

## Mission 4: Game of Codes

Take some colouring pencils or different coloured pens with you on your mission today.

A code is a way of representing or communicating information using some pre-defined system or set of rules. Computer programming is also known as coding because you are instructing the computer to do something using a well-defined language. To simplify data, we can create codes.

Find a street in your local area with 10 or more parked cars, use the table below to note down the colour of the cars parked down the road.

Colour	Code
Black	K
Silver / Grey	S
Blue	B
White	W
Red	R
Green	G
Other	X

e.g. if the cars are Black, Black, Red, Silver, Silver, Silver, Silver Green, Orange - you would write:

K K R S S S S G X

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You could shorten the code by putting a number after each repeated colour, our example above would become K2 R S4 G X. By shortening our code, we can say that the code has been compressed. As no data is lost in this process, it is a form of **lossless compression**. This particular method of lossless compression is called *Run Length Encoding (RLE)* as it counts the "run" of similar codes. As digital images are simply repeated colour pixels (dots), RLE is used for compressing images such as logos or indeed any image with repeated blocks of colour.

What would the street's code be if you shortened it?

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K is the new black

Printers use the code K for Black as Black is the *Key* colour plate which is used to align the other plates in a commercial printer.

## The hidden language on the pavement



Image credit: Craig Franklin (CC-BY-SA-3.0-AU)

You may have noticed codes written on the road or pavement using chalk or washable spray paint, these markings are left by utility workers. The colour of writing indicates which utility has left the mark.

Colour	Utility type
Red	Electricity
White	Road or pavement works. White is also used by BT
Blue	Water
Yellow	Gas
Green	Communications

The markings have different meanings. Here are some conventions:

Marking	Likely meaning
	These lines indicate the direction the cable / pipes are running
	Water pipes running in the direction of the line
0.8	Numbers may indicate how deep a cable is below ground
	Electricity cables. A zig zag (lightning bolt) was traditionally used to symbolise electricity cables. Over time, the zig zag has evolved into a dollar symbol.
H/V and L/V	High Voltage and Low Voltage
HP / LP	High Pressure / Low Pressure
3 x	Three cables
	The number of circles indicates the number of cables in a duct below. In this case there are five cables in the duct below.

Go back to the place where you drew on the map on page 8. Check if there are any pavement markings and add these to your map. If there are no pavement markings, imagine what cables are running underground, what direction are these running? Draw your own pavement markings on your map.