psst: paper-based secret sharing technique

You can use psst to split a secret into up to four parts.
Each part in isolation reveals nothing about the secret (except its length).
Any two parts combined allow the secret to be restored.

1) Get a safe and calm space, an hour of free time, a pen,
   a six-sided dice, scissors, and transparent adhesive tape.

2) Write the secret down here:

01 _____	02 _____	03 _____	04 _____
05 _____	06 _____	07 _____	08 _____
09 _____	10 _____	11 _____	12 _____
13 _____	14 _____	15 _____	16 _____
17 _____	18 _____	19 _____	20 _____
21 _____	22 _____	23 _____	24 _____

3) Convert the secret to digits using one of the the text
   conversion tables printed on the secret share sheets.
   For bip-39 seed phrases, it's enough to use the first four
   letters of each word. If you use more, pad short words
   with "q" to not reveal word lengths.

01 _____	02 _____	03 _____	04 _____
05 _____	06 _____	07 _____	08 _____
09 _____	10 _____	11 _____	12 _____
13 _____	14 _____	15 _____	16 _____
17 _____	18 _____	19 _____	20 _____
21 _____	22 _____	23 _____	24 _____

4) Split each digit into four shares. For each digit:
   - Locate the corresponding block in the table to the right.
   - Throw a six-sided dice to select a random row therein.
   - Write each of the four shares onto its sheet.

5) Fold the share sheets along the vertical dotted lines,
   to connect the two halves of the title page.

6) Add a description, date, and signature.
   In the description, write what the secret represents and how
   it was converted into digits.

7) Unfold, then cut the sheets along the solid lines.

8) Fold the sheets into their final form:
   - Fold the sides so that they cover the secret share.
   - Fold along each of the horizontal dotted lines.
     The title page is now on top.
     The secret is now in the middle, with 2 layers above/below.
   - Wrap the top flaps (with signature) around the package.

9) Fix the top flaps with adhesive tape. Attach carefully,
   so that removing the tape will tear the signature and make it
   evident that the share has been opened.

10) Destroy this sheet (burn it) and other copies of the secret.

Secret ↓	Dice ↓	Share #1 ↓	Share #2 ↓	Share #3 ↓	Share #4 ↓
0	⚀	0	0	0	0
0	⚁	1	2	3	4
0	⚂	2	4	1	3
0	⚃	3	1	4	2
0	⚄	4	3	2	1
0	⚅	re-throw			
1	⚀	0	4	3	2
1	⚁	1	1	1	1
1	⚂	2	3	4	0
1	⚃	3	0	2	4
1	⚄	4	2	0	3
1	⚅	re-throw			
2	⚀	0	3	1	4
2	⚁	1	0	4	3
2	⚂	2	2	2	2
2	⚃	3	4	0	1
2	⚄	4	1	3	0
2	⚅	re-throw			
3	⚀	0	2	4	1
3	⚁	1	4	2	0
3	⚂	2	1	0	4
3	⚃	3	3	3	3
3	⚄	4	0	1	2
3	⚅	re-throw			
4	⚀	0	1	2	3
4	⚁	1	3	0	2
4	⚂	2	0	3	1
4	⚃	3	2	1	0
4	⚄	4	4	4	4
4	⚅	re-throw			

psst, this is a *secret share*

Description: _____

_____

_____

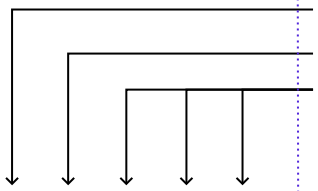
Date: _____

Signature:

_____

Share # 1 of: 2 [ ] 3 [ ] 4 [ ]

psst: https://github.com/Sjlver/psst/



0	0	0	0	0
1	0	4	3	2
2	0	3	1	4
3	0	2	4	1
4	0	1	2	3

0	1	2	3	4
1	1	1	1	1
2	1	0	4	3
3	1	4	2	0
4	1	3	0	2

0	2	4	1	3
1	2	3	4	0
2	2	2	2	2
3	2	1	0	4
4	2	0	3	1

0	3	1	4	2
1	3	0	2	4
2	3	4	0	1
3	3	3	3	3
4	3	2	1	0

0	4	3	2	1
1	4	2	0	3
2	4	1	3	0
3	4	0	1	2
4	4	4	4	4

To recover the secret using two shares, process each digit individually.
Any two shares uniquely identify a row in the table to the left.
The secret is the concatenation of the digits labeled "Secret (first col)".
To recover the text form, combine two digits per letter and refer to on of the tables on the right.

Secret share #1:

01	_____	02	_____
03	_____	04	_____
05	_____	06	_____
07	_____	08	_____
09	_____	10	_____
11	_____	12	_____
13	_____	14	_____
15	_____	16	_____
17	_____	18	_____
19	_____	20	_____
21	_____	22	_____
23	_____	24	_____

Text (a-z) conversion:
(note x/j are merged)

00=a	01=b	02=c
03=d	04=e	
10=f	11=g	12=h
13=i	14=k	
20=l	21=m	22=n
23=o	24=p	
30=q	31=r	32=s
33=t	34=u	
40=v	41=w	42=y
43=z	44=x/j	

Hex conversion:

00=0	01=1
02=2	03=3
10=4	11=5
12=6	13=7
20=8	21=9
22=a	23=b
30=c	31=d
32=e	33=f

ASCII conversion:
use 3 digits xyz
res = 25x+5y+z+3

psst, this is a *secret share*

Description: _____

_____

_____

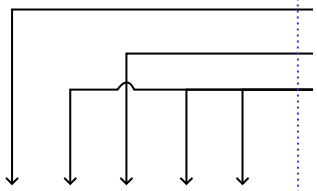
Date: _____

Signature:

_____

Share # 2 of: 2 [ ] 3 [ ] 4 [ ]

psst: https://github.com/Sjlver/psst/



Secret (first column)
Share #2 (this share, third column)
Shares #1, #3, #4 (remaining columns)

0	0	0	0	0
1	3	0	2	4
2	1	0	4	3
3	4	0	1	2
4	2	0	3	1

0	3	1	4	2
1	1	1	1	1
2	4	1	3	0
3	2	1	0	4
4	0	1	2	3

0	1	2	3	4
1	4	2	0	3
2	2	2	2	2
3	0	2	4	1
4	3	2	1	0

0	4	3	2	1
1	2	3	4	0
2	0	3	1	4
3	3	3	3	3
4	1	3	0	2

0	2	4	1	3
1	0	4	3	2
2	3	4	0	1
3	1	4	2	0
4	4	4	4	4

To recover the secret using two shares, process each digit individually.
Any two shares uniquely identify a row in the table to the left.
The secret is the concatenation of the digits labeled "Secret (first col)".
To recover the text form, combine two digits per letter and refer to on of the tables on the right.

Secret share #2:

01	_____	02	_____
03	_____	04	_____
05	_____	06	_____
07	_____	08	_____
09	_____	10	_____
11	_____	12	_____
13	_____	14	_____
15	_____	16	_____
17	_____	18	_____
19	_____	20	_____
21	_____	22	_____
23	_____	24	_____

Text (a-z) conversion:
(note x/j are merged)

00=a	01=b	02=c
03=d	04=e	
10=f	11=g	12=h
13=i	14=k	
20=l	21=m	22=n
23=o	24=p	
30=q	31=r	32=s
33=t	34=u	
40=v	41=w	42=y
43=z	44=x/j	

Hex conversion:

00=0	01=1
02=2	03=3
10=4	11=5
12=6	13=7
20=8	21=9
22=a	23=b
30=c	31=d
32=e	33=f

ASCII conversion:
use 3 digits xyz
res = 25x+5y+z+3

psst, this is a *secret share*

Description: _____

_____

_____

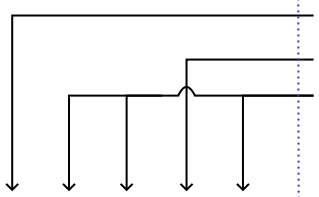
Share # 3 of: 3 [ ] 4 [ ]

psst: https://github.com/Sjlver/psst/

Date: _____

Signature:

_____



0	0	0	0	0
1	4	2	0	3
2	3	4	0	1
3	2	1	0	4
4	1	3	0	2

0	2	4	1	3
1	1	1	1	1
2	0	3	1	4
3	4	0	1	2
4	3	2	1	0

0	4	3	2	1
1	3	0	2	4
2	2	2	2	2
3	1	4	2	0
4	0	1	2	3

0	1	2	3	4
1	0	4	3	2
2	4	1	3	0
3	3	3	3	3
4	2	0	3	1

0	3	1	4	2
1	2	3	4	0
2	1	0	4	3
3	0	2	4	1
4	4	4	4	4

To recover the secret using two shares, process each digit individually.
Any two shares uniquely identify a row in the table to the left.
The secret is the concatenation of the digits labeled "Secret (first col)".
To recover the text form, combine two digits per letter and refer to on of the tables on the right.

Secret share #3:

01	_____	02	_____
03	_____	04	_____
05	_____	06	_____
07	_____	08	_____
09	_____	10	_____
11	_____	12	_____
13	_____	14	_____
15	_____	16	_____
17	_____	18	_____
19	_____	20	_____
21	_____	22	_____
23	_____	24	_____

Text (a-z) conversion:
(note x/j are merged)

00=a	01=b	02=c
03=d	04=e	
10=f	11=g	12=h
13=i	14=k	
20=l	21=m	22=n
23=o	24=p	
30=q	31=r	32=s
33=t	34=u	
40=v	41=w	42=y
43=z	44=x/j	

Hex conversion:

00=0	01=1
02=2	03=3
10=4	11=5
12=6	13=7
20=8	21=9
22=a	23=b
30=c	31=d
32=e	33=f

ASCII conversion:
use 3 digits xyz
res = 25x+5y+z+3

psst, this is a *secret share*

Description: _____

_____

_____

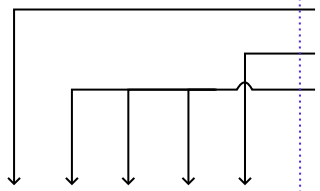
Date: _____

Signature:

_____

Share # 4 of 4

psst: https://github.com/Sjlver/psst/



0	0	0	0	0
1	2	3	4	0
2	4	1	3	0
3	1	4	2	0
4	3	2	1	0

0	4	3	2	1
1	1	1	1	1
2	3	4	0	1
3	0	2	4	1
4	2	0	3	1

0	3	1	4	2
1	0	4	3	2
2	2	2	2	2
3	4	0	1	2
4	1	3	0	2

0	2	4	1	3
1	4	2	0	3
2	1	0	4	3
3	3	3	3	3
4	0	1	2	3

0	1	2	3	4
1	3	0	2	4
2	0	3	1	4
3	2	1	0	4
4	4	4	4	4

To recover the secret using two shares, process each digit individually.
Any two shares uniquely identify a row in the table to the left.
The secret is the concatenation of the digits labeled "Secret (first col)".
To recover the text form, combine two digits per letter and refer to on of the tables on the right.

Secret share #4:

01	_____	02	_____
03	_____	04	_____
05	_____	06	_____
07	_____	08	_____
09	_____	10	_____
11	_____	12	_____
13	_____	14	_____
15	_____	16	_____
17	_____	18	_____
19	_____	20	_____
21	_____	22	_____
23	_____	24	_____

Text (a-z) conversion:
(note x/j are merged)

00=a	01=b	02=c
03=d	04=e	
10=f	11=g	12=h
13=i	14=k	
20=l	21=m	22=n
23=o	24=p	
30=q	31=r	32=s
33=t	34=u	
40=v	41=w	42=y
43=z	44=x/j	

Hex conversion:

00=0	01=1
02=2	03=3
10=4	11=5
12=6	13=7
20=8	21=9
22=a	23=b
30=c	31=d
32=e	33=f

ASCII conversion:
use 3 digits xyz
res = 25x+5y+z+3