Solution Walkthrough, written by Steven Geller, illustrated by Brad Eldredge (on behalf of the team)

Solution Summary

Master Riddle	IN PA DARK SKY PARK I CAST SHADOWS
Answer	The Milky Way

Solution Walkthrough

The solution for Hunt #6 consists of many different puzzles; several mini puzzles and the main puzzle. Each of the mini-puzzles are independently solvable.

MINI-PUZZLES
The following mini-puzzles are located within the perimeter border surrounding the puzzle imagery (see Exhibit 1).

MORSE CODE (located at the bottom of the page) translates to "**Mysterious Writings**," which is the name of hunt creator's website. The Morse Code gets brighter as it progresses, perhaps an allusion to the eventual riddle we would have to solve.

ZODIAC CONSTELLATIONS: There are 12 hidden Zodiac sign names in the border, each encoded in a different way:

Puzzle: ARISE & ITRAUSISGAT Method: Anagrams Answers: **Aries** & **Sagittarius**	Puzzle: 51 24 42 22 34 Method: Polybius Square (I/J) Answer: **Virgo**	Puzzle: 37 11 47 Method: Nth prime numbers Answer: **Leo**
Puzzle: suruat Method: Backwards spelling Answer: **Taurus**	Puzzle: NB GN MW Method: Playfair, key: 'Mysterious Writings' Answer: **Cancer**	Puzzle: !@ (@ !* ! Method: Keyboard symbols & number to letter conversion Answer: **Libra**
Puzzle: KRHXVH Method: Atbash cipher Answer: **Pisces**	Puzzle: tmqtndqo & 3 12 8 6 21 7 8 Method: Keyed Caesar, keys: 'Treasure' & 'Mysterious' Answers: **Aquarius** & **Scorpio**	
Puzzle: G E M I N I Method: Underlined Letters Answer: **Gemini**	Puzzle: 3 1 16 18 9 3 15 18 14 Method: Numeric cipher Answer: **Capricorn**	

VIGENERE CIPHER: There is also the use of a Viginere cipher [keyword: Diamonds, as suggested by the key in the bottom right corner], which reveals the words "**Zodiac Signs**."

OTHER: Lastly, several words are indicated by differently-colored letters in the "Star Light" border poem:
- **Higher** (black)
- **Higher** (blue)
- **Light** (red)
- **Time** (yellow)

The first two words refer to Ms. Kile's book "Higher and Higher," the third to the general theme, and the fourth to the main puzzle.

MAIN PUZZLE

The main puzzle involves a number of steps and several sub-puzzles.

UPSIDE-DOWN Square: One step is to decode the upside-down square located on the lower left side. The numbers represent a book-cipher code (word-letter, separated by paragraph). When paired with the "blue poem" in the center of the page (see Exhibit 2), the square decodes to "**Hidden In Sky Is Riddle**," which refers to the 27 encoded letters that are superimposed onto the night sky.

LX[5][9]: This code, located at the bottom right side of the puzzle image, suggests a method for how to correctly sequence the sky letters. In order to determine how to apply this code an additional step is needed.

The Masquerade hunt (to which this puzzle is a tribute) involves a book that requires solvers to draw lines from the "eyes" of animals in order to identify letters. This puzzle involves a similar approach of drawing lines from something homophonically similar: the letter "I". Some of the "I's" are elongated, perhaps in order to hint at this connection.

If one draws lines from each "I" within the border poem, including the two "I's" in the words "TONIGHT" that are aligned with one another, the page is separated into 60 rectangles or "boxes". This provides a structure where each sky letter is positioned within a single box. This provides a method for ordering the sky letters from left to right, top to bottom (see Exhibit 3).

Many things hinted at the "I-lines," as we called them. There is a code L X 5 9, in which LX represents "60" (Roman numerals) for the number of total boxes, but also indicates a right angle of a box (L), lines crossing one another (X), and 5 and 9 (the number of vertical and horizontal lines, respectively) in separate boxes.

Subsequent clues posted to the MW forums provided additional hints suggesting this method:
- Clue #1 shows a similar cross at right angles
- Clue #2 shows a notepad with 5 holes (suggesting vertical cols) & 9 green lines (suggesting horizontal rows)
- Clue #1 includes letters "I" (9th letter) & "U" (5th from the end of the alphabet), which is another "5 9" reference

Lastly, the "I-lines" intersect the most famous star in the Little Dipper and one of the famous stars in the Big Dipper, affirming that this must be a significant part of the solution.

ONE TIME PAD (Sky Letter Cipher): Two other aspects of the clues are clocks (another reference to time progression) and the indication of a "one time pad" (1 o'clock, time, and a notepad).

The One Time Pad (OTP) used to decode the sky letters ciphertext is '**AriesTaurusGeminiCancerLeoV**(irgo),' which are the first 6 Zodiac signs in time-wise order. The top-center placement of the Aries anagram, and the release of the contest on March 20th, indicate to "start at Aries."

Using this 'pad,' the now-rigidly-ordered sky letter ciphertext **JFYFWUSFKFRWFETWLDTHVMSPTLO** decodes to "**IN PA DARK SKY PARK I CAST SHADOWS**."

The alphabet used to decode the OTP is **ZABCDEFGHIJKLMNOPQRSTUVWXY**. In other words, the 'Zodiac Signs' Vigenere cipher used an alphabet where A=0...Z=25 and the OTP main puzzle used a shifted alphabet where A=1...Z=26.

4X4 GRID: To further assist with the solution, the 4x4 number box in the lower right uses a book-cipher type code in conjunction with the blue sky poem (line-letter). The letter indicated on each of the first six lines anagram to **CHERRY**, and lines 9 through 15 anagram to **SPRINGS**. Cherry Springs State Park (located in Pennsylvania) is the Dark Sky Park referred to by the master riddle (see Exhibit 4).

MASTER RIDDLE: Using the master riddle of "**In PA Dark Sky Park I Cast Shadows**," the only remaining task is to determine and submit the answer.

The answer, as revealed by an internet search, is "**The Milky Way**," which is "so bright at Cherry Springs that it casts shadows."

Perhaps the bright parts of the sky behind Clue #2 are evocative of the Milky Way, a final hint for us.

Team: Our team consisted of the following members who met on the Mysterious Writings forums. We probably wouldn't have solved this without key contributions from each person.

Mo Finnegan, Bill Gardner, Brian Poeppelman
David Cohen, Brad Eldredge, Steven Geller
Seth Mayers and Team

EXHIBIT 1

EXHIBIT 2

MW Diamond Scroll Treasure Hunt #1   Treasure@MysteriousWritings.com

3 12 8 6 21 7 8

FIRST STAR I SEE TONIGHT

ISRIDDLE   **PAR**

ISRIDDLE	1	Beyond the furthest stars / Where mysteries are vast / Shine brilliant crystal diamonds / Catching dreams from all those cast
SKY	2	These diamonds listen closely / Waiting for dreamer's call / And when hearing pure heart's wish / Through the sky they'll fall
IN	3	Each diamond tumbles down / Dropping clues along the way / These signs for you to follow / And find where diamonds lay
HIDDEN	4	Only to whom a dream belongs / Will discover where it lands / A pure heart's wish comes true / When held in dreamer's hands

ANSWER: HIDDEN IN SKY ISRIDDLE

Ottendorf / Book Cipher
Index into sky poem
Format: # - # (Word - Letter)

HAVE THE WISH I WISH TONIGHT

EXHIBIT 3

MW Diamond Scroll Treasure Hunt #1 Treasure@MysteriousWritings.com

3 12 8 6 21 7 8

★ F I R S T S T A R I S E E T O N I G H T ★

KRHXVH

NB GN MW

I W I S H I M A Y I W I S H I M I G H T

S T A R L I G H T S T A R B R I G H T

3 1 16 18 9 3 15 18 14

37 11 47

tmqtndqo

ITRAUSISGAT

suruat

!@ (@ !* !

51 24 42 22 34

J F Y F W U
S F K F R W
F E T W L D
T H V M S P
T L O

CIPHER TEXT
J F Y F W U
S F K F R W
F E T W L D
T H V M S P
T L O

LX[5][9]
Roman Numeral LX = 60
5 vertical lines
9 horizontal lines
forming 60 boxes which
clarifies the sequencing
of the ciphertext

LX[5][9]

cwduopwaiv5

H A V E T H E W I S H I W I S H T O N I G H T

EXHIBIT 4

MW Diamond Scroll Treasure Hunt #1   Treasure@MysteriousWritings.com

3 12 8 6 21 7 8

FIRST STAR I SEE TONIGHT

KRHXVH

NB GN MW

I WISH I MAY I WISH I MIGHT

STAR BRIGHT STAR LIGHT

3 1 16 18 9 3 15 18 14

ROW		Extracted Letter
1 (box 1, 3rd ltr)	Beyond the furthest stars	Y
2 (box 2, 4th ltr)	Where mysteries are vast	R
3 (box 3, 5th ltr)	Shine brilliant crystal diamonds	E
4 (box 4, 1st ltr)	Catching dreams from all those cast	C
5 (box 5, 2nd ltr)	These diamonds listen closely	H
6 (box 6, 10th ltr)	Waiting for dreamer's call	R
7 (unused)	And when hearing pure heart's wish	
8 (unused)	Through the sky they'll fall	
9 (box 9, 6th ltr)	Each diamond tumbles down	I
10 (box 10, 2nd ltr)	Dropping clues along the way	R
11 (box 11, 8th ltr)	These signs for you to follow	G
12 (box 12, 20th ltr)	And find where diamonds lay	S
13 (box 13, 2nd ltr)	Only to whom a dream belongs	N
14 (box 14, 7th ltr)	Will discover where it lands	S
15 (box 15, 2nd ltr)	A pure heart's wish comes true	P
16 (unused)	When held in dreamer's hands	

ANSWER: CHERRY SPRINGS

tmqtndqo

Ottendorf / Book Cipher
Index into sky poem
Format: Box = Row, Number = Letter Count

ITRAUSISGAT

suruat

51 24 42 22 34

HAVE THE WISH I WISH TONIGHT