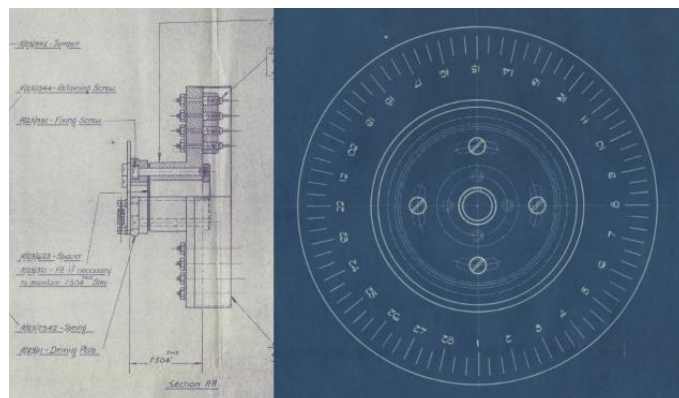




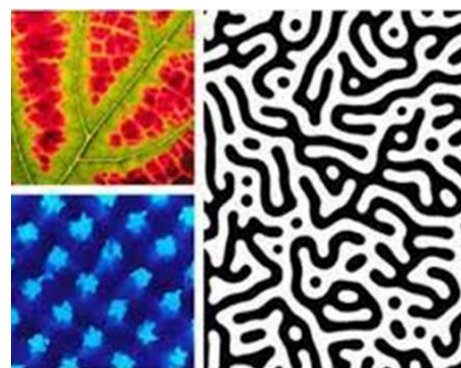
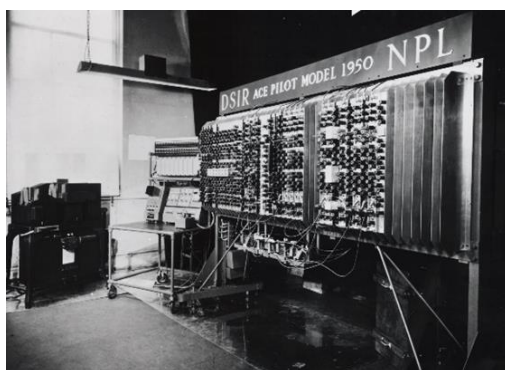
£50 note Turing Word Search (for 12 years and above)

Alan Mathison Turing appears on the £50 **polymer banknote** which was issued on 23 June 2021. Turing was born in **1912** and died in **1954**, aged 41. He is often regarded as person who established the founding principles of computer science and **artificial intelligence** (the ability for machines to think and learn).

Turing studied **mathematics** at Cambridge University and gained his PhD from Princeton University. He is best known for his top **secret** work for the Government **Code and Cypher** School, based at **Bletchley** Park during World War II. In Hut 8, he worked with others to improve techniques used to crack the Germans' secret messages (such as the Polish **bombe** method, an **electromechanical** device that could crack codes created by Germany's **Enigma** machine).



After the war, Turing worked at the National Physical Laboratory. It was here that he designed the Automatic Computing Engine (**ACE**). Later, at the University of Manchester, he studied mathematical biology, specifically **morphogenesis** (**patterns found in nature**).



The £50 Turing banknote completes the set of polymer banknotes issued by the Bank of England. They all have the Queen's portrait on the front, and a historical character on the back. Each note has a lot of security features. This makes them hard to copy.

Security features on the £50 note include:

- A **hologram** that changes between the words '**fifty**' and '**pounds**'



- See-through **windows** with **foil** patches:

There are two see-through windows on the new £50 note. The larger window contains foil patches, which are gold and **green** on the front and **silver** on the back. There is also a **red** foil patch on the back of the note which contains the letters 'AT'.



- An **ultraviolet** feature:

On the front of the note, under ultraviolet **light**, the number '50' appears in bright red and green.



- **Print** quality and feel:

The printed lines and colours are sharp, clear and free from **smudges**. With a magnifying glass, you can see the value of the note written in small letters and numbers below the Queen's portrait

The design of the back of the £50 banknote includes many references to Turing's life and work. The **ticker tape** shows Turing's date of birth (23 June 1912) in **binary** code. The **design** of the red foil patch resembles a **sunflower**, referencing his work on morphogenesis. The **quote** under his portrait comes from an interview with The Times newspaper in 1949. His **signature** is taken from an entry in Bletchley Park's visitors' book, which he made in 1947. The visitors' book is still held by the Bletchley Park Trust. The background images on the banknote show **technical** drawings, mathematical tables and **formulae** connected to Turing.

Instructions: find the following words in the grid below. These can appear horizontally (forward or backwards) or vertically (up or down). These words also appear in bold text on the previous pages.

1912	Bombe	Fifty	Light	Print	Tape
1954	Code	Flower	Mathematics	Quote	Technical
ACE	Crown	Foil	Mathison	Red	Ticker
Alan	Cypher	Formulae	Morphogenesis	Secret	Turing
Artificial	Design	Green	Nature	Security	Ultraviolet
Banknote	Digital	Hologram	Pattern	Signature	Window
Binary	Electromechanical	Intelligence	Polymer	Silver	
Bletchley	Enigma	June	Pounds	Smudges	

L	S	I	S	E	N	E	G	O	H	P	R	O	M	A	Q	C	H
B	C	R	O	W	N	K	D	I	G	I	T	A	L	2	1	9	1
X	L	T	A	H	A	N	T	I	C	K	E	R	B	Z	K	R	H
I	P	W	U	J	L	A	B	M	B	L	E	T	C	H	L	E	Y
R	O	N	P	M	A	T	H	E	M	A	T	I	C	S	E	C	O
U	L	T	R	A	V	I	O	L	E	T	R	F	A	Z	M	O	P
A	Y	F	I	O	I	G	R	E	E	N	A	I	L	R	E	D	S
U	M	L	N	K	A	D	T	C	K	E	D	C	Y	P	H	E	R
L	E	O	T	A	P	E	U	T	A	F	O	I	L	M	S	A	N
S	R	W	A	Y	A	L	R	R	P	R	E	A	C	J	U	N	E
Y	C	E	D	U	H	S	I	O	O	S	I	L	V	E	R	O	E
T	O	R	E	R	O	A	N	M	U	N	D	O	E	S	E	S	A
I	N	T	E	L	L	I	G	E	N	C	E	N	T	H	G	I	L
R	A	T	Q	U	O	T	E	C	D	S	S	A	E	L	B	H	U
U	S	M	U	D	G	E	S	H	S	O	I	N	R	I	4	T	M
C	N	F	A	N	R	H	E	A	D	N	G	O	C	M	5	A	R
E	N	I	G	M	A	A	J	N	H	A	N	B	E	A	9	M	O
S	I	F	H	E	M	N	W	I	N	D	O	W	S	K	1	C	F
P	A	T	T	E	R	N	A	C	E	R	E	B	I	N	A	R	Y
N	O	Y	S	N	A	K	B	A	N	K	N	O	T	E	J	F	E
B	O	M	B	E	O	P	R	L	T	E	C	H	N	I	C	A	L
O	F	C	E	R	U	T	A	N	G	I	S	N	A	T	U	R	E