

STEM@CGI AT HOME

STEM-based activities for kids that can be done at home

Staying active. Learning together. #STEMatHome

“STEM@CGI at Home” offers weekly STEM-based activity packets for children, including practical STEM activities and competitions. Get your family involved, share pictures, learn and have fun!

Activity 1 – Write your age in binary

DECIMAL VALUE	BINARY VALUE
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
10	1010

Students

This week's theme is binary code. Binary numbers are numbers that are only two digits – 0 and 1. Binary code is what computers use to complete tasks and can represent numbers, letters and symbols.

Learn to represent your age in binary. Thank you to Morgan Breaux for her work on [this lesson!](#)

Learn more about the concept of binary code, by watching this [Crash Course Computer Science video](#) by the Raspberry Pi Foundation.

Activity 2 – Binary art

Students – Create art using Binary Code!

Here are steps:

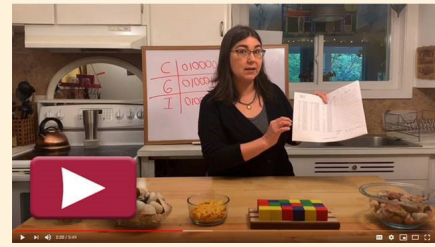
1. Use [this chart](#) to write out your name in UTF-8 (Unicode Transformation Format) binary code.
2. Count out the number of 1s and the number of 0s total in your name.
3. Find items around your house to represent the 1s and represent the 0s. You can use any items you would like (and that your parents allow)! Just make sure you have enough of the same kind of item to represent the 1s and to represent the 0s.



– continued –

Activity 2 – Binary art (continued)

Learn more about this activity by watching [this 5 minute video](#) by our STEM@CGI manager **Anne Swanson**. Also check out this [great lesson](#) by Science Friday, which was the inspiration for our activity.

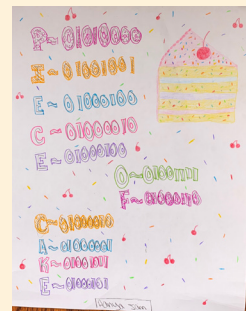


Activity 3 – Have fun with binary expression

Students – Use binary to represent something about yourself.

Ages 4 – 10 – Write your name in binary using [this chart](#) - decorate the page with something that represents you - a sport you like, your favorite animal, a picture of your family, characters from TV shows you are watching - anything you want to share! Be sure to include your name written out in English as well on the page.

Ages 11 and up – Write an expression or phrase you like in binary - decorate the page as you see fit and be sure to also include the expression in words.



Bonus activities

Binary Hero

Create this musical binary game.

CS Unplugged Binary Lessons

Check out binary lessons from CS Unplugged.

Khan Academy

Take a deeper dive into binary numbers and digital data as well test your knowledge through Khan Academy.

For more information or additional support with STEM activities when working remotely, please contact us here.

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