1
2
3 # Programming Language {
4
5 ## [For Beginners]
6
7
8
9 < 10th grade lesson about Coding & Hour of Code >
10
11
12 }
13
14

Lesson Structure

01   Introduction to Coding

< option line — word cloud - new vocab - text >

02   Hour of Code

< short explanation - learning by doing >

03   Reflection

< comparing — solutions - share >

```
1
2    01 {
3
4
5
6        [Introduction to Coding]
7
8
9    < opinion line - word cloud — new vocab — text >
10
11
12    }
13
14
```

opinion line

-Do you like working on technological devices?

-Do you think coding is cool?

-Do you know a lot about computer science?

-Could you see yourself working in a field like that in the future?

-Do you think liking informatics depends on a person's gender?

-Do you think a lot of jobs require knowledge of computer science?

word cloud

1
2
3
4
5
6
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11
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14

[Click to download as image](#)

PRIOR KNOWLEDGE

☁️ **What do you know about or associate with coding?**

Waiting for responses ...

1
2
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13
14

new vocab

-wage: The minimum wage in Germany is 12€ per hour.

-visionaries: Steve Jobs, Elon Musk and Oprah Winfrey

-Computer science: the study of computation, information, and automation

new vocab

workforce

new vocab

1
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13
14

new vocab

1
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13
14

nurture creativity

new vocab

1
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14

accomplishments

The largest learning event in history

During Computer Science Education Week
December 5-11, 2016

HOUR OF CODE

The Hour of Code is a global movement reaching over 100 million students in over 180 countries. Anyone, anywhere can organize an Hour of Code event. **Join us at hourofcode.com!**

What is the Hour of Code?

A one-hour introduction to computer science. Students and teachers can choose from a variety of activities for kindergarten and up. Activities work on any modern browser, tablet, smartphone, *or even with no computer at all*.

No experience needed by students *or* teachers. Activities are available in over 45 languages!

Code.org's own activities feature Minecraft, Star Wars, Disney's *Frozen*, Angry Birds, and Plants vs. Zombies.

Inspiration to learn computer science. Hour of Code lesson plans and activities can be used to inspire students in many different classes—math, physics, history, English, and more. After doing an hour, many students want to continue!

Why computer science?

Computer science is foundational. Every 21st-century student should have the opportunity to learn how to create technology. Computer science is changing every industry on the planet.

The basics of computer science also help nurture creativity and problem-solving skills, and prepare students for *any* future career.

Computing is the #1 source of wages in the U.S. There are more than 500,000 computing jobs open nationwide. Computer science graduates enjoy the second-highest starting salary and the highest full-time employment rate (76%) within six months of graduation.

Students also love it! Recent surveys show that among classes students "like a lot," computer science and engineering rank near the top—only performing arts, art, and design are higher.
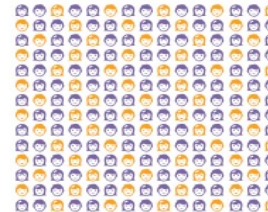
But most schools don't teach computer science.

"I challenge girls in every single country to learn one Hour of Code"
— **Malala Yousafzai**
Nobel Peace Prize winner

Get involved
Host your own Hour of Code. Spread the word with #HourOfCode!

Hour of Code Accomplishments:

1 in 3 students in US schools have tried an Hour of Code.

Over 100M students have participated at over 200,000 events worldwide.

More girls have tried computer science than in the last 70 years.

Celebrities, tech visionaries and even President Obama Support Hour of Code

- Every Apple Store in the world hosted an Hour of Code in 2014 and 2015.
- Hour of Code has been featured on Apple, Amazon, Google, YouTube, Yahoo!, Bing and Disney homepages.
- Celebrities Ashton Kutcher and Jessica Alba and tech leaders Sheryl Sandberg, Bill Gates and Jack Dorsey have talked with classrooms in live video chats.
- President Obama wrote his first line of code to kick off Hour of Code in 2014.
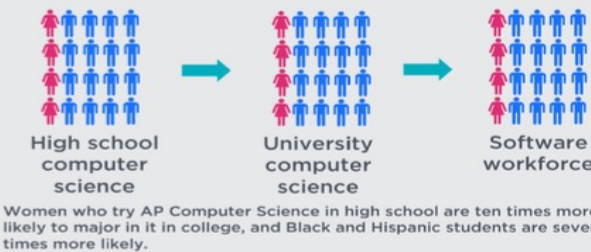- Hour of Code students opened the NASDAQ at a special event in 2015.

Over 300 partners have come together to support this grassroots campaign, including DonorsChoose.org, The College Board, Microsoft, Infosys Foundation USA, Google, Salesforce, BlackRock, Verizon, Disney, Teach for America, Khan Academy and more.

"I have **never, ever** seen my students so excited about learning."
— Michael Clark Teacher

Together, we can fix the diversity gap in computer science

The diversity problem starts in K-12

High school computer science → University computer science → Software workforce

Women who try AP Computer Science in high school are ten times more likely to major in it in college, and Black and Hispanic students are seven times more likely.

Mark your calendars for December 5-11, 2016!

HOUR OF CODE

```
 1
 2      02 {
 3
 4
 5
 6          [Hour of Code]
 7
 8
 9              < short explanation - learning by doing >
10
11
12      }
13
14
```

short explanation

```
1
2  •   you will need:
3  -iPad/laptop & headphones
4
5  -pen & paper to take notes
6  •   instructions:
7
8  -scan QR-Code
9
10 -select English as language
11 -watch the tutorials & click through the levels (max.
12    until level 10)
13
14 -write down formulations or things you find interesting
```

learning by doing

1
2
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14

https://studio.code.org/s/mc/lessons/1/levels/1

```
 1
 2    03 {
 3
 4
 5
 6        [Solutions and Reflection]
 7
 8
 9            < comparing — solutions - share >
10
11
12    }
13
14
```

```
1
2
3
4
5
6
7
8                          comparing
9
10
11
12
13
14
```

```
1
2
3
4
5
6
7                          solutions
8
9
10
11
12
13
14
```

MINECRAFT

Instructions

💡2 Add a second `move forward` block to reach the sheep.

Blocks

move forward

turn left ↺ ▼

turn right ↻ ▼

Workspace: 3 / 3 blocks

when run
move forward
move forward

MINECRAFT

Instructions

Wood is a very important resource. Many things are made destroy block command to chop it down.

Blocks

move forward

destroy block

turn left ↺ ▼

turn right ↺ ▼

Workspace: 4 / 4 blocks

when run
 move forward
 move forward
 destroy block

MINECRAFT

Instructions

3 Sheep-shearing time! Use the `shear` command to gath...

Blocks

move forward

turn left ↻ ▼

turn right ↻ ▼

shear

Workspace: 7 / 7 bloc...

when run
move forward
move forward
shear
turn right ↻ ▼
move forward
shear

MINECRAFT

Instructions

2 We need to build a house before the sun goes down. I

Blocks

Workspace: 15 / 15 blo

move forward

turn left ↻ ▼

turn right ↻ ▼

destroy block

when run
move forward
move forward
move forward
destroy block
turn left ↻ ▼
move forward
move forward
move forward
destroy block
turn left ↻ ▼
move forward
move forward
move forward
destroy block

▶ Run

Instructions

Every house starts with a wall. Build the first part of your house b[...] `move forward` commands inside the repeat loop.

Blocks

`move forward`

`place birch ▼ planks`

`turn left ↻ ▼`

`turn right ↻ ▼`

`repeat 4 ▼ times do`

Workspace: 4 / 4 blocks

```
when run
repeat 4 ▼ times
do   place birch ▼ planks
     move forward
```

Reset

Instructions

3 Build the rest of your house from any material you'd like handy.

Blocks

move forward

turn left ↺ ▼

turn right ↻ ▼

place birch ▼ planks

destroy block

repeat 3 ▼ times
do

Workspace

when run

repeat 3 ▼ times
do move forward
place birch ▼ planks

turn right ↻ ▼

repeat 3 ▼ times
do move forward
place birch ▼ planks

turn right ↻ ▼

repeat 2 ▼ times
do move forward
place birch ▼ planks

Reset

MINECRAFT

Instructions

3

Build the rest of your house from any material you'd handy.

Blocks

move forward

turn left ↺ ▼

turn right ↻ ▼

place birch ▼ planks

destroy block

repeat 3 ▼ times
do

Reset

🌐 English ▾ ©

Workspace

when run

repeat 6 ▼ times
do move forward
place birch ▼ planks

turn right ↻ ▼
repeat 2 ▼ times
do move forward
place birch ▼ planks

turn right ↻ ▼
repeat 3 ▼ times
do move forward
place birch ▼ planks

turn left ↺ ▼
move forward
place birch ▼ planks
turn right ↻ ▼
repeat 2 ▼ times
do move forward
place birch ▼ planks

MINECRAFT

Reset

Instructions

3 Build the rest of your house from any material you'd like
handy.

| Blocks | Workspace |

Blocks

move forward

turn left ↺ ▼

turn right ↻ ▼

place birch ▼ planks

destroy block

repeat 3 ▼ times
do

Workspace

when run
repeat 2 ▼ times
do   move forward
      place birch ▼ planks

turn left ↺ ▼
move forward
place birch ▼ planks
turn right ↻ ▼
repeat 2 ▼ times
do   move forward
      place birch ▼ planks
turn right ↻ ▼
repeat 3 ▼ times
do   move forward
      place birch ▼ planks
move forward
turn right ↻ ▼
repeat 3 ▼ times
do   move forward
      place birch ▼ planks

English ∨

MINECRAFT

Instructions

It's good to plan ahead. Plant crops on both sides of

Blocks

move forward

plant crop

turn left ↻ ▼

turn right ↻ ▼

repeat 6 ▼ times
do

shear

Workspace: 12 / 11

when run
repeat 6 ▼ times
do   plant crop
       move forward

turn right ↻ ▼
move forward
move forward
turn right ↻ ▼
move forward
repeat 6 ▼ times
do   plant crop
       move forward

Reset

MINECRAFT

Instructions

Running into a Creeper is a bad idea. Carefully move p

Blocks

move forward

turn left ↻ ▽

turn right ↻ ▽

repeat 3 ▽ times
do

Workspace: 9 / 9 b

when run
repeat 4 ▽ times
do   move forward

turn left ↻ ▽
repeat 4 ▽ times
do   move forward
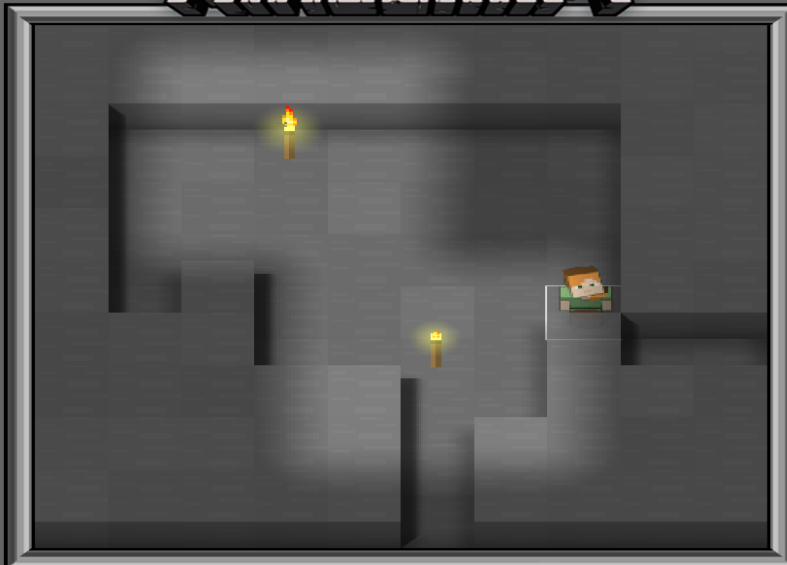
turn left ↻ ▽
repeat 2 ▽ times
do   move forward

Reset

MINECRAFT

Instructions

3

You'll find the most valuable resources underground, bu...
and mine at least 2 coal.

Blocks

move forward

place torch

turn left ↺ ▼

turn right ↺ ▼

destroy block

repeat 3 ▼ times
do

Workspace

when run
turn right ↺ ▼
place torch
turn left ↺ ▼
turn left ↺ ▼
repeat 2 ▼ times
do destroy block
move forward
turn right ↺ ▼
repeat 3 ▼ times
do move forward
destroy block
move forward
turn right ↺ ▼
place torch
repeat 4 ▼ times
do destroy block
move forward
turn right ↺ ▼
repeat 3 ▼ times

Reset

English ©

Instructions

💡3 Walking into molten lava is a bad idea. Place cobbleston...
two of the iron blocks.

Blocks	Workspace: 10 /

Blocks:

move forward

turn left ↺ ▼

turn right ↻ ▼

destroy block

place cobblestone ▼ ahead

repeat 2 ▼ times
do

Workspace:

when run
move forward
place cobblestone ▼ ahead
repeat 3 ▼ times
do   move forward
      destroy block
turn right ↻ ▼
repeat 2 ▼ times
do   destroy block
      move forward

Reset

```
 1
 2   share & opinion line 2.0
 3
 4    -Did you like this activity?
 5
 6    -Do you now think coding is cool?
 7    -Do you know a bit more about computer science?
 8
 9
10
11
12
13
14
```

CERTIFICATE OF COMPLETION

This certificate is awarded to

for successful completion of

HOUR OF CODE

and demonstrating an understanding of
the basic concepts of Computer Science.

Hadi Partovi
Co-founder and Chief Executive Officer, Code.org

Jens Bergensten
Lead Creative Designer, Mojang

To learn beyond the first hour, visit code.org or microsoft.com/hourofcode