

Science Olympiad — 2022 BirdSO Mini B

Names of participants: (Please print neatly)

School Name: _____

Check your team: ☐ Varsity ☐ JV1 ☐ JV2 ☐ JV3

Warning: Do not open this packet until given permission to do so.

Note: There are useful notes after this page.

Scoring:

Time to solve first problem: _____ (use to calculate Bonus below)

Question	Value	Incorrect letters	Deduction	Score
Timed	300			
1	240			
2	250			
3	265			
4	280			
5	290			
6	320			
7	325			
8	340			
9	345			
10	355			
11	430			
12	520			
13	550			
14	575			
15	375			
16	195			
17	230			
18	205			
19	215			
20	280			
21	235			
22	275			
23	300			
24	315			
25	365			
26	320			
27	340			
28	285			
Bonus				
Final Score				

Question	Value	Incorrect letters	Deduction	Score
29	405			
Bonus				
Final Score				

Timed Question **[300 points]** Solve this Aristocrat about birds! When you have solved it, raise your hand so that the time can be recorded and the solution checked.

DHBDE CDRBCYDIRBKE BC DE BAUKQORDER AORQBI KY RVO

CSIIOCC KY RVBC RKSQEDAOER.

	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	7	7	7	6			1	4		5				4		3	9	2		1	2			3	
Replacement																										

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1) [240 points] Solve this Aristocrat which is a large leap in logic.

VHEN ENB LHMB KG HZZKAIEHAB ROZX WIZWBL DBCHWHZB IZC

ELBIEDBZE, ENBLB NIM ZBABL SBBZ I SBEEBL EHDB EK

MDKQB.

	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	18	2	4	11		1	7	6		4	6	3	4	1		1	1	2			1	3	1		9
Replacement																										

2) [250 points] Solve this Aristocrat.

ISTBT WR DHISWDQ ZHBT WDIWZWKCIWDQ ISCD C JBHNK HE

LTHLGT NTCBWDQ VMBQTB PWDQ JBHNR RWDQWDQ IST

DCIWHDCG CDISTZ WD MDWRHD.

	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		7	7	16	1		2	8	8	2	2	2	2	3		1	7	4	5	9		1	13			3
Replacement																										

3) [265 points] Solve this Aristocrat which is a puzzling conundrum.

LP G UQQEVGNF OYYR, GCQ JYX BXRRYBQE SY NYZF JYXC

YKP UYYE SY UQQE VGNF LPSY SDQ OYYR?

	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	4	3	4			2	1	2		3	2	3	7	4	4		3	2		3	15	
Replacement																										

4) [280 points] Solve this Aristocrat about winter.

`HGR HOM RMFRYS YK XGJGSX, AMTOFAR YTZMT F UGTZRY

ROGTH KYT F QYJMZ YSM YK CYWTR?

	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		1			4	5	3		2	3		6		3		1	7	3	7	1		1	2	9	3
Replacement																										

5) [290 points] Solve this Aristocrat, which has been encoded with a **K1** alphabet.

DJIQ FPB LIRPXI K SPROPH, FPBH TMHAO YKOMIQO PQ OJI

VPL MA UPQOK AMO SPDQ KQS AKF, "SPROPH, XF WHILA

RFRNI MA LHPWIQ."

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	6	2		2		5		6	8	2	5	4	5	1	7	12	8	5	4	1	1	1	2	2	1	
Replacement																										

6) [320 points] Solve this Aristocrat about a contest. The ciphertext character **"V"** decodes to **"T"**.

WBWQD WBWSV PDPIW, CX TXTCI, VLW QTQCI CQCMX WIWPFV

CKCZS VLW VZVIW CSN CRCQN CYCQV GQJF VLW ZQZXL WSWFD.

	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	12	3		2	1		5	1	1	4	1	2		3	8	1	4	3		8	13	4	1	4
Replacement																										

7) [325 points] Solve this Aristocrat.

QS GRWE SLZJH L HYLWW HXQVS QR DJIHDJOSQAJ SG INQR L

DJIVJOS DXGSGBILDY.

	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	1	1		5	1		4	4	4	6		5		1	2		5	3	7			2	3	3	1	1
Replacement																										

8) [340 points] Solve this Aristocrat which contains a taxon.

OPP HWNLKTLQYLJGK NCXONTLGX BPLXAY QJGQWN YAOY LY

KAJWPT DC LSMJKKLDPC BJN AESCGJMYCNOGK YJ OULOYC.

	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	2	6	2	1		5	1		7	6	9	2	6	6	5	3		2	3	1		3	3	8	
Replacement																										

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9) [345 points] Solve this Aristocrat.

NZILU TIWVD LG SYUULWS OQZLWS. FYU'G UZJ HLVHLWS

MYSYUBOFYG WYCU ULXY.

	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		1	1	1		2	3	2	2	1		7	1	1	2		1		5	1	8	2	5	1	7	3
Replacement																										

10) [355 points] Solve this meta Aristocrat.

VRKQ SIEWLJQVWXQ VWQV KQ N GJTVKQVNHV GWCVNT

SNYNSKVD WPNG VRNV YXIHVWQQKUWTD HWVQ GIXW

SRNTTWCHKCH VRXIJHRIJV.

	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	2	1		4	6	5	4	6	1		8		1	9	5	4	5	1	13	11	5	2	
Replacement																										

11) **[430 points]** Solve this Aristocrat. All the words are English words spelled correctly, but the message is nonsense until you read it aloud. The ciphertext character "A" decodes to "O".

LEL PJL TUD VAA ACVG CL-BCLGLUYL FL. PJLTC RZCE

GFZKK ZCP LUN PJLE'CL GA KAUG TUPA JL LZC KEL

FAICUTUO AIC VIP LTQQLK. QTUL ZKKLE LEL'F ZV ACV.

	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	9	1	11	1	6	4	5		3	4	7	21		1	2	6	3	1		6	8	5			1	6
Replacement																										

12) **[520 points]** Solve this innovative Patristocrat.

PXOPJ QIOLO SCALL PDOPX ONLMP NXMQP DCGOC FCQOT

YPQQK OQICQ IOCQL APBTS TNXGF INKOA PBCTO PBQCX

SCYPB Q

	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	4	9	2		2	2		4	1	2	5	2	4	11	11	10		3	4				5	2	
Replacement																										

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13) [550 points] Solve this Patristocrat from a very confused speaker. The ciphertext character "M" decodes to "O".

DMBEH XRMCF RXXRJ XJB DL JVYXR JXXAD XERHN JBNYI

JYLHN XCQBH NDBXM WHQUT XMKHP JDQDX DYDBX RHB JL H

	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	1	7	2	8	2	1		8	1	8	1	3	4	4		1	3	6		1	1	1	1	13	4	
Replacement																										

14) [575 points] Solve this motivational Patristocrat.

IDXQZ IDJAI YZCRD JRNYZ JNRPD ATCRI DXBAT ORMXP

IDXQT FYFYZ CRQXA PTKAR NYZJN RGP DG DACRP YTGLX

RGPTD J

	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	6	1	4	9		1	4		5	5	1	1	1	4	1	7	3	10		6				6	6	5
Replacement																										

15) [375 points] Solve this Xenocrypt.

DW MNAUÑ CQ DWS JÑMCJJNÑW IC KSBNWSQ RDC VDCQXUSW

RDC DW XÑIÑ CQ VSQ RDC MS QDVS IC QDQ KSUXCQ.

	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	1	1	10	9					3	3	2		3	3	5			9	3	8		3	3	6	3		
Replacement																											

16) [195 points] Solve this quote which has been encoded with the Atbash cipher.

O	R	P	V	,	H	S	Z	I	V	,	Z	M	W	H	F	Y	H	X	I	R	Y	V	G	L	Y	R	I	W
				,						,																		
H	X	R	V	M	X	V	L	O	B	N	K	R	Z	W	L	M	B	L	F	G	F	Y	V	.				
																								.				

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17) [230 points] Encode this quote with the **Atbash** cipher.

T	H	I	S	Q	U	E	S	T	I	O	N	G	E	T	S	E	A	S	I	E	R	T	H	E	M	O	R	E	O	F

I	T	Y	O	U	S	O	L	V	E	.	T	H	A	T	,	S	R	E	V	E	R	S	A	L	F	O	R	Y	O	U	.
										.					,															.	

18) [205 points] Solve this quote which has been encoded with the **Caesar Cipher**.

R	T	T	F	I	U	Z	E	X	K	F	U	R	E	K	V	,	J	Z	E	W	V	I	E	F	,	K	N	F	F	W
																,								,						

K	Y	V	K	Y	I	V	V	D	F	J	K	V	M	Z	C	G	V	F	G	C	V	Z	E	Y	Z	J	K	F	I	P

N	V	I	V	K	Y	F	J	V	N	Y	F	R	J	J	R	J	J	Z	E	R	K	V	U	R	I	F	D	R	E

V	D	G	V	I	F	I	.
							.

19) [215 points] Encode this quote with the **Caesar Cipher** and a shift of 7.

O	H	,	Y	O	U	L	I	K	E	S	A	L	A	D	?	N	A	M	E	A	N	I	T	A	L	I	A	N	,	A
															?															

R	A	N	C	H	,	A	N	D	O	N	E	T	H	O	U	S	A	N	D	I	S	L	A	N	D	S	.		

20) [280 points] Solve this quote which has been encoded with the **Vigenère Cipher** with the keyword **MAPLE**.

F	H	T	D	Q	M	L	A	C	I	P	L	T	L	J	R	E	A	W	M	Z	T	D	E	L	Q	C	D	W	H

N	L	J	P	T	A	N	S

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★(Special Bonus Question) 21) [235 points] Solve this quote which has been encoded with the **Vigenère Cipher** with the keyword **STRONG**.

A	P	F	I	Y	J

T	X	R	H	N	T

Q	H	E	S	V	T

S	G	R	F	Z	C

J	X	J	H	Y	K

A	Y	P	C	H	M

S	O	V	A	R	G

C	G	Z	T	R

22) [275 points] Solve this quote which has been encoded with the **Affine Cipher** with the pair **(A,B) = (11,5)**.

P	S

B	R	W	G	R	K	F	W

F	S	G	E	K	D	O	D	W	D	T	J

,

J	D	R	K

,

P	S

-

W	F	N	V

-

F	K	X

F	W	V	D

L	S	D	N	S

F	V

J	D	R	K

F	I	I	P	S	X	V

.

.

23) [300 points] Solve this quote that has been encoded with the **Affine Cipher**. The ciphertext character "Y" decodes to "R" and the ciphertext "S" decodes to the letter "N".

O	W	L	Y	L	F	T	N	S	O	W	L	C	N	T	F	S	B	L	C	L	T	F	R	Y	I	N	Y	O	V	N	Q	L

W	F	T	F	S	"	U	"	R	T	O	N	W	L	C	I	P	N	J	G	L	L	C	A	L	O	O	L	Y

F	A	N	J	O	Z	F	R	O	R	S	B	F	Y	N	J	S	Q	R	G	P	N	J	Y	G	C	R	B	W	O

B	L	O	T	Q	L	C	F	P	L	Q	.
											.

24) [315 points] Solve this quote that has been encoded with the Baconian Cipher.

TMNTOMNOTNMTONMTONMOTMTNOMTNTMTMTMOTMTNONMTMTMTONMO

TNMOTMNTMTOMTNTMTMOTMTNTMTMTMTMTMOTNTMTOMNTOMNOTMNTON

MTOMTMTMTNTNOMTNTMTMOTMNOTNMTMTMONTONMTONMONTMTMTON

MTOMNTOMTNTMTMTMTMOTM

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★(Special Bonus Question) 25) [365 points] Solve this quote that has been encoded with the **Baconian Cipher**. It begins with the letter "P".

GREEN LIONS SPEAK LOYAL TANKS GLASS LABEL WAGES LUCKY

BLEND MEANT RUMOR EMILY WALES ALLEY ALIAS NOSES AGING

GRAVY MEALS DUDES AGILE FIGHT LARRY IS TWO WHOLE

DOING MULTI AGILE BEERS BLEND DO NOT GRAND CHEEK

A KING TEETH AS OLD BEARS CHEAT SADLY

26) [320 points] Solve this quote that has been encoded with the **Morbit Cipher**. 1=x—, 2=●x, 3=—●, 4=x●, 5=—, 6=xx

7 8 8 4 4 8 4 6 9 8 4 2 3 8 4 4 3 4 7 9 8 4 8 6 9

4 3 4 6 2 8 9 4 1 2 1 4 9 4 3 1 2 8 1 2 5 2 4 8 7

2 9 2 3 8 4 8 6 9 3 4 3 1 5 1 3 4 3 4 4 8 4 8 4 2

8 9 4

27) **[340 points]** Solve this quote that has been encoded with the **Pollux Cipher**. 1=--, 2=x, 3=●, 4=●, 5=x, 7=--

48849107567342473356409136752435646994759364572402476

953651695774562072465869632237896321233462536649432444

9263632479313456473997336967391775754463962674251686937

53632898179483

★(Special Bonus Question) 28) **[285 points]** Solve this quote that has been encoded with the **Pollux Cipher**. It ends with **"WICE"**.

458815282864521633814647966256981765530323289632286905

17533628105263298457499768378043812623535750786857314

24157598213652238065706929960543785875779784628329863

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29) [405 points] Solve this quote that has been encoded with the Porta Cipher. The quote ends in "FAWHOLE."

K	R	R	L	P	D	K

R	J	V	E	T	W	J

W	Q	E	R	O	N	W

K	S	P	R	N	Q	F

E	I	G	A	F	Q	K

R	E	A	C	W	O	K

Y	E	A	B	X	R	N

I	I	C	R	C	F	F

O	X	J	Y	M	Z	N