Science Olympiad — Codebusters Practice Test

Exam Preparation

You will need:

1. Folders for each of the teams to hold the tests
2. Sufficient copies of the test for all teams. They don't need to be stapled.
3. Multiple timers which have a lap function on them - ideally one per volunteer. The timer app on an iPhone or Android Phone that has a stopwatch function with lap function is sufficient.

Before the event begins:

1. Practice starting the timers and using the lap function to record the times. Make sure volunteers understand how to use the lap function and are not accidentally stopping the timer completely.
2. Memorize the answer to the timed question.
3. Check to make sure that this key matches the test you are proctoring.
4. Place one copy of the test for each team in the provided folders with the first page outside the folder.
5. Adjust desks and chairs – teams may have up to 3 students for this event.

Running the Event

1. When the students enter the room, instruct them to sit down, DO NOT OPEN THE FOLDER, and put their names, school name and school number on the first page.
2. Encourage them to write their team number on all the other pages AFTER they begin the test. This way if their papers gets separated from each other we can make sure to give them credit.
3. **CRITICAL:** Check to see that students have ONLY brought
   i. Something to write with (pencils, pens, erasers)
   ii. Five function calculators (addition, subtraction, multiplication, division, and usually square root). The calculator can have a simple memory store/recall function but must not have a modulus or other scientific and programmable functions. If their calculator doesn't meet these requirements, they may not use it.
   iii. If there are spare calculators in the kit, you may loan up to one per team to use for the test.
   iv. If the student has a smart watch (Apple watch, Samsung Gear, etc.) they will need to put it away.
4. Instruct the students that if they answer the timed question within 10 minutes, they can be awarded a bonus if they solve the timed question with no more than 2 letters incorrect.
   i. When they have a solution for the cryptogram they should raise their hand.
   ii. Let them know that you will announce when the 10-minute time is up. After the first 10 minutes, no additional bonus points will be awarded.
   iii. When you see a team raise their hand, hit the LAP function and head to the team.
   iv. Determine if their answer is correct (see next page for grading), If so, write the time on their score sheet.
   v. If their score is incorrect (more than 2 letters incorrect), tell the team that the answer is wrong, but DO NOT tell them what is wrong. They can continue to work on the question and raise their hand again to be checked. A team has an unlimited number of attempts during the 10-minute bonus.
5. Tell the teams that they do not have to fill in the frequency table. It is simply there as an aid to them solving the cryptogram. It will not be graded.
6. Some students may never have used a non-scientific calculator. You should have them enter a simple formula on their calculator: 1 / 26 = * 26 = .. Most will be surprised to see that the answer is not rounded to 1 as they expected but .9999999999

7. When the timers hit the 10-minute point, announce that no bonus points will be awarded and put away the timers. The students may continue to work on the question, but they may not receive any extra points.
8. A team is not restricted to only the timed question during the 10 minutes. They can move on or split up the work if they would like, but it is in their best interest to try for the bonus.
9. When time is up, have the students put writing instruments down and put their answer pages back into the folder in the correct order.

How to grade

1. Teams can have up to two incorrect letters total on their cryptogram and still be correct. The frequency of the incorrect letter is irrelevant. See the example below.
   If the cryptogram was as shown:
   KZBAOF KFXMFXYF
   SAMPLE SENTENCE

   and the students answered (underlined letters indicate mistakes)
   SAMPL<u>F</u> S<u>F</u>NT<u>F</u>NC<u>F</u>

   then it counts as four mistakes (even though the mistake was only in the letter E) and the answer DOES NOT count. However, if they put
   SAMP<u>UL</u> SENTENCE

   It is considered correct with two letter mistakes.
2. For questions which have a numeric answer (such as determining the a= and b= values), no mistakes are allowed.
3. Teams do NOT have to fill in the frequency table. It is simply there as an aid to them solving the cryptogram. It WILL NOT be graded. It is included in the answer key as an aid to the grader.
4. When scoring the Baconian ciphers (with strange text or symbols), they can write the answer under the Baconian symbols or on the line provided. Note that you will see lots of As and Bs, but they are not graded as the answer, only what they put on the answer line.
5. As you score each question, if correct, put the number of incorrect letters (0, 1, or 2) next to the question number on the scoring page. Also, put the value for the question into the score column. If they get more than 2 letters wrong, subtract 100 points from the score until it would be zero. If a question is worth 240 points and they get 4 letters wrong, you would start with 240 points (for up to 2 letters wrong) and then subtract 100 points for the next two letters wrong ending up with a final score of 40 points for that question. If they had gotten 5 or more letters wrong on a 240 point question, they would receive 0 points for that question. With a 650 point question, they could get 8 letters wrong and receive 50 points (2 free letters then 6×100=600 points off). Just put the incorrect cost deduction on the score sheet and subtract it from the value for the question. Under no circumstance should the score for any question be less than zero. Note that while the timed question must have 2 or fewer letters incorrect in order to get the timing bonus, a team solving the timed question after the 10 minutes passed would be accepted as correct with 3 incorrect letters receiving 100 points for the timed question.
6. If they correctly answered the timed question in 10-minutes or less with 2 or fewer letters incorrect, you need to compute the bonus time. Take the value for the minute from this first table below

0:xx	2,160	1:xx	1,920	2:xx	1,680	3:xx	1,440	4:xx	1,200
5:xx	960	6:xx	720	7:xx	480	8:xx	240	9:xx	0

   and then add the seconds value from this table:

X:00	240	X:01	236	X:02	232	X:03	228	X:04	224	X:05	220
X:06	216	X:07	212	X:08	208	X:09	204	X:10	200	X:11	196
X:12	192	X:13	188	X:14	184	X:15	180	X:16	176	X:17	172

X:18	168
X:24	144
X:30	120
X:36	96
X:42	72
X:48	48
X:54	24

X:19	164
X:25	140
X:31	116
X:37	92
X:43	68
X:49	44
X:55	20

X:20	160
X:26	136
X:32	112
X:38	88
X:44	64
X:50	40
X:56	16

X:21	156
X:27	132
X:33	108
X:39	84
X:45	60
X:51	36
X:57	12

X:22	152
X:28	128
X:34	104
X:40	80
X:46	56
X:52	32
X:58	8

X:23	148
X:29	124
X:35	100
X:41	76
X:47	52
X:53	28
X:59	4

For example if they solved the time question at the 6:46 mark, you would add 720 (from the 6:xx entry in the first table) to 56 (from the X:46 entry in the second table) to get a bonus of 776. If they had solved it in exactly 4:00 minutes, you would add 1200 and 240 to get a bonus of 1440.

7. Add up all the scores and put the total on the bottom of score sheet.
8. You must break all ties. Indicate the tie breaker by adding .1 to the score of the team ahead. With multiple teams tied, you will add more. I.e. if five teams all scored 200 points, the final scores that you would enter on the score sheet would be 200.4, 200.3, 200.2, 200.1 and 200.
9. To determine how to break the tie, you need to look at the correctly answered questions in the order from the table below. If both teams answered the same (i.e. they answered the question with zero mistakes) then you go on to the next question. If one team had no mistakes and the other team had one mistake, then the team with no mistakes is ahead. For example, if one team answered question #8 (which is the highest value question) and another team didn't, the first team will be ahead.

Tie Breaker Order	Question #
1	21
2	17
3	6
4	4
5	12
6	7
7	5
8	16
9	19
10	20
11	18
12	11
13	3
14	1
15	Timed
16	15
17	14
18	10
19	2
20	13
21	9
22	8

0. If there is still a tie (typically when you have teams which answered either zero, one or two questions) then you will need to look at the tie breaker questions again and count the number of correctly answered letters. The team with the most correctly matched letters is to be ahead.

Timed Question **[250 points]** Decode this Aristocrat. It is a quote from Winston Churchill. When you have solved it, raise your hand so that the time can be recorded and the solution checked.

YMH UIHLYHZY SHZZKD AD SACH AZ YK QDKV YMLY HWHD
THE GREATEST LESSON IN LIFE IS TO KNOW THAT EVEN

CKKSZ LIH IAUMY ZKOHYAOHZ.
FOOLS ARE RIGHT SOMETIMES.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	5		2	4				10	3		6	3	3		2		1		3		2	1	1		8	7
Replacement	I	C	F	N	J	P	D	E	R	U	O	A	H	Z	M	B	K	X	L	Y	G	W	V	Q	T	S

1) **[250 points]** Decode this Aristocrat. It is a quote from the movie 'Monty Python and the Holy Grail.'

Y'N XHAWIM! QMZ CT ZTV RMYWE Y MBUA RMYK TVRHBOATVK
I'M FRENCH! WHY DO YOU THINK I HAVE THIS OUTRAGEOUS

BIIAWR, ZTV KYSSZ EYWO?
ACCENT, YOU SILLY KING?

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	4	3	1		2			2	3		3		5	1	2		1	4	2	5	1	4	4	1	6	4
Replacement	E	A	D	J	K	Q	X	R	C	P	S	B	H	M	G	Z	W	T	L	O	V	U	N	F	I	Y

2) **[200 points]** Decode this Aristocrat encoded with a K1 alphabet. It is a frequently asked question about taxes and benefits.

G XLZGXLO UMYZ ELMX MHO YZMXZLO XLILGBGHQ YJIGMU
I RETIRED LAST YEAR AND STARTED RECEIVING SOCIAL

YLIAXGZE VMEKLHZY. OJ G RMBL ZJ VME ZMDLY JH KE
SECURITY PAYMENTS. DO I HAVE TO PAY TAXES ON MY

YJIGMU YLIAXGZE NLHLPGZY?
SOCIAL SECURITY BENEFITS?

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	2	2		1	6		10	5	5	5	2	13	10	1	4	1	1	1			3	2		7	9	10
Replacement	U	V	W	X	Y	Z	I	N	C	O	M	E	A	B	D	F	G	H	J	K	L	P	Q	R	S	T

3) **[250 points]** Decode this Aristocrat encoded with a K2 alphabet. It is a lyric from the song 'Do You Hear The People Sing?' from 'Les Misérables.'

JWTA GWT PTOGXAV NU LNHB WTOBG TQWNTD GWT PTOGXAV
WHEN THE BEATING OF YOUR HEART ECHOES THE BEATING

GWT PTOGXAV NU GWT SBHRD, GWTBT XD O FXUT OPNHG GN
THE BEATING OF THE DRUMS, THERE IS A LIFE ABOUT TO

DGOBG JWTA GNRNBBNJ QNRTD!
START WHEN TOMORROW COMES!

Replacement	O	P	Q	S	T	U	V	W	X	Y	Z	F	R	A	N	C	E	B	D	G	H	I	J	K	L	M
K2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	5	7		5		1	14	3		3		1		10	7	4	2	3	1	16	3	3	9	5		

4) **[500 points]** Decode this Aristocrat. It is from the book 'Reading with Patrick' and contains spelling and grammatical errors.

U ZHFD DXVS DE HKZHQL BEYIUCV DXVUY LVKB BEY VCVYQ
I WANT THEM TO ALWAYS FORGIVE THEIR SELF FOR EVERY

SULDHAVL DXVQ SHAV UF KUBV, PVJHWLV SULDHAVL XHNNVFL
MISTAKES THEY MAKE IN LIFE, BECAUSE MISTAKES HAPPENS

UDL EAHQ.
ITS OKAY.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	4	4	2	8	4	3		9	1	1	3	9		2		1	4		4		8	14	1	4	4	2
Replacement	K	F	V	T	O	N	Z	A	G	C	L	S	X	P	Q	B	Y	D	M	J	I	E	U	H	R	W

5) **[450 points]** Decode this Patristocrat. It is from a college brochure and contains the word 'future.'

IWBNA CPMKN JCCYH CMMCQ OBCXW OPONI QPQAW QXPBP
OURID EALSI ZEEXC ELLEN TREPU TATIO NANDU NPARA

MMCMC ABCKI WBHCK HPQKR NQCPE BNDRO MNDRO IQZIW
LLELE DRESO URCES CANSH INEAB RIGHT LIGHT ONYOU

BUWOW BC
RFUTU RE

Our ideal size, excellent reputation and unparalleled resources can shine a bright light on your future.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	3	8	12	2	1			3	5	1	4		7	6	6	7	7	3			1		7	2	1	1
Replacement	D	R	E	G	B	M	W	C	O	Z	S	K	L	I	T	A	N	H	V	J	F	Q	U	P	X	Y

6) **[500 points]** Decode this Patristocrat. It is a phrase commonly found on food product labels.

FSLQT YKEAV FMPQT YKVWQ QWELX PDPVL ULFCF SPFPU
THISP RODUC TWASP ROCES SEDIN AFACI LITYT HATAL

QKTYK VWQQW QDKKE VKXFP LXLXN TWPXA FQGAF XKFKX
SOPRO CESSE SFOOD CONTA INING PEANU TSBUT NOTON

FSWQP IWWRA LTIWX F
THESA MEEQU IPMEN T

This product was processed in a facility that also processes food containing peanuts, but not on the same equipment.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	4		1	2	3	11	1		2		9	7	1	1		8	10	1	3	5	2	5	9	8	3	
Replacement	U	Z	Y	F	D	T	B	X	M	K	O	I	W	G	J	A	S	Q	H	P	L	C	E	N	R	V

7) **[450 points]** Decode this Patristocrat encoded with a K1 alphabet. It is a quote from Louis Pasteur.

BPNTF KUUWG KLPKL PFHMP NFTXU FWNXF TSNYB GXNTY
WHENI APPRO ACHAC HILDH EINSP IRESI NMETW OSENT

FSNTY XYNTM NWTNX XOGWB PKYPN FXKTM WNXUN LYOGW
IMENT STEND ERNES SFORW HATHE ISAND RESPE CTFOR

BPKYP NSKJE NLGSN
WHATH EMAYB ECOME

When I approach a child he inspires in me two sentiments: tenderness for what he is, and respect for what he may become.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency		4			1	7	5	1		1	7	4	3	15	2	8			4	8	4		6	8	7	
Replacement	V	W	X	Z	B	I	O	L	G	Y	A	C	D	E	F	H	J	K	M	N	P	Q	R	S	T	U

8) **[100 points]** Decode this Caesar. It is a quote from Julius Caesar.

B	Y		R	H	N		F	N	L	M		U	K	X	T	D		M	A	X		E	T	P	,		W	H		B	M		M	H
I	**F**		**Y**	**O**	**U**		**M**	**U**	**S**	**T**		**B**	**R**	**E**	**A**	**K**		**T**	**H**	**E**		**L**	**A**	**W**	,		**D**	**O**		**I**	**T**		**T**	**O**

L	X	B	S	X		I	H	P	X	K	:		B	G		T	E	E		H	M	A	X	K		V	T	L	X	L		H	U	L	X	K	O	X
S	**E**	**I**	**Z**	**E**		**P**	**O**	**W**	**E**	**R**	:		**I**	**N**		**A**	**L**	**L**		**O**	**T**	**H**	**E**	**R**		**C**	**A**	**S**	**E**	**S**		**O**	**B**	**S**	**E**	**R**	**V**	**E**

B	M	.
I	**T**	.

9) **[150 points]** Decode this Caesar. It is a quote from Caesar Augustus.

J	O	C	N	A		C	Q	R	B		C	R	V	N		R		B	D	A	Y	J	B	B	N	M		J	U	U		X	C	Q	N	A	B
A	**F**	**T**	**E**	**R**		**T**	**H**	**I**	**S**		**T**	**I**	**M**	**E**		**I**		**S**	**U**	**R**	**P**	**A**	**S**	**S**	**E**	**D**		**A**	**L**	**L**		**O**	**T**	**H**	**E**	**R**	**S**

R	W		J	D	C	Q	X	A	R	C	H	,		K	D	C		R		Q	J	M		W	X		V	X	A	N		Y	X	F	N	A
I	**N**		**A**	**U**	**T**	**H**	**O**	**R**	**I**	**T**	**Y**	,		**B**	**U**	**T**		**I**		**H**	**A**	**D**		**N**	**O**		**M**	**O**	**R**	**E**		**P**	**O**	**W**	**E**	**R**

C	Q	J	W		C	Q	N		X	C	Q	N	A	B		F	Q	X		F	N	A	N		J	U	B	X		V	H
T	**H**	**A**	**N**		**T**	**H**	**E**		**O**	**T**	**H**	**E**	**R**	**S**		**W**	**H**	**O**		**W**	**E**	**R**	**E**		**A**	**L**	**S**	**O**		**M**	**Y**

L	X	U	U	N	J	P	D	N	B		R	W		X	O	O	R	L	N	.
C	**O**	**L**	**L**	**E**	**A**	**G**	**U**	**E**	**S**		**I**	**N**		**O**	**F**	**F**	**I**	**C**	**E**	.

10) **[200 points]** Decode this Affine. It is related to the video game Fallout 4. A = 15, B = 22.

V	X	E		W	T	T	M	J	M	V	S		Z	W	F	K	E		M	G		X	M	P	P	E	J	.
T	**H**	**E**		**A**	**F**	**F**	**I**	**N**	**I**	**T**	**Y**		**V**	**A**	**L**	**U**	**E**		**I**	**S**		**H**	**I**	**D**	**D**	**E**	**N**	.

11) **[250 points]** Decode this Affine. It is about a chemical property. A = 21 and B = 7.

Q	Y	N		I	T	A	V	Q		N	E	N	X	Q	A	P	U		H	I	I	T	U	T	Q	T	N	V		Y	H	G	N
T	**H**	**E**		**F**	**I**	**R**	**S**	**T**		**E**	**L**	**E**	**C**	**T**	**R**	**O**	**N**		**A**	**F**	**F**	**I**	**N**	**I**	**T**	**I**	**E**	**S**		**H**	**A**	**V**	**E**

U	N	D	H	Q	T	G	N		G	H	E	L	N	V	.
N	**E**	**G**	**A**	**T**	**I**	**V**	**E**		**V**	**A**	**L**	**U**	**E**	**S**	.

12) **[450 points]** Encode this Hill. It is about the Palatine Hill, one of the Seven Hills of Rome.

$$\begin{pmatrix} F & I \\ N & D \end{pmatrix} \equiv \begin{pmatrix} 5 & 8 \\ 13 & 3 \end{pmatrix}$$

T	H	E	F	I	R	S	T	N	U	C	L	E	U	S	O	F	T	H	E	R	O	M	A	N	E
V	**I**	**I**	**P**	**U**	**Z**	**I**	**F**	**R**	**V**	**U**	**H**	**Y**	**I**	**U**	**Q**	**V**	**S**	**P**	**Z**	**P**	**D**	**I**	**A**	**T**	**Z**

M	P	I	R	E	
Y	**T**	**U**	**Z**	**M**	**X**

13) **[150 points]** Decode this Vigenère. It is about the inventor of this cipher. The keyword is 'crypt.'

C	R	Y	P	T	C	R	Y	P	T	C	R	Y	P	T	C	R	Y	P	T	C	R	Y	P	T	C	R	Y	P	T
I	Z	M	K	T	P	S	Y	I	M	K	J	R	P	U	G	C	J	P	L	Q	N	Y	H	T	P	Z	R	P	E
G	**I**	**O**	**V**	**A**	**N**	**B**	**A**	**T**	**T**	**I**	**S**	**T**	**A**	**B**	**E**	**L**	**L**	**A**	**S**	**O**	**W**	**A**	**S**	**A**	**N**	**I**	**T**	**A**	**L**

C	R	Y	P	T	C	R	Y	P	T	C	R	Y	P	T
K	R	L	R	K	A	G	R	D	E	Q	X	G	H	M
I	**A**	**N**	**C**	**R**	**Y**	**P**	**T**	**O**	**L**	**O**	**G**	**I**	**S**	**T**

14) **[200 points]** Decode this Vigenère. It is about France. The keyword is 'pays.'

P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S
U	R	Y	F	R	E	R	Z	T	L	Y	J	V	E	Q	L	R	O	S	F	I	R	W	A	C	W	C	K	I	E	P	F
F	**R**	**A**	**N**	**C**	**E**	**T**	**H**	**E**	**L**	**A**	**R**	**G**	**E**	**S**	**T**	**C**	**O**	**U**	**N**	**T**	**R**	**Y**	**I**	**N**	**W**	**E**	**S**	**T**	**E**	**R**	**N**

P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S
T	U	P	G	E	E	Z	G	G	D	C	J	H	G	C	J	B	A	L	Q	P	N	B	T	T	L	E	A	J	M	G	F
E	**U**	**R**	**O**	**P**	**E**	**B**	**O**	**R**	**D**	**E**	**R**	**S**	**G**	**E**	**R**	**M**	**A**	**N**	**Y**	**A**	**N**	**D**	**B**	**E**	**L**	**G**	**I**	**U**	**M**	**I**	**N**

P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A	Y	S	P	A
I	H	C	F	D	R	R	Z	P	N	B	K	E	A	G	F	X	N	R	Z	T	S	M	M	I	H
T	**H**	**E**	**N**	**O**	**R**	**T**	**H**	**A**	**N**	**D**	**S**	**P**	**A**	**I**	**N**	**I**	**N**	**T**	**H**	**E**	**S**	**O**	**U**	**T**	**H**

15) **[200 points]** Encode this Vigenère. It is about the person this cipher is named after. Use the keyword 'paris.'

P	A	R	I	S	P		A	R		I	S	P	A	R	I	S	P	,		A		R	I	S	P	A	R		I	S	P	A	R	I	S	P	,
B	L	A	I	S	E		D	E		V	I	G	E	N	E	R	E	,		A		F	R	E	N	C	H		D	I	P	L	O	M	A	T	,
Q	**L**	**R**	**Q**	**K**	**T**		**D**	**V**		**D**	**A**	**V**	**E**	**E**	**M**	**J**	**T**	,		**A**		**W**	**Z**	**W**	**C**	**C**	**Y**		**L**	**A**	**E**	**L**	**F**	**U**	**S**	**I**	,

A	R	I	S	P	A	R	I	S		P	A	R	I		S	P	A	R	I	S	.
D	E	S	C	R	I	B	E	D		T	H	I	S		C	I	P	H	E	R	.
D	**V**	**A**	**U**	**G**	**I**	**S**	**M**	**V**		**I**	**H**	**Z**	**A**		**U**	**X**	**P**	**Y**	**M**	**J**	.

16) **[400 points]** Decode this Baconian. It is a quote from Francis Bacon.

àábäβáâäãåβáâäβáâβϐbäβáâäãβϐâβábβáâäβáâäβáâäβábβáb
AABABAAAAABAAABAABBBABAAAABBABABBAAABAAABAAABABBAB
F A S H I O N I S O

äβϐâäãβábäβábβábäãβáâäβϐbäãβáâäãåāaβáâβábäãβáâäβáâ
ABBAAABABABABBABAABAAABBBAABAAAAAAABAABABAABAAABAA
N L Y T H E A T T E

äβábβábβϐâβáâβábäãβáâβϐâβϐâäãåāaβáâäãåāaàϐâβáâβáâä
ABABBABBBABAABABAABAABBABBAAAAAABAAAAAAAABABAABAAA
M P T T O R E A L I

βábβϐâäβáâäãåāaβáâäãβáâβáâβáâäãβϐâäãβábäãβáâäβáâβϐ
BABBBAABAAAAAAABAAAABAABAABAAAABBAAABABAABAAABAABB
Z E A R T I N L I V

âβáâäãβϐâäãåβϐâäãβábäβϐâβϐâäãåāβábβϐâäãβáâäãåāβϐâä
ABAAAABBAAAABBAAABABABBABBAAAAABABBBAAABAAAAAABBAA
I N G F O R M S A N

ãåāβϐbäãåβábβábäãåβáâβáâäãåāaàábäβáâβáâäãβϐâäβáâβá
AAABBBAAABABBABAAABAABAAAAAAAAABABAABAAAABBAABAABA
D S O C I A L I N T

âäβáâβáâäãåāaβáâβϐâβϐâäβϐbäãåāβáâäβáâβáâ
AABAABAAAAAAABAABBABBAABBBAAAABAAABAABAA
E R C O U R S E

Fashion is only the attempt to realize art in living forms and social intercourse.

17) **[550 points]** Decode this Baconian. It is about Bacon's Rebellion. The last letter is 't.'

```
!&#$%^@#(%^@*$%!@#$%^@#$)^@#(%!@*()!@*$%!@*$)!&#$%^@
ABAAABAABABABAAAAAAABAAABBAABAAABBBAABAAAABABABAAABA
  I    T    W    A    S    T    H    E    F    I

#$%^@#$)^@#(%^@#$%!@*$%!@#$)!@*$%!&#(%!&#(%!&#$%!&*$
AAABAAABBAABABAAAAAABAAAAAABAABAAABABAABABAABAAAABBA
R    S    T    R    E    B    E    L    L    I    O

)!&*$%!&#$%!&*$%^@#(%!@*()!@*$%!&*$%!&*$)^@#$%^@#(%!
BABBAAABAAAABBAABAABAAABBBAABAAABBAAABBABBAAAABAABAA
   N    I    N    T    H    E    N    O    R    T

@*()!@#$%!&#()!@*$%^@#$%!&#$%!@#(%!@#$%!&*$%!@#(%!&*
ABBBAAAAAABABBAABAABAAAAABAAAAAABAAAAAAABBAAAAABAABB
 H    A    M    E    R    I    C    A    N    C    O

$)!&#(%!&*$)!&*$%!&#$%!@*$%^@#$)!&#$%!&*$%^@*$%!@*()
ABABABAABBABABBAAABAAAAABAABAAABABAAAABBAABABAAAABBB
    L    O    N    I    E    S    I    N    W    H

!&#$%!@#(%!@*()!@#()!&#$%^@#$)!@#(%!&*$)!&*$%^@#(%!@
ABAAAAAABAAABBBAAABBABAAABAAABAAABAABBABABBAABAABAAA
  I    C    H    D    I    S    C    O    N    T

*$%!&*$%^@#(%!@*$%!@#()!@*$)^@#$%!&*$)!&*$%^@#(%!&#$
BAAABBAABAABAAABAAAAABBAABABBAAAAABBABABBAABAABAABAA
E    N    T    E    D    F    R    O    N    T    I

%!@*$%^@#$%^@#$)!&#()!@*$%!&*$%^@#(%!&*$)!&*$)!&#$)!
AAABAABAAAABAAABABABBAABAAABBAABAABAABBABABBABABAABA
   E    R    S    M    E    N    T    O    O    K

&*(%!@#$%^@#$%^@#(%
BBBAAAAAABAAAABAABA
 P    A    R    T
```

It was the first rebellion in the North American colonies in which discontented frontiersmen took part.

18) **[300 points]** Decode this Morbit. It is a morbid quote from Susan Ee's book 'World After'. 1 = —, 3 = ●●, 5 = ●×, 7 = –×

```
3 3 4 9 6 6 4 7 2 5 2 5 3 4 8 3 9 6 1 8 1 4 2 9 1 7
●●●●×●××–●–●×●–×●–●×●–●×●●×●×–●●××–●––×–––×●●–××–––×
H    E/ C    A  R   R   I  E D  / Y    O   U  / O

3 7 7 8 1 4 2 5 8 4 3 5 5 4 2 5 3 4 6 4 9 2 8 5 6 5
●●–×–××–––×●●–●××–×●●●●×●××●●–●×●●×●–●×●××●–×–●×–●●×
U   T /O   F    /T H    E /F    I  R   E/ A  N  D

4 5 3 5 4 6 5 5 7 7 3 8 5 1 5 8 2 7 1 7 3 7 4 3 7
×●●×●●●×××●–●●×●×–×–×●●×–●×––●××–●––×–––×●●–××●●●–×
/I  S   /L    E T T I  N  G   /Y    O   U   /V

3 4 3 4 5 7 4 2 4 3 9 3 6 4 6 8 1 8 7 8 4 3 5 5 8 3
●●×●●●×●●×–××●●–×●●●××●●–●×●–●×–––×––××–×●●●●×●××–●●
I  S   I  T /U   S  / F    R   O   M  /T H    E /D

4 4 7 6 5 4 1 4 3 5 1 7 4 4 6 5 3 5 5 4 1 8 1 4 2
×●×●–×–●●××●––×●●●●×–––××●×●–●●×●●●×●××●––×–––×●●–
 E A  D   /W   H    O   /E L    S   E /W   O   U

4 6 5 6 5 4 3 5 2 4 3 7 5 8 4 3 5 1 7 3 5 5 4 1 5
×●–●●×–●●××●●●●×●–×●●●–×●××–×●●●●×–––×●●●×●××●––●×
 L    D   /H    A  V    E /T H    O   S   E /P

2 5 3 4 3 7 3 4 6 5 5 1 5 5 3 5 4 8 3 7 6 6 4 4 1 5
●–●×●●×●●●–×●●×●–●●×●×––●×●×●●●××●×–●●–×–●–●×●×●––●×
R   I  V    I  L    E G   E S   /E X    C    E P

7 4 3 5 3 4 3 9 6 3 4 6 4 5 6 5 5
–××●●●●×●●×●●●××–●●●×●–●×●●×–●●×●×
T /H    I  S  / B    R   I  D   E
```

19) **[350 points]** Decode this Morbit. It is an excerpt from the description of a technology company called 'Morbit.' 2 = ××, 4 = −×, 6 = ●×, 8 = −●

```
7 4 7 6 7 3 6 1 6 5 1 6 9 3 5 3 6 4 5 1 6 6 8 3 7
●●−×●●●×●●×−●×−−●××●−−●×●−×−×●×−●×−××●−−●×●×−●×−●●
U   S   I  N  G   /P    A  T E N  T /P    E N  D

5 6 8 3 8 2 4 6 8 8 5 7 6 8 3 1 5 8 6 1 4 1 6 8 1
×●●×−●×−−●××−×●×−●−●×●●●●×−●×−−−×●−●●×−−−×−−●×−●−−
 I  N  G  / T E C    H    N  O   L    O   G   Y

2 9 2 7 6 7 3 6 1 6 9 7 5 2 7 3 6 7 6 4 9 5 8 6 9 7
××●−××●●●×●●×−●×−−●×●−●●×●××●●×−●×●●●×−×●−×●−●●×●−●●
/ A / S   I  N  G   L    E/ I  N  S   T A  L    L

5 4 4 7 3 1 3 6 3 1 3 6 3 9 4 1 4 7 4 9 6 3 6 6 4
×●−×−×●●×−−−×−●××−−−×−●××−●−−×−−−×●●−×●−●××−●×●×−×
 A  T I  O   N  /O   N  /Y    O   U   R   /N  E T

9 4 1 4 9 6 8 4 5 4 8 3 7 2 4 7 7 5 2 9 6 6 7 6 4
●−−×−−−×●−●×−●−××●−×−●×−●●××−×●●●●×●××●−●×●×●●●×−×
W   O   R   K   /A  N  D  / T H    E/ R   E S   T

3 9 6 9 3 6 3 7 6 6 3 7 3 1 3 6 6 5 7 5 3 9 6 7 4
×−●−●×●−×−●××−●●●×●××−●●×−−−×−●×●××●●●×●×−●−●×●●−×
/C    A  N  /B    E /D   O   N  E /S   E C    U

9 6 6 9 7 3 9 4 5 9 6 9 6 1 4 1 2 1 4 7 4 9 6 3 9 6
●−●×●×●−●●×−●−−××●●−●×●−●×−−−×−−××−−−×●●−×●−●××−●−●×
R   E L    Y    /F    R   O   M / O   U   R   /C

9 7 3 1 5 9 3 7 2 9 8 3 1 5 8 3 5 4 9 7 2 8 3 1 2 7 9
●−●●×−−−×●●−×−●●××●−−●×−−−×●−●×−×●−×●−●●××−●×−−−××●●●−
L    O   U   D  / P    O   R   T A  L   / N  O  / V

5 1 6 8 5 7 2 9 3 6 8 6 3 6 1 4 5 1 6 9 7 5 9 3 8
×●−−●×−●×●●●××●−×−●×−●●××−●×−−−××●−−●×●−●●×●●−×−−●
 P    N  S  / A  N  D   /N  O   /P    L    U   G

2 7 3 6 7 6 5 4 3 7 6 9 6 1 4 9 4 7 6 6 9 6 5 6 7 6
××●●×−●×●●●××●−××−●●●×●−●×−−−×●−−×●●●×●×●−●××●●×●●●×
/ I  N  S   /A  /B    R   O   W   S   E R   /I  S

5 4 9 7 5 8 6 3 5 7 6 9 3 2 7 6 5 8 5 3 8 4 7 4 7
×●−×●−●●×●−●●××−×●●●●×●−×−××●●●××●−●×●×−−●−×●●−×●●
/A  L    L    /T H    A  T/ S   /R   E Q    U   I

5 8 5 3 7
×●−●×●×−●●
 R   E D
```

20) **[300 points]** Decode this Pollux. It is a description of the Pollux star. 0 = –, 1 = •, 4 = ×, 6 = •

```
8843758659964510510617168732374290401422346024065460488
••×–××••×•••××•–×•–••×•••×–––××–•–×–•×–––×•––×–•××•–×•••
I  T  I  S    A  L    S  O    K  N  O  W  N  A  S

55098656525805402856703498529522341097862433451043152l9
××–•••×•×–×•–××––•×•×––×••×–•×–––×•–•×••–×––××•–×–•×–••
  B    E T A  G  E M  I  N  O  R  U  M  A  N  D

778141614589178311799502641996504939952103542998482l496
××••×•••××•••×•–••×••×––•×••••×–×•–••×–•––××–•••×•–•×••
  I  S    S  L    I  G  H    T L    Y    B    R  I

532179668734958364434161959353154090159376887072237621
×––•×••••×–×•×•–•××–×••••×•–×–•××–•–•×•–×•••×–×–––×•–•
 G   H    T E R    T H    A  N  C    A  S  T O  R

5469524519846816511428595686548005817371186471047221433l
××••×–××•••×••••×••×–•×•×•••××•––×••×–×••••××•–××––•×–––
  I  T  S  H    I  N  E S    W  I  T H    A  G  O

590884311594214700946399500379325760258161481462985954213l8
×•–••×–••×•×–•××––•×•–•••×––×•––××•––×••••×•••×•–••×•××–•–•
 L    D   E N  G  L    O  W    W  H    I  L    E  C

463561943532248217580712214902848582780878884582276198
×•–×•••×–×–––×•–•×××•–×•––•×•––•×•×•–×•–•×•••×××•––×••••
 A  S  T O  R  A  P  P  E A  R  S  W  H

56940765129
×•••–×•×•–•
 I  T E R
```

21) **[550 points]** Decode this Xenocrypt encoded with a K1 alphabet using an English keyword. It is a quote from the novel 'Cajas de Cartón.'

FZ QZN EF ZQFWPONW RAYIFW, FZDNZPOYLNW QZY DYIY
EN UNO DE NUESTROS VIAJES, ENCONTRAMOS UNA CAJA

HOYZEF EF LYEFOY ÑQF DNZRFOPALNW FZ DQZY XYOY FK
GRANDE DE MADERA QUE CONVERTIMOS EN CUNA PARA EL

ZQFRN CFCF.
NUEVO BEBE.

K1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Ñ	O	P	Q	R	S	T	U	V	W	X	Y	Z
Frequency	2		2	4	4	15		1	2		1	3		7	1	6	3	6	3					5	1	11	11
Replacement	I	H	B	C	D	E	F	G	J	K	L	M	Ñ	O	Q	R	T	U	V	W	X	Y	Z	S	P	A	N

Translation: *On one of our trips, we found a large wooden box that we converted into a cradle for the new baby.*