turkey COLOR by coding

Left Brain Craft Brain

inspiring young engineers, one craft at a time

Thanks so much for joining me on my mission to get kids learning and loving STEAM (science, technology, engineering, art, and math)!! If you ever have questions about any of my products or the activities you see on my site, feel free to email me at anne@leftbraincraftbrain.com. *-Anne*

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INTRO

WHAT IS STEAM?

STEAM is the abbreviation for Science, Technology, Engineering, Art, & Math.

It's an integrated approach to learning that encourages students to think more broadly about real-world problems.

Why do we need the A in STEAM?

Because art makes STEM better! Here are some of the concrete benefits of incorporating the arts into science:

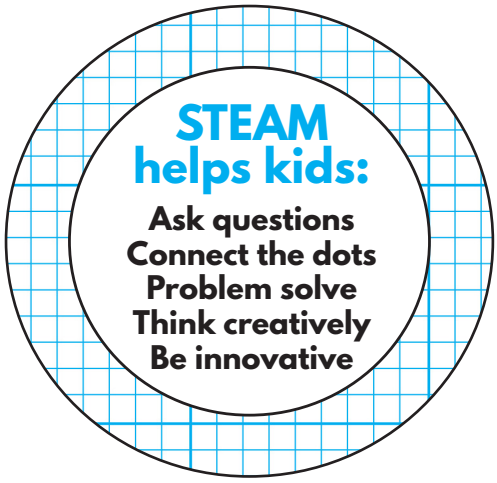
- It helps remove idea inhibition (there's no wrong answer in art!).
- It focuses on the process which helps drive innovation.
- It teaches the power of observation, of people and your surroundings.
- It helps hone spatial awareness and mathematical concepts like geometry.

HOW TO JOIN THE LEFT BRAIN CRAFT BRAIN COMMUNITY

Left Brain Craft Brain is a global community! Come get activity ideas, chat about STEAM, and share your pictures with us on both Facebook and Instagram. We love to see all of the ways you incorporate STEAM into your kids' worlds!

Left Brain Craft Brain Facebook Page

@leftbraincraftbrain on Instagram



SAFETY FIRST!

Left Brain Craft Brain projects are intended to be performed under adult supervision. Color by coding is a low risk activity, but we like to keep this safety note here anyway :)

Appropriate and reasonable caution is recommended when activities call for any items that could be of risk, including, but not limited to: sharp tools, hot glue, chemicals, batteries, scissors, and small items that could present a choking hazard. If you are unsure of the safety or age appropriateness of an activity, please consult your child's doctor.

WHAT'S INSIDE

Inside this Turkey Color by Coding activity printable is:

- Turkey color by number coloring page
- ASCII Binary and ASCII Decimal decipher the color code page
- ASCII code sheet
- Teacher guide
- What's the STEAM Behind It? background info
- Color code answer key

TEACHER GUIDE

MATERIALS

- Paper
- Printer
- Printable coloring page, code sheets, and ASCII code guide
- Art supplies like crayons or markers in brown, orange, red, and yellow
- Rulers (optional, but can help kids find the codes easier)

PREPARATION

1. First decide whether to use the binary or decimal versions of the codes. The binary codes are significantly harder than the decimal codes. You can offer a choice to the children if desired.
2. Print out worksheets. Code pages can be printed on the back of the turkey coloring page, but make sure that the ASCII codes list is on a separate sheet for ease of use.
3. Gather materials, 1 set per child or group into station quantities.

GOALS: Students will decipher a code using ASCII code.

EXPLAIN: Describe the project they will be completing. Show how the colors in the color by number page need to be deciphered by figureing out the letters in each color's name. Show them where to find the codes to decipher the color codes sheet on the ASCII code list.

DISCUSS: Talk to the students about the language of computers. Describe how all computer languages are built on the premise of 0 = OFF and 1 = ON. Switching lights on and off is a great demo to do while explaining. See What's the STEAM Behind It? section for more information.

EXTENSIONS (click to access):

- Grab another Color by Coding coloring page (and 14 other hands-on STEAM activities) in the STEAM Kids 5 Day Challenge Ebook.
- Play the If-Then Coding Game, another screen-free way to learn about code.
- Bring screen-free coding into December with this Candy Cane Coding craft.

OTHER RESOURCES:

- Video: Binary Numbers - Math Bites with Danica McKellar
- Books: Coding Books for Kids

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WHAT'S THE STEAM BEHIND IT?

WHAT IS ASCII?

There's a lot of talk today about coding being the language of the future. But what exactly is it and why is it important? Coding makes it possible for us to tell computers how to do stuff, like run our phone, play a video game, and make a website. Any app you use on your phone or computer is possible because of code.

Computers speak the languages of zeroes and ones, essentially on and off signals to computer parts called transistors. These zeroes and ones have been translated into codes called the ASCII Binary code where every letter, number and character has an 8 digit combination of zeroes and ones. ASCII is the most common format for text files for computers and the internet. It stands for American Standard Code for Information Interchange and uses numbers to represent letters and special characters. The binary version uses only zeros and ones in a 8 bit (or digit) pattern.

But it would take too long to do anything if we had to code in just zeroes and ones, so computers use other languages now, that are all based upon binary.

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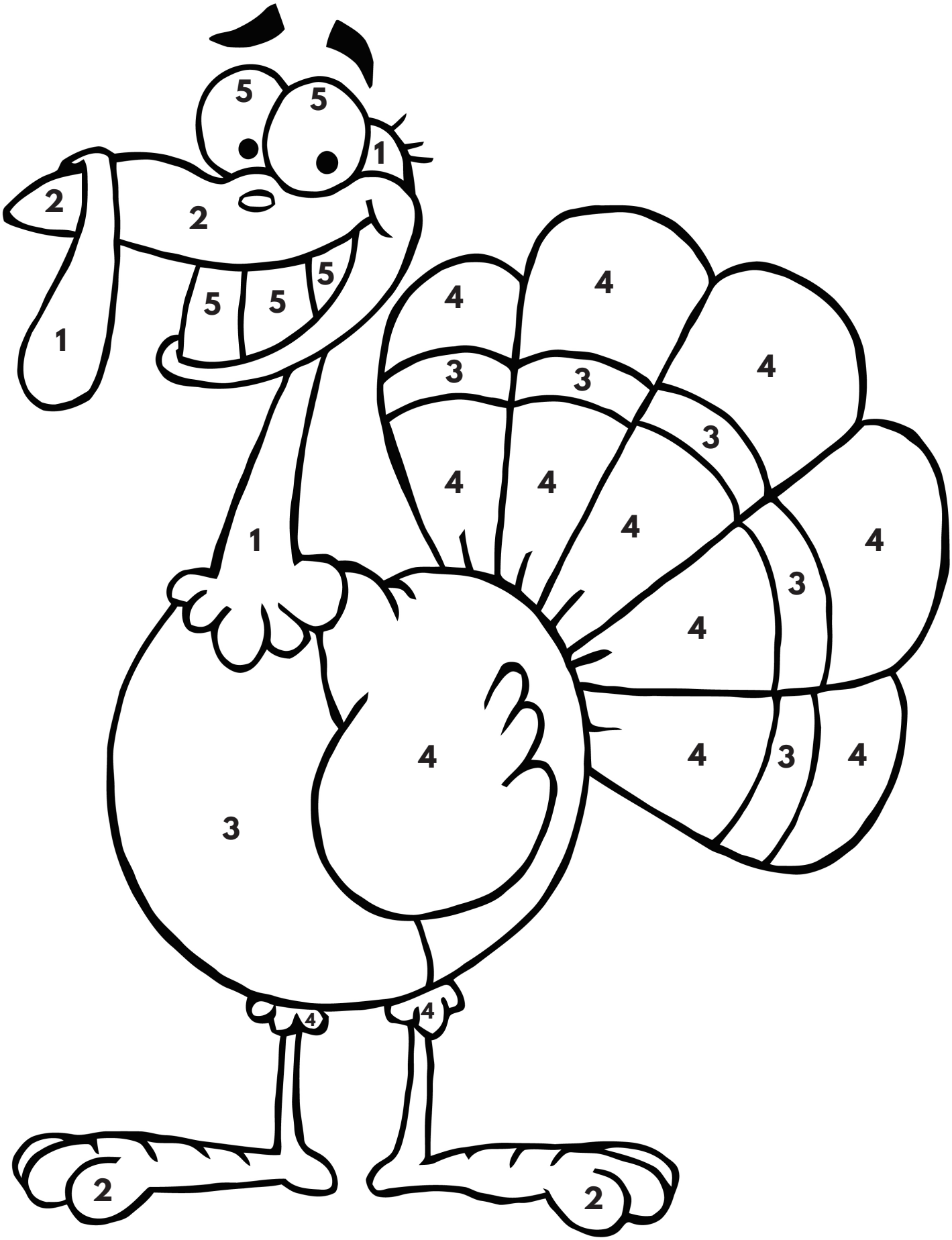

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COLOR BY CODING

What is ASCII?

ASCII is the most common format for text files for computers and the internet. It stands for American Standard Code for Information Interchange and uses numbers to represent letters and special characters. The binary version uses only zeros and ones in a 8 bit (or digit) pattern. The decimal version uses two digit numbers.

Instructions

Figure out the colors in these color by number coloring pages by finding the matching letters on the ASCII code sheet **BINARY** column. Then color the turkey with the numbers noted on the picture.

1 = _____ _____ _____

01010010 **01000101** **01000100**

2 = _____ _____ _____ _____ _____ _____

01001111 **01010010** **01000001** **01001110** **01000111** **01000101**

3 = _____ _____ _____ _____ _____ _____

01011001 **01000101** **01001100** **01001100** **01001111** **01010111**

4 = _____ _____ _____ _____ _____

01000010 **01010010** **01001111** **01010111** **01001110**

5 = _____ _____ _____ _____ _____

01010111 **01001000** **01001001** **01010100** **01000101**

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Instructions

Figure out the colors in these color by number coloring pages by finding the matching letters on the ASCII code sheet **DECIMAL** column. Then color the turkey with the numbers noted on the picture.

1 = _____ _____ _____

82 **69** **68**

2 = _____ _____ _____ _____ _____ _____

79 **82** **65** **78** **71** **69**

3 = _____ _____ _____ _____ _____ _____

89 **69** **76** **76** **79** **87**

4 = _____ _____ _____ _____ _____

66 **82** **79** **87** **78**

5 = _____ _____ _____ _____ _____

87 **72** **73** **84** **69**

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ASCII

CHARACTER	BINARY	CHARACTER	DECIMAL
A	01000001	A	65
B	01000010	B	66
C	01000011	C	67
D	01000100	D	68
E	01000101	E	69
F	01000110	F	70
G	01000111	G	71
H	01001000	H	72
I	01001001	I	73
J	01001010	J	74
K	01001011	K	75
L	01001100	L	76
M	01001101	M	77
N	01001110	N	78
O	01001111	O	79
P	01010000	P	80
Q	01010001	Q	81
R	01010010	R	82
S	01010011	S	83
T	01010100	T	84
U	01010101	U	85
V	01010110	V	86
W	01010111	W	87
X	01011000	X	88
Y	01011001	Y	89
Z	01011010	Z	90

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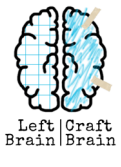

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1	=	R	E	D		
		01010010	01000101	01000100		
2	=	O	R	A	N	G	E
		01001111	01010010	01000001	01001110	01000111	01000101
3	=	Y	E	L	L	O	W
		01011001	01000101	01001100	01001100	01001111	01010111
4	=	B	R	O	W	N	
		01000010	01010010	01001111	01010111	01001110	
5	=	W	H	I	T	E	
		01010111	01001000	01001001	01010100	01000101	

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1	=	R	E	D		
		82	69	68		
2	=	O	R	A	N	G	E
		79	82	65	78	71	69
3	=	Y	E	L	L	O	W
		89	69	76	76	79	87
4	=	B	R	O	W	N	
		66	82	79	87	78	
5	=	W	H	I	T	E	
		87	72	73	84	69	

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