

Who's Here?

1. Name
2. Library
3. STEM programming @ your Library
4. Computer science/Coding/Kids & Tech @ your Library

Session Goals

1

Why is STEM and computer science important

2

Provide familiarity with the content, coverage and location of Microsoft's Coding Resources

3

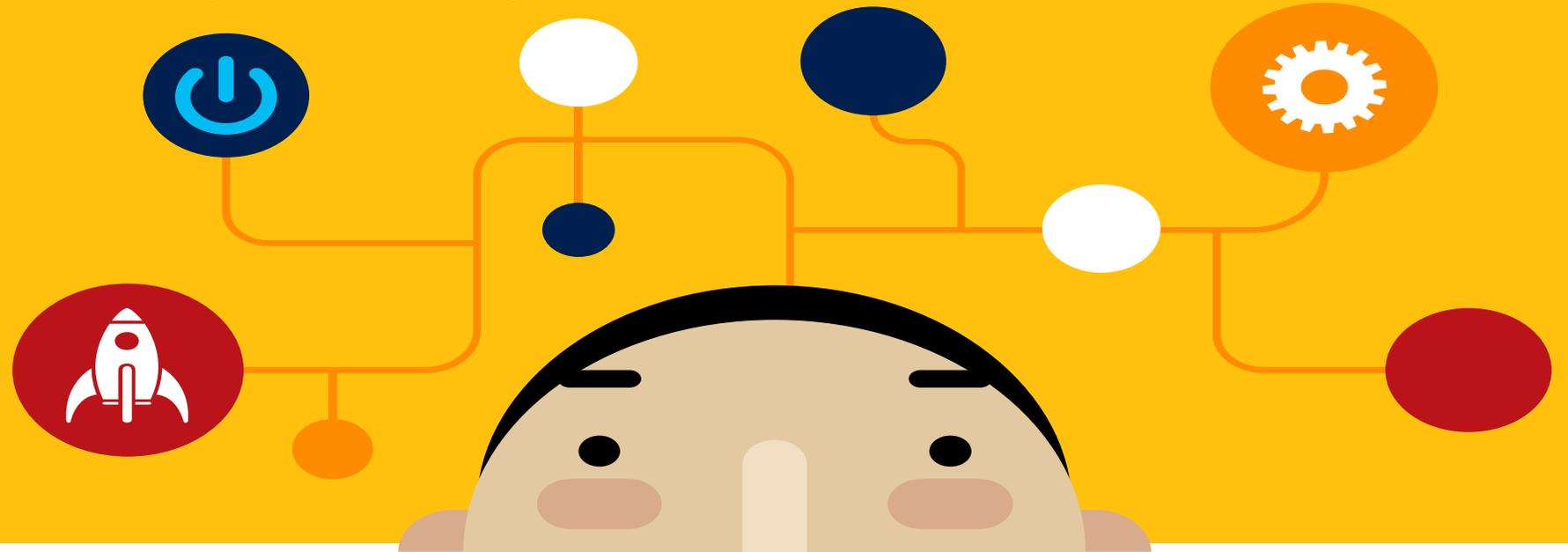
Next steps with Coding @ the Library



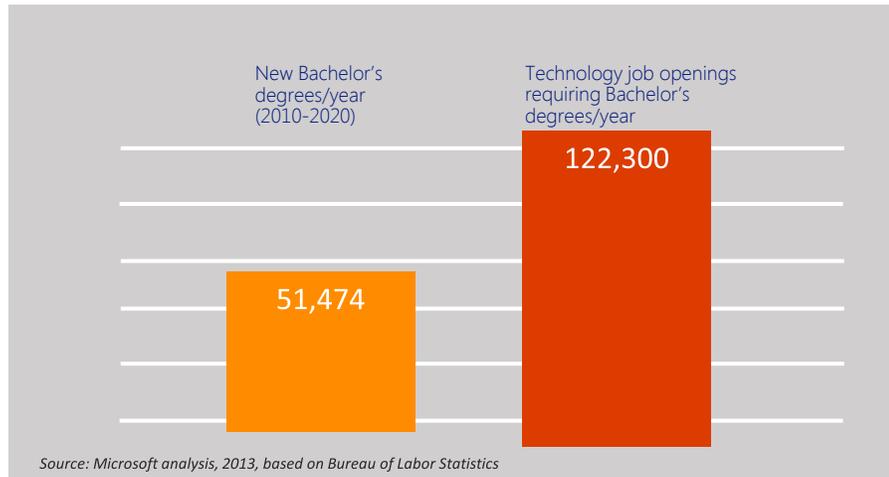
Prepare students for the 21st Century Workplace

The Microsoft IT Academy Computer Science curriculum provides hands-on experience creating new software and applications, and develops the critical-thinking and computational skills for life and careers in the digital world.

- problem solving
- critical thinking
- data analysis
- computational thinking



The race to prepare code-literate graduates for 21st-century jobs

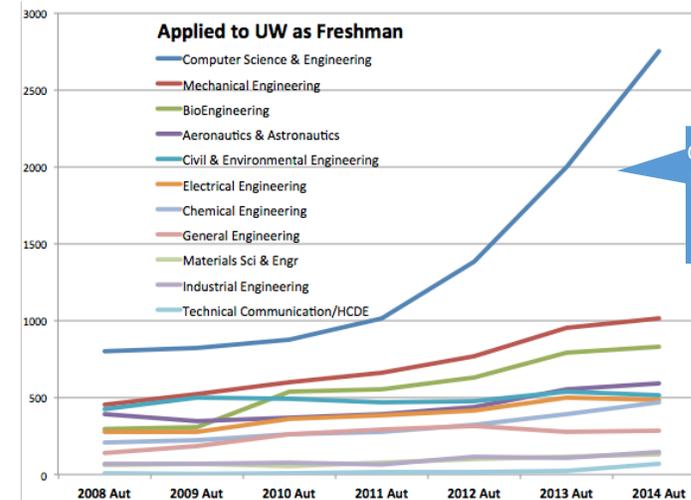


"6.2 million new IT jobs", most in cloud-related fields.
— 2013 IT Labor Shortage Report

"1,000,000 more jobs than students by 2020."
— 2013 Bureau of Labor Statistics

"Computer programming jobs growing at 2x the national average."
— 2013 Bureau of Labor Statistics

Interest in computer science has skyrocketed at colleges and universities

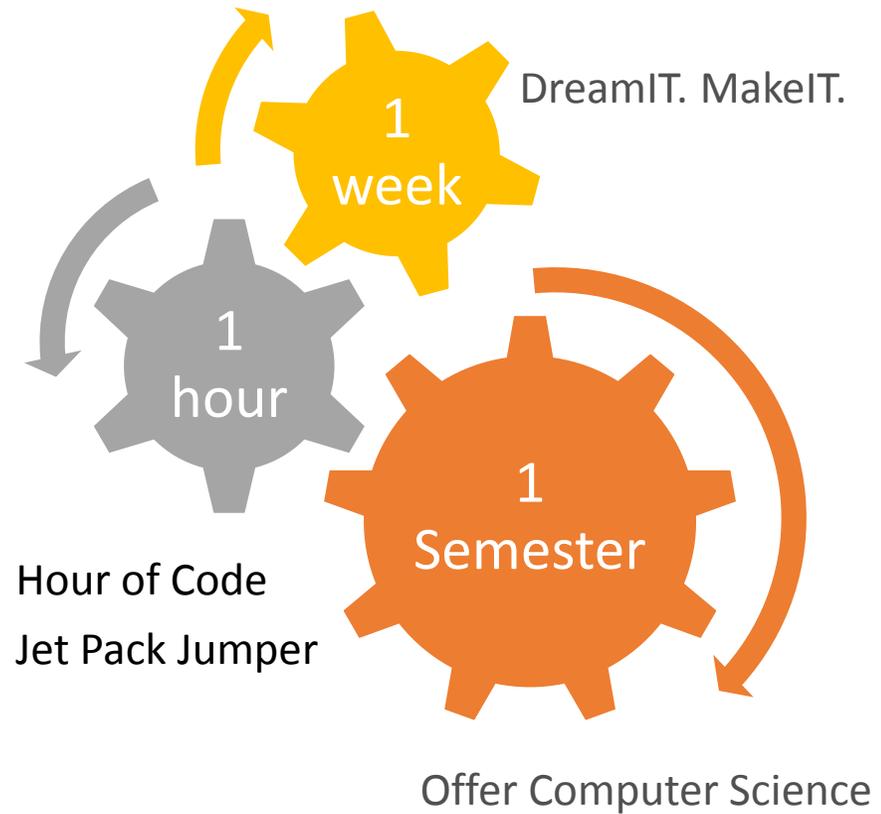


Computer Science: the highest-paying college degree.
—Forbes

"In 25 of 50 U.S. states, computer science can't count towards high school graduation math or science requirements."
— Code.org

"90% of schools don't offer computer science courses."
— Code.org

How Can You Get Involved?



IT Academy Computer Science: Interactive Experiences

<p>Interactive Experiences</p>  <p>touchdevelop</p>	<p>Immersive Learning</p> 		<p>Specialized Skill Validation</p> <p>Microsoft Official Academic Course</p> 	
<p>Elements of Computer Science</p> <p>Programming basics and building blocks introduced bit-by-bit by fixing fun apps and games in an interactive web environment.</p> <p>Optimized for students of early adolescent age studying in early secondary grades.</p>	<p><i>Hour of Code with TouchDevelop</i> Level: 100 Length: 1 hour Delivery: TouchDevelop + Video On Demand (VOD)</p> <p>A one-hour independent study course that interweaves instructional video with hands-on, guided practice in writing code, tasking students to fix a broken mobile computer game.</p>	<p><i>Dream it, Make it Classroom Extension for Hour of Code with TouchDevelop</i> Level: 100 Length: 5 hours Delivery: TouchDevelop + Instructor</p> <p>Five-hour instructor-led course that transforms the classroom into a game development start-up. Students collaborate to create and publish a fully playable game.</p>	<p><i>CODExist: The Birth of Bot</i> Level: 100 Length: 8 hours Delivery: TouchDevelop + Video on Demand (VOD)</p> <p>Eight-hour modular VOD course that walks students through building a mobile game from scratch using TouchDevelop. Assignments are suitable for homework or flipped classroom environments.</p>	<p><i>CODExist: Bot Levels Up</i> Level: 100 Length: 3 hours Delivery: TouchDevelop + Video on Demand (VOD)</p> <p>Three-hour modular VOD course that walks students through adding new elements to a game such as animations and using the cloud</p>

IT Academy Computer Science: Immersive Learning

<p>Interactive Experiences</p>  <p>touchdevelop</p>	<p>Immersive Learning</p> 	<p>Specialized Skill Validation</p> <p>Microsoft Official Academic Course</p> 	
<p>Computer Science Core Concepts and Skills</p> <p>Engaging, immersive learning in full academic courses covering the whole range of programming fundamentals using Python, TouchDevelop, and Visual Studio.</p> <p>Optimized for students of early- to mid-adolescent age studying in secondary grades.</p>	<p>Full-term survey course: <i>Creative Coding through Games and Apps</i></p> <p>A first-course introduction to programming Length: 30 – 90 class hours (6-18 academic weeks) Delivery: TouchDevelop + Instructor</p> <p>Students gain hands-on experience in designing, programming, and publishing mobile apps and games. Flexible curriculum suitable as independent study or an instructor-led, in-class experience completed in 6, 9, 12 or 18 weeks.</p> <p>Short, topical course: <i>Introduction to Programming with Python</i></p> <p>Level: Advanced beginner Length: 16+ hours Delivery: VOD + Python, Visual Studio</p> <p>Fast-paced independent study course for students naturally curious about programming. Students learn universally-applicable fundamentals using Python and Visual Studio.</p>		

Getting Started with Microsoft TouchDevelop Tutorials

5:18 minute video

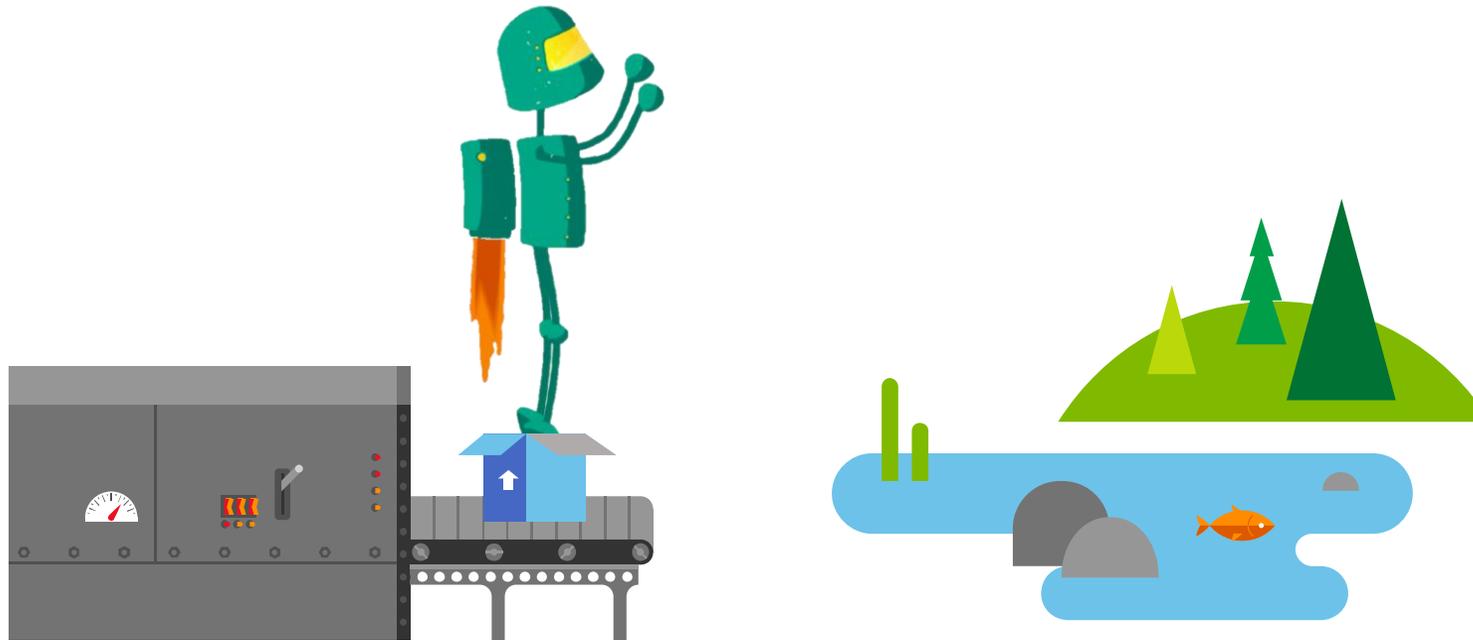
<http://aka.ms/ExploringTouchDevelop>

Hour of Code™ with TouchDevelop



Type this link to start learning how to code with TouchDevelop:

<http://aka.ms/intro2code>



So Really, Where do I start?

Digging Deeper into Coding Courses as Resources for Libraries

Coding Courses in Microsoft IT Academy <i>Optimized for students of early adolescent age/middle school grades</i>	Title	Duration and format	Key features	Where to find it
	Hour of Code using TouchDevelop	<ul style="list-style-type: none">• 1 to 3 hours duration• Interactive online tutorials plus VOD	<ul style="list-style-type: none">• Elements of CS to fix & customize a game• Hands on using TouchDevelop	http://www.microsoftvirtualacademy.com/training-courses/hour-of-code-with-touchdevelop
	CODExist: Birth of Bot	<ul style="list-style-type: none">• 8 hours duration• VOD	<ul style="list-style-type: none">• Elements of CS basics create your own game• Hands on using TouchDevelop	http://www.microsoftvirtualacademy.com/training-courses/codexist-the-birth-of-bot
	CODExist: Bot Levels Up	<ul style="list-style-type: none">• 3 hours duration• VOD	<ul style="list-style-type: none">• Elements of CS to add cloud services and animation to your game• Hands on using TouchDevelop	https://www.microsoftvirtualacademy.com/training-courses/learn-to-code-with-codexist-bot-levels-up
	DreamIT. MakeIT.	<ul style="list-style-type: none">• 5 hours duration• Interactive online tutorials plus in-class lesson plans and exercises	<ul style="list-style-type: none">• In-class extension for Hour of Code• Introduction to entrepreneurship	https://www.microsoftvirtualacademy.com/training-courses/dream-it-make-it-a-classroom-extension-for-hour-of-code-with-touchdevelop

Key: VOD=Video on Demand

CS=Computer Science

Creative Coding through Games and Apps:

A first-course introduction to programming for early adolescents in early secondary grades

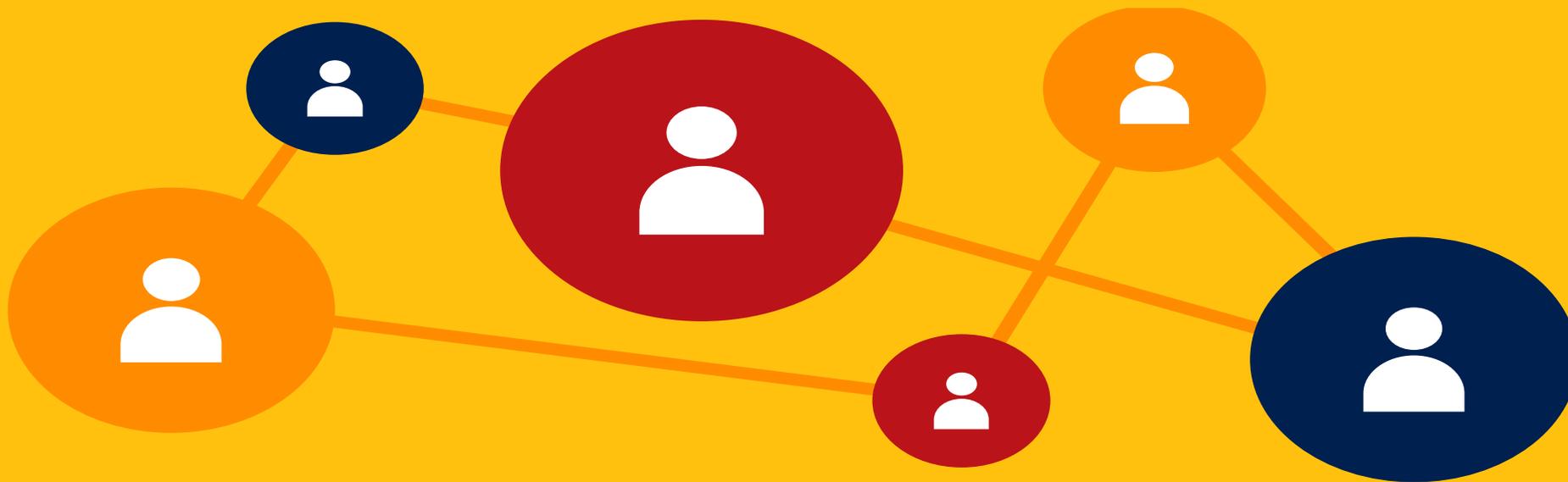
First course in programming for grades 7-10

No prior coding experience required to take or teach

Create games and apps for a real audience and purpose

Combines online plus in-class learning

May be taught in 6, 9, 12 or 18 weeks



Take a Look at Creative Coding Through Games and Apps



Complete curriculum available through the ITA member site

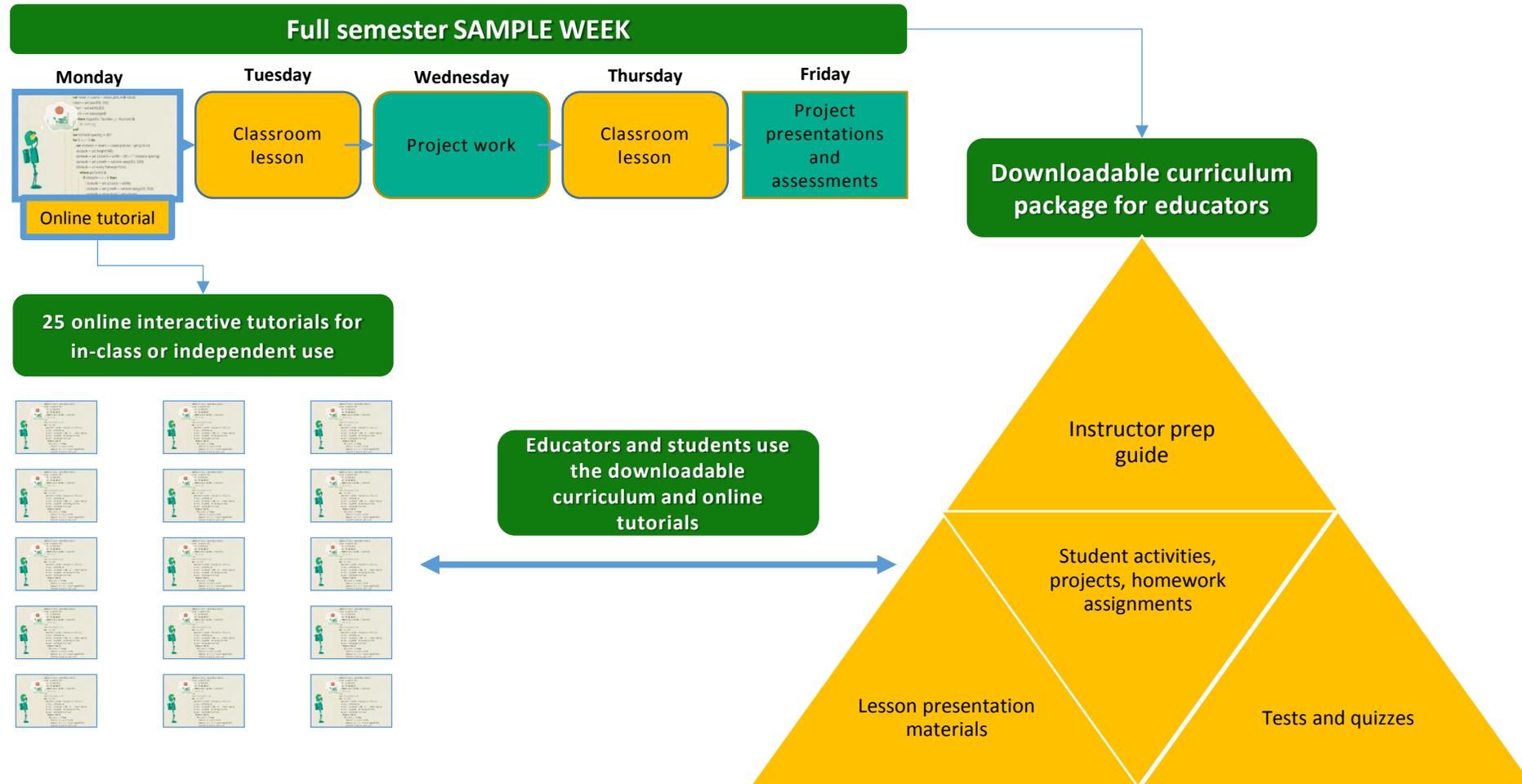


Course Evaluation package available via the Microsoft Virtual Academy

<http://aka.ms/creativecodingeval>



Creative Coding: Full curriculum package plus independent student learning activities



IT Academy Coding & Computer Science Offerings - Available NOW

	Title	Duration and form factor	Key features
Getting Started with Coding <i>Best for students of early adolescent age studying in early secondary grades</i>	Hour of Code using TouchDevelop	<ul style="list-style-type: none"> • 1 to 3 hours duration • Interactive online tutorials plus video on demand 	<ul style="list-style-type: none"> • Elements of CS to fix & customize a game • Hands on using TouchDevelop
	CODExist: Birth of Bot	<ul style="list-style-type: none"> • 8 hours duration • Video on demand 	<ul style="list-style-type: none"> • Elements of CS basics create your own game • Hands on using TouchDevelop
	CODExist: Bot Levels Up	<ul style="list-style-type: none"> • 3 hours duration • Video on demand 	<ul style="list-style-type: none"> • Elements of CS to add cloud services and animation to your game • Hands on using TouchDevelop
	DreamIT. MakeIT.	<ul style="list-style-type: none"> • 5 hours duration • Interactive online tutorials plus in-class lesson plans and exercises 	<ul style="list-style-type: none"> • In-class extension for Hour of Code • Introduction to entrepreneurship
Computer Science Core Concepts <i>Best for early-to mid-adolescents/middle school grades</i>	Intro to Programming with Python	<ul style="list-style-type: none"> • 8 hours duration • Video on demand 	<ul style="list-style-type: none"> • Use Python to solve real-world problems • Hands on using Visual Studio
College and Career Readiness <i>Optimized for mid- to upper-adolescent students studying in upper secondary or lower tertiary grades</i>	Java Programming Fundamentals	<ul style="list-style-type: none"> • 6-12 hours duration • Office Mix, Code Hunt and video on demand 	<ul style="list-style-type: none"> • AP CS Java principles applied to C# • Hands on using Code Hunt
	MTA - Software Dev Fundamentals	<ul style="list-style-type: none"> • Video on demand = 8 hours duration • Microsoft Official Academic Course = 60 hours duration 	<ul style="list-style-type: none"> • Understand and use software development principles • Hands on using Visual Studio
	MTA - HTML5 App Dev Fundamentals	<ul style="list-style-type: none"> • Video on demand = 8 hours • MOAC = 60 hours 	<ul style="list-style-type: none"> • Understand and use HTML5 principles • Hands on using Visual Studio

IT Academy Coding & Computer Science Offerings - Coming Soon!

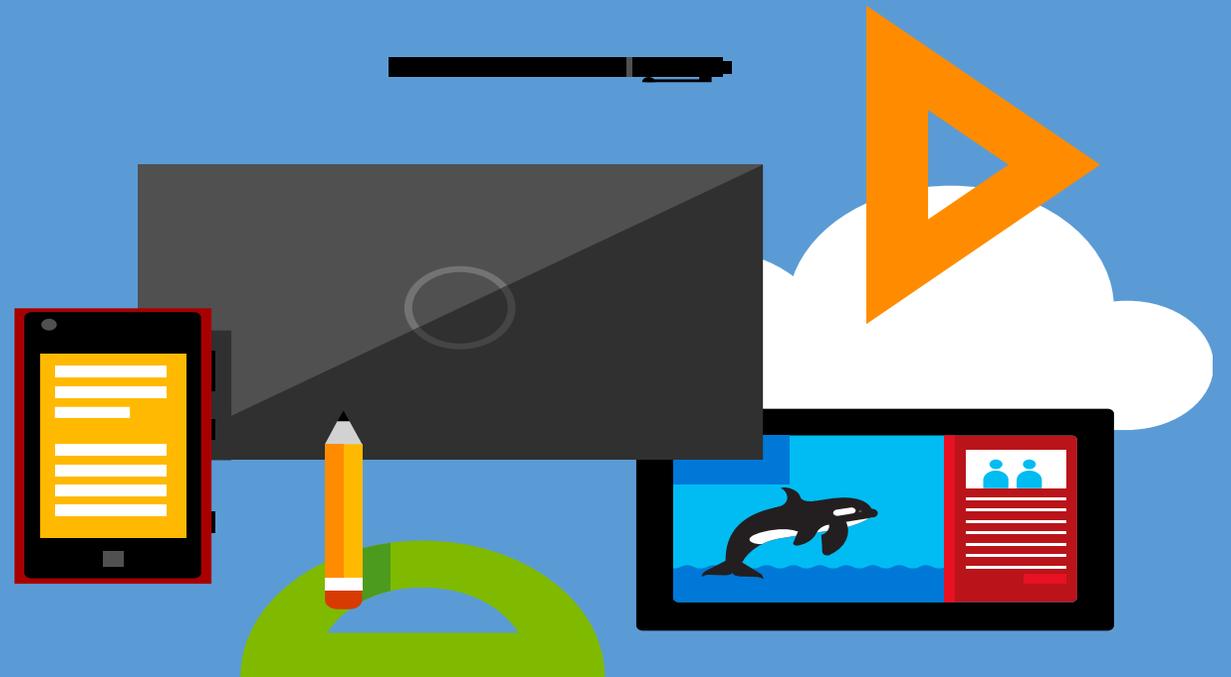
	Title	Key features, form factor, duration
Elements of Computer Science <i>Optimized for students of early adolescent age studying in early secondary grades</i>	Bot's Minecraft Adventure (draft title) Available late 2015	<ul style="list-style-type: none"> • Next-generation Hour of Code teaching elementary programming concepts • 1-3 hours duration • Interactive online tutorials plus video on demand, hands-on using TouchDevelop and Minecraft
	CODExist: Bot Makes a Friend (draft title) Available late 2015	<ul style="list-style-type: none"> • 20-25 interactive online tutorials introducing key coding and cloud concepts, appx. 20 hours total duration • Minor subset of <i>Creative Coding through Games and Apps</i>
Core Concepts and Skills <i>Optimized for early- to mid-adolescent students studying in secondary grades</i>	Creative Coding through Games and Apps Available now!	<ul style="list-style-type: none"> • First semester course designed to introduce coding and cloud concepts • Flexible duration: 30, 45, 60 or 90 class hours (6,9, 12 or 18 academic weeks) • Interactive, hands on using TouchDevelop
College and Career Readiness <i>Optimized for mid- to upper-adolescent students studying in upper secondary or lower tertiary grades</i>	CS50 for AP Computer Science Principles Pilot starting 2015	<ul style="list-style-type: none"> • AP-level course designed not just to teach how to program but also how to think more methodically and how to solve problems more effectively • Year long approx. 180 hours duration

Elements of Computer Science

Optimized for students of early adolescent age/middle school grades

Title	Duration and format	Key features	Where to find it
Hour of Code using TouchDevelop	<ul style="list-style-type: none"> • 1 to 3 hours duration • Interactive online tutorials plus video on demand 	<ul style="list-style-type: none"> • Elements of CS to fix & customize a game • Hands on using TouchDevelop 	<ul style="list-style-type: none"> • http://www.microsoftvirtualacademy.com/training-courses/hour-of-code-with-touchdevelop • Student version: IT Academy course #47545 • Hour of Code Event (Instructor) Training: IT Academy course #47547
CODExist: Birth of Bot	<ul style="list-style-type: none"> • 8 hours duration • Video on demand 	<ul style="list-style-type: none"> • Elements of CS basics create your own game • Hands on using TouchDevelop 	<ul style="list-style-type: none"> • http://www.microsoftvirtualacademy.com/training-courses/codexist-the-birth-of-bot • Student version: IT Academy course #47585
CODExist: Bot Levels Up	<ul style="list-style-type: none"> • 3 hours duration • Video on demand 	<ul style="list-style-type: none"> • Elements of CS to add cloud services and animation to your game • Hands on using TouchDevelop 	<ul style="list-style-type: none"> • https://www.microsoftvirtualacademy.com/training-courses/learn-to-code-with-codexist-bot-levels-up • Student version: IT Academy course #48923
DreamIT. MakeIT.	<ul style="list-style-type: none"> • 5 hours duration • Interactive online tutorials plus in-class lesson plans and exercises 	<ul style="list-style-type: none"> • In-class extension for Hour of Code • Introduction to entrepreneurship 	<ul style="list-style-type: none"> • https://www.microsoftvirtualacademy.com/training-courses/dream-it-make-it-a-classroom-extension-for-hour-of-code-with-touchdevelop
Creative Coding Through Games and Apps	<ul style="list-style-type: none"> • Flexible duration: 30, 45, 60 or 90 class hours (6,9, 12 or 18 academic weeks) • Choose your own balance of in-person and out of class study 	<ul style="list-style-type: none"> • First semester course designed to introduce coding and cloud concepts • Eval Package: course overview, lesson plans, presentations, student assignments, homework, projects and tests • Interactive, hands on using TouchDevelop 	<ul style="list-style-type: none"> • Instructor Evaluation Package video intro and downloadable course materials: IT Academy course #40329

Where Do I Start?



Programming Ideas

- Independent learning
- Standalone or multi-part programs
- After school program
- Summer/Spring Break “camp”

