

Prime Vault – Escape Room

Welcome to the Prime Vault escape room. Watch the introductory video using the QR code. The video includes some basic instructions that may prove helpful in solving this first puzzle.

Good luck!

YouTube [5vrlNAwipHU](https://www.youtube.com/watch?v=5vrlNAwipHU)



Clue 1

The sieve of Eratosthenes is an ancient algorithm that efficiently identifies prime numbers. Complete the sieve for the values shown¹. The numbers that are **not** crossed out are required to help locate the next clue.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160

Starting with the first prime number, enter the prime numbers, in order, into the table below. The first two numbers have been done for you.

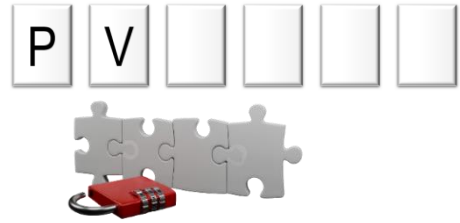
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
2	3	5	7	11	13	17	19	23	29	21	27	41	43	47
p	q	r	s	t	u	v	w	x	y	z	.	:	/	=
53	59	61	67	71	73	79	83	89	97	101	103	107	109	113
?	%	\$	@	#										
127	131	137	149	157										

Use your table above to decrypt the message below. **Bold** numbers have an asterisk, the corresponding decrypted characters need to be CAPITALISED in the final message. Some of the characters have been done for you.

19	71	71	53	67	107	109	109	97	47	73	71	73	103	3	11	109
h	t	t	p	s	:	/	/	y	o	u	t	u	.	b	e	/
71	29*	19*	73*	61*		5*	41*	11*	71	59*						
t	J	H	U	R	8	C	M	E	t	Q						

¹ The number one (1) is not run through the sieve and should therefore be ignored.

Follow the link, it contains a clue;
The reference to twins are those separated by two;
The numbers you collect will create a code;
Open the document where the code needs to be stowed.



Each successive document requires a code to open. Each video contains a riddle to solve. The solution to the riddle completes the code: "P V # # # #".

Decrypted Link: <https://youtu.be/tJHUR8CMEtQ>

The decrypted link is for the second video in this escape room series. The video contains a riddle, the solution to which, is a four digit code. As per the riddle above, the four digit code that students decipher from the video is required to access the second activity sheet (the document where the code needs to be stowed). Students may also be encouraged to use the internet to find out what is meant by "twin", although there is a subtle hint above "twins are those separated by two".

Riddle for the second clue (document):

A number I am, here is your guide:
Made from three primes placed side by side,
The first is small, the next one more,
The third a twin of seven more than four.

Answer:

"The first prime is small" ... the next one more. There are only two primes separated by one: 2 & 3

According to the clue, "these primes are placed side by side": 23

"The third is a twin" (primes separated by 2) of 7 more than 4: $4 + 7 = 11$. The twin of 11 is 13

The four digit code, consisting of three primes, in order of the clues and placed side by side must be:

2 3 1 3

To access the next worksheet, use the code: **P V 2 3 1 3**