

ARTS MYSTERIES
TRD MRK

SILVERQUICKEN

Benjamin Franklin
Vulfric
MAGICKS & SCIENCES

PUZZLE SAMPLER #1: LOGIC

PUZZLES THAT AWAKEN CURIOSITY & WONDER

Silverquicken Education offers a variety of enrichment opportunities for kids and teachers, including a monthly puzzle subscription box, and in person Solver's Clubs around the country. We are a group of teachers, parents, and education industry veterans with a common purpose—igniting wonder and joy in education. You are well on your own way to awakening the curiosity and wonder in your students. We hope you enjoy this free puzzle sampler. To learn more about our programming, puzzles, and events, visit us at:

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TIPS FOR LAUNCHING PUZZLES

HOLD THE HINTS— At first it will be tempting to give your students hints, however the power of these puzzles lie in the productive struggle they encourage. Provide several minutes of think time before scaffolding. Encourage peer sharing.

SCAFFOLD WITH QUESTIONS— Ask students questions like: What do you see? What does that make you wonder? How could you test that out?

FOCUS ON FUN— Intrinsically motivate your students to keep going by making puzzling fun. Puzzle together, puzzle often, and lean in to the wonder and excitement these puzzles unleash. Don't forget to celebrate success!

SNAKES AND NUMBERS

The students of Silverquicken are eager to open their lockers and begin tending to their Amorpheggs (which will one day hatch into extraordinary Mounts). There is a problem however, as it seems that the combination locks have been changed over the weekend. Is this a test sent by the school's Mentors? Only one way to find out!

$$\begin{array}{r} \text{SILVER} + \\ \text{COPPER} \\ \hline \text{LOCKERS} \end{array}$$

0 =
1 =
2 = R
3 =
4 =
5 =
6 =
7 =
8 = P
9 = C

758624 = ???????

THE FOUR PETS

While in school, the students of Silverquicken are accompanied by their fantastical Mounts. However, when at home several of the students have less than extraordinary (but still lovable) creature companions. Use the clues below to match each student with their pet.

1. Nessa's pet sometimes chases the lizard and the cat.
2. Someone owns an eagle.
3. Jojo's pet and the dog often play together.
4. Gwen's pet has four legs.
5. The cold-blooded pet is owned by either Nessa or Oliver.
6. The dog-owner's name ends with a vowel.

	lizard	cat	eagle	dog
Jojo				
Nessa				
Oliver				
Gwen				



Jojo Mensah



Nessa Young



Oliver Brian Chen



Gwen Schwartz-Wright

PUZZLE SOLUTIONS

CRYPTARITHMS are mathematical puzzles in which the digits are replaced by symbols such as letters of the alphabet. **Encourage** students to use the clue numbers provided. They may get stuck until they realize that they will need to regroup to add. **Scaffold** this clue by asking, “Are there any other number combinations that could yield a two in the second column to the

1 1 1

$$\begin{array}{r} 451762 \\ \text{SILVER} \\ 938862 \\ \text{COPPER} \\ \hline 1390624 \\ \text{LOCKERS} \end{array} +$$

0 = K
1 = L
2 = R
3 = O
4 = S
5 = I
6 = E
7 = V
8 = P
9 = C

758624 = VIPERS

	lizard	cat	eagle	dog
Jojo	X	X	O	X
Nessa	X	X	X	O
Oliver	O	X	X	X
Gwen	X	O	X	X

LOGIC ELIMINATION GRIDS are useful tools for organizing information. **Encourage** students to use the provided grid using the clues. **Scaffold** by asking students what true or untrue information the clues reveal about each Silverquicken student. The clues can be used in any order.

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PUZZLE SAMPLER #2: CIPHERS

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TIPS FOR LAUNCHING PUZZLES

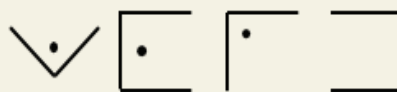
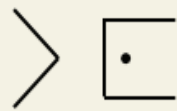
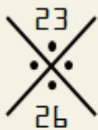
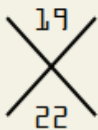
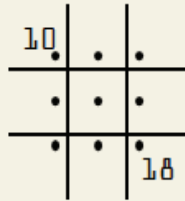
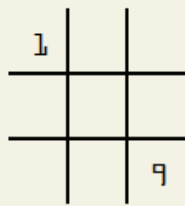
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THE WRITING ON THE WALL

The Silverquicken School Library is an amazing place filled with books from floor to ceiling. While visiting, you notice an opening in the wall displaying the symbols below. The school's Librarian, Wollister D. Jenkins, says that it has something to do with the school's defenses, but he won't say anything else. Can you figure out what this means?



PUZZLE OF INVITATION

Along with your Silverquicken acceptance letter, you have received this puzzle of invitation. What could this reveal about the school?



PUZZLE SOLUTIONS

PIGPEN CIPHERS are geometric substitution ciphers which assign a letter of the alphabet to a specific shaped bracket, or “pigpen” to reveal a secret message. **Encourage** students to notice the symbols on the left hand side of the puzzle. **Scaffold** by asking students to wonder what the numbers may represent and guide them in describing how repeating shapes are grouped together. Each bracket shape corresponds with a number representing a letter of the alphabet. When read together, they form words.

a	b	c
d	e	f
g	h	i

j	k	l
m	n	o
p	q	r

t	s
v	u

w	y
x	z

> []
 t o
 [] [] [] [] []
 a w a k e n
 > [] []
 t h e
 [] [] [] [] []
 s c r o l l s
 [] [] [] [] []
 s p e a k
 > [] []
 t h e
 [] [] [] []
 w o r d
 [] [] [] [] []
 f r i e n d s

Zkdw lv wkh dqvzhu?
 What is the question?
 Zkdw lv wkh dqvzhu?
 What is the question?
 Wkh dqvzhu lv wkh txhvwlrq.
 The question is the answer.

Example +3 alphabet shift

Plain Text	A	B	C	D	E	F	G
Cipher	D	E	F	G	H	I	J

CAESARIAN CIPHERS are substitution ciphers that shift the alphabet. They get their name from Julius Caesar who used them in his private correspondence. Before writing a message, the alphabet is shifted left or right a fixed number of positions, and then the message is written using the newly shifted letters. For example, with a +3 shift cipher, such as this puzzle, E would be replaced by H, F would be replaced by I, and so on. **Encourage** students to notice features of this puzzle such as punctuation and repeated sequences of letters that indicate this is a message. **Scaffold** by asking which words could start a question, and if there are any short words they could try substituting different letters to reveal a message.



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