  <a href="http://blogs.msdn.com/b/photosynth/">blogs.msdn.com/b/photosynth/</a>
Deep Zoom	Enable user to convert a digital photo into a “zoom-able” image of great clarity. This may be too complicated for Elem. and Middle School students	<a href="http://www.microsoft.com/silverlight/deep-zoom/">www.microsoft.com/silverlight/deep-zoom/</a>
Songsmith	Songsmith generates musical accompaniment to match a singer’s voice. Just choose a musical style, sing into your PC’s microphone, and Songsmith will create backing music for you.	<a href="http://research.microsoft.com/en-us/um/redmond/projects/songsmith/">research.microsoft.com/en-us/um/redmond/projects/songsmith/</a>
World Wide telescope	Turn your computer a virtual telescope with the best ground and space-based telescopes in the world. WorldWide Telescope (WWT) enables you to explore the universe, bringing together imagery from the best ground and space-based telescopes in the world and combining it with 3D navigation. Experience narrated guided tours from astronomers and educators featuring interesting places in the sky. You can research and import your own data and visualize it, then create a tour to share with others. A web-based version of WorldWide Telescope is also available.	<a href="http://www.worldwidetelescope.org">www.worldwidetelescope.org</a>  <a href="http://www.worldwidetelescope.org/Experiencelt/Experiencelt.aspx?Page=Educators">www.worldwidetelescope.org/Experiencelt/Experiencelt.aspx?Page=Educators</a>
Mouse Mischief	Mouse Mischief integrates into Microsoft PowerPoint 2010 and Microsoft Office PowerPoint 2007, letting you insert	<a href="http://www.microsoft.com/multipoint/mouse-mischief/en-us/default.aspx">www.microsoft.com/multipoint/mouse-mischief/en-us/default.aspx</a>

	<p>questions, polls, and drawing activity slides into your lessons.</p> <p>Students can actively participate in these lessons by using their own mice to click, circle, cross out, or draw answers on the screen.</p>	<p>Download lessons:  <a href="http://www.Microsoft.com/MouseMisc/hief">www.Microsoft.com/MouseMisc/hief</a></p>
Microsoft Mathematics	<p>Microsoft Mathematics provides a graphing calculator that plots in 2D and 3D, step-by-step equation solving, and useful tools to help students with math and science studies.</p> <p><b>Available in DreamSpark.</b></p>	<p><a href="http://www.microsoft.com/download/en/details.aspx?id=15702">www.microsoft.com/download/en/details.aspx?id=15702</a></p>
<b>Computer Science Resources</b>		
Small Basic	<p>A simplified version of BASIC to bring the "fun" back to programming. Help beginners take their first steps into the exciting world of computer science.</p> <p><b>Available in DreamSpark.</b></p>	<p><a href="http://msdn.microsoft.com/en-us/beginner/ff384126.aspx">msdn.microsoft.com/en-us/beginner/ff384126.aspx</a></p>
Visual Studio	<p>Professional programming environment for Visual Basic, C++, C#. It can be extended with the SDKs for XNA Xbox game development and Windows Phone development. Express versions of the languages are also available.</p> <p><b>Available in DreamSpark.</b></p>	<p><a href="http://www.microsoft.com/visualstudio/en-us">www.microsoft.com/visualstudio/en-us</a></p>
XNA Game Studio 4.0	<p>A programming environment that allows you to use Visual Studio to create games for Windows Phone, Xbox 360, Kinect, and Windows. XNA Game Studio includes the XNA Framework, a set of managed libraries designed for game development based on the Microsoft .NET Framework. Curriculum available.</p> <p><b>Available in DreamSpark.</b></p>	<p><a href="http://www.microsoft.com/education/facultyconnection/precollegiate">www.microsoft.com/education/facultyconnection/precollegiate</a></p>
Kinect for Windows SDK	<p>A programming environment that allows the use of Visual Studio to create simulations and interactive games for the Kinect device. The Kinect for Windows SDK beta provides hobbyists and researchers with the tools to develop non-commercial applications that run on the Kinect for Xbox 360.</p>	<p><a href="http://www.microsoft.com/download/en/details.aspx?id=27876">www.microsoft.com/download/en/details.aspx?id=27876</a></p>
TouchDevelop	<p>TouchDevelop is a new approach to teaching programming: create entire phone apps directly on a smartphone, using simple programming and a touch-based code editor.</p>	<p><a href="http://www.pil-network.com/Resources/Tools/Details/27490d7b-18b4-478d-a213-a7638fd5c965">www.pil-network.com/Resources/Tools/Details/27490d7b-18b4-478d-a213-a7638fd5c965</a></p>
Robotics	<p>A programming environment for controlling</p>	<p><a href="http://www.microsoft.com/robotics/">www.microsoft.com/robotics/</a></p>

Developer Studio	<p>robots. Robotics is entering a new phase of resurgence of interest in fields ranging from assistive healthcare to military applications. Jump into the exciting areas of Robotics applications.</p> <p><b>Available in DreamSpark.</b></p>	
Pex4Fun	<p>Compile, run, and analyze C#, VB, and F# code in the web browser. Practice coding skills with Coding Duels.</p>	<a href="http://pex4fun.com/">pex4fun.com/</a>
Beginner Developer Learning Center	<p>Here, you'll find a list of links that we've put together so you can easily get to up-to-date training material that will get you started learning how to program in Windows, Web, and Phone development.</p>	<a href="http://msdn.microsoft.com/en-us/beginner/bb308786.aspx">http://msdn.microsoft.com/en-us/beginner/bb308786.aspx</a>
Coding4Fun	<p>View coding projects created for fun by beginners and professional developers alike.</p>	<a href="http://channel9.msdn.com/coding4fun">channel9.msdn.com/coding4fun</a>