“Code” is not a four letter word!

May the Force of code.org Be With You!

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Technology affects **every** field:
Some may think:

Computer science is just about learning technology
Some may think:

Computer science is just about learning technology

Computer science is about logic, problem solving, and creativity
First computer: 1943
First computer: 1943
First computer program: 1843
Some may think:

Computer science is vocational
Some may think:

Computer science is vocational

Computer science is foundational
What is Computer Science?
...the majority of schools don’t teach computer science:

9 in 10 parents want their child to study computer science

1 in 4 schools teach computer programming

Source: Gallup
The value of a computer science education

- **$0.58M**
  - Lifetime earnings of a high school graduate*

- **$1.19M**
  - Lifetime earnings of a college graduate*

- **$1.67M**
  - Lifetime earnings of a computer science major*

*Net present value today

Source: Brookings

40% more than the college average
Computing jobs are the #1 source of new wages in the United States

500,000 current openings: These jobs are in every industry and every state, and they’re projected to grow at twice the rate of all other jobs.
Some may think:

This problem is about “STEM” (Science, Technology, Engineering, and Math)…
The STEM problem is in computer science:

71% of all new jobs in STEM are in computing

8% of STEM graduates are in computer science

Sources: Bureau of Labor Statistics, National Center for Education Statistics
Introducing Code Studio for grades K-5
The use of Computer Science Themes scaffolds the development of ideas and recognizes the continual construction of knowledge:

- Algorithms, Loops, Functions, Variables, Conditionals
- Abstraction, Decomposition, Pattern Recognition
- Computing Practice and Programming (Use of computational tools)
- Computers and Communication Devices (Elements of computing devices and networks)
- Community, Global, and Ethical Impacts
- Data

Across the entire K-5 curriculum, students will develop the skills of a computer scientist through the development of Computational Thinking Practices:

- Creativity
- Collaboration
- Communication
- Persistence
- Problem Solving
Rethinking Classroom Strategies for Teaching Computer Science

➢ Ditch the Uniformity
➢ Frequent Breaks
➢ Collaborate
➢ Don’t be a “Know-it-All”
Ditch The Uniformity

Students learn at different rates. They also come into technology with vastly different skills. Trying to keep everyone on the same page will alienate both the bottom third and top third of learners. Take the pressure off of everyone by having a list of “approved” activities to focus on when they’ve finished their class exercise. Try CSISFUN
Frequent Breaks

Teachers are used to helping their class get very focused and encouraging students to work quietly until an activity is done. In computer science, students often benefit from small and frequent breaks, even if it’s just switching to a new activity for a few minutes. Try having a student write a sentence or two about what they’re trying to do, or keep a notebook, like a biologist or chemist might.
Collaborate

It’s really hard for a programmer to “cheat”. Collaboration is a requirement out in the real world. This means helping one another solve problems, researching issues on the Internet, and looking at what others have done in similar situations. The only bad method is claiming another’s work as your own.
Don’t be a Know-It-All

We often think that being a teacher means being an expert. In computer science, it’s really much more important to be a cheerleader. Let the students know that it’s possible for them to quickly become better at this than you are (and that is okay). Foster determination. Encourage students to monitor themselves, and find answers from one another. Let them figure out for themselves, then let them teach you!
Each code.org course experience is a blend of online activities and "unplugged" activities (lessons in which students can learn computing concepts with or without a computer).

The online experiences are composed of mostly self-guided and self-paced tutorials, which use scaffolded sets of programming instructions to explore and practice algorithmic thinking.

The unplugged lessons take a hands-on, often kinesthetic approach, making use of physical manipulatives to model computational concepts.
Code.org’s K-5 curriculum aligns to CSTA Computer Science Standards and ISTE standards, while some lessons also integrate national Math, English Language Arts, and Science standards.

Each course consists of about 18 to 22 lessons, each lasting between 25 and 45 minutes. They can be taught at a comfortable pace whether in consecutive days as a sub-unit or one day a week for 18 weeks. The content of each course builds conceptually on the previous course, so that a student can progress through all four experiences learning new concepts along the way.
Let’s visit the Teacher Home Page
The Big Event

Getting Loopy
The BIG book of teaching Coding

**Course 1:** beginners, early-readers (ages 4-6)

**Course 2:** beginners, readers (ages 6+)

**Course 3:** prerequisite is Course 2 (ages 8+)

**Course 4:** prerequisite is Course 3 (ages 10+)
Planning your lessons

1. Spiraling Curriculum
2. Blended Experience
3. Break Into Chunks
4. Align to Local Standards
What strategies will you use when facilitating computer science learning in your classroom?
Host an hour.
When is the Hour of Code? The Hour of Code takes place each year during Computer Science Education Week. The 2016 Computer Science Education Week will be **December 5-11**, but you can host an Hour of Code all year round.

[Hour of Code](https://hourofcode.com/)
Resources:
Instructor Handbook
Glossary
Informational video on using the teacher dashboard
Course 1
http://studio.code.org/s/course1
Course 2
http://studio.code.org/s/course2
Course 3
http://studio.code.org/s/course3
Overview of Courses 1-3
Pacing Guide Sample
Pacing Guide Template
CS Education Resources for Students
http://code.org/learn
http://code.org/learn/beyond
Resources for CS Educators
CSTA Computer Science Teachers Association
NCWIT National Center for Women in Technology
FabFems Connect with a STEM professional in your area
Code.org Support: http://support.code.org This has FAQs and scroll down to see the community section where you can post questions/discussions
Tell parents what their kids are learning: Edit, print and send home this flyer (Word doc).
QUESTIONS?