



# The Mystery of the Upside Down Intruder

Grade 4 math · Multiplication, Word problems, Fractions of a number, Multi-step word problems · Reading level grades 3-4

Detective: \_\_\_\_\_ Date: \_\_\_\_\_

A strange creature from another dimension has broken into the Hawkins Middle School AV room and stolen the radio equipment! The hallway lights are flickering, and a mysterious cold mist is creeping under the door. Dustin and the gang need your math skills to track down the suspect before the portal closes for good.

1. Solve each math problem. The answer is a number, and the letter beside it is what that number stands for.
2. In the clue boxes, write that letter in every box showing the same number, then read the secret clue.
3. Use each clue to cross suspects off the list. The one suspect left at the end is the culprit!

**My answer: the Shadow Spy is** \_\_\_\_\_

## Possible suspects

Cross off a row as each clue rules it out. The one left at the end is the culprit.

| NAME               | SUPERNATURAL POWER | STRANGE SIDE EFFECT  | WALKIE TALKIE POCKET | HAIRSTYLE   | MONSTER WEAKNESS   |
|--------------------|--------------------|----------------------|----------------------|-------------|--------------------|
| Eddie Munson       | shadow travel      | creates cold fog     | right side holster   | curly hair  | loud rock music    |
| Barb Holland       | electricity spark  | screeches loudly     | right side holster   | spiky hair  | bright flashlights |
| Will Byers         | shadow travel      | rumbles the ground   | right side holster   | shaggy hair | sweet maple syrup  |
| Eleven             | mind-reading       | clocks chiming       | right side holster   | shaggy hair | bright flashlights |
| Jason Carver       | shadow travel      | rumbles the ground   | right side holster   | spiky hair  | bright flashlights |
| Max Mayfield       | portal-making      | screeches loudly     | right side holster   | curly hair  | loud rock music    |
| Gareth             | electricity spark  | clocks chiming       | right side holster   | spiky hair  | bright flashlights |
| Erica Sinclair     | portal-making      | makes lights flicker | left side holster    | curly hair  | bright flashlights |
| Argyle             | telekinesis        | creates cold fog     | left side holster    | spiky hair  | bright flashlights |
| Jonathan Byers     | portal-making      | makes lights flicker | right side holster   | shaggy hair | bright flashlights |
| Suzie              | telekinesis        | makes lights flicker | left side holster    | spiky hair  | sweet maple syrup  |
| Bob Newby          | telekinesis        | makes lights flicker | right side holster   | spiky hair  | sweet maple syrup  |
| Robin Buckley      | portal-making      | rumbles the ground   | left side holster    | shaggy hair | loud rock music    |
| Lucas Sinclair     | telekinesis        | makes lights flicker | left side holster    | shaggy hair | bright flashlights |
| Murray Bauman      | portal-making      | screeches loudly     | right side holster   | shaggy hair | sweet maple syrup  |
| Mike Wheeler       | portal-making      | screeches loudly     | right side holster   | spiky hair  | bright flashlights |
| Nancy Wheeler      | portal-making      | creates cold fog     | left side holster    | spiky hair  | bright flashlights |
| Chrissy Cunningham | electricity spark  | creates cold fog     | right side holster   | spiky hair  | bright flashlights |
| Steve Harrington   | electricity spark  | clocks chiming       | left side holster    | spiky hair  | sweet maple syrup  |
| Fred Benson        | shadow travel      | rumbles the ground   | right side holster   | spiky hair  | sweet maple syrup  |
| Jim Hopper         | electricity spark  | screeches loudly     | right side holster   | shaggy hair | bright flashlights |

## Multiplication facts (1-12)

Dustin counts the rows of walkie-talkies on the shelf to find how many batteries he needs.

Solve each problem, then write its letter in every clue box that shows the same number.

5 33 72 27 121 9 9 14 121 4 21 6 72 80 4 6 5

88 14 56 72 54 9 6 54 56 80 54 33 121 88 72

$1 \times 5 = \square \rightarrow \boxed{\mathbf{T}}$

$1 \times 9 = \square \rightarrow \boxed{\text{L}}$

$$3 \times 9 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{v}}$$

$8 \times 9 = \square \rightarrow \boxed{\text{E}}$

$3 \times 7 = \boxed{\phantom{000}} \rightarrow \boxed{\text{D}}$

$6 \times 9 = \boxed{\phantom{00}} \rightarrow \text{C}$

$8 \times 10 = \boxed{\phantom{00}} \rightarrow \boxed{\text{S}}$

$7 \times 2 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{A}}$

$7 \times 8 = \boxed{\phantom{00}} \rightarrow \boxed{\text{K}}$

$1 \times 4 = \square \rightarrow \boxed{\mathbf{N}}$

$11 \times 11 = \square \rightarrow \square$

$3 \times 11 = \square \rightarrow \mathbf{H}$

$8 \times 11 = \boxed{\phantom{00}} \rightarrow \boxed{\phantom{00}}$

$$3 \times 2 = \boxed{\phantom{00}} \rightarrow \boxed{0}$$

Scratch space:

## CLUE 2

## Word problems

The gang calculates how many flashlights they can power before the night gets too dark.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A witness saw the villain was

|    |    |    |    |    |    |    |    |   |    |   |   |    |    |   |    |
|----|----|----|----|----|----|----|----|---|----|---|---|----|----|---|----|
| R  |    |    |    |    |    |    |    | E |    | O | L |    |    | E | R  |
| 73 | 18 | 63 | 22 | 74 | 52 | 18 | 53 |   | 22 |   |   | 52 | 74 |   | 73 |

There were 103 waffles. 30 were used up. How many waffles are left?

Answer:  → **R**

Dustin lined up 2 rows of 11 cassette tapes. How many cassette tapes in all?

Answer:  → **H**

There were 113 dnd dice. 39 were used up. How many dnd dice are left?

Answer:  → **T**

Dustin lined up 2 rows of 9 walkie-talkies. How many walkie-talkies in all?

Answer:  → **I**

Dustin found 36 dnd dice yesterday and 27 more today. How many dnd dice in all?

Answer:  → **G**

There were 67 cassette tapes. 14 were used up. How many cassette tapes are left?

Answer:  → **D**

Dustin found 10 cassette tapes yesterday and 42 more today. How many cassette tapes in all?

Answer:  → **S**

Scratch space:

**CLUE 3**

## Fractions of a number

Lucas looks at the Christmas lights and finds that only a fraction of them are glowing.

Solve each problem, then write its letter in every clue box that shows the same number.

|          |    |   |    |    |   |   |    |   |    |   |    |    |    |
|----------|----|---|----|----|---|---|----|---|----|---|----|----|----|
| <b>T</b> |    |   |    |    |   |   |    |   |    |   |    |    |    |
| 5        | 12 | 6 | 36 | 14 | 6 | 9 | 25 | 3 | 36 | 9 | 14 | 29 | 25 |

  

|    |    |   |   |   |   |    |    |    |    |    |    |    |   |          |
|----|----|---|---|---|---|----|----|----|----|----|----|----|---|----------|
|    |    |   |   |   |   |    |    |    |    |    |    |    |   | <b>T</b> |
| 33 | 12 | 4 | 3 | 4 | 3 | 35 | 36 | 21 | 25 | 33 | 12 | 21 | 4 | 35       |

$$2/4 \text{ of } 10 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{T}}$$

$$1/5 \text{ of } 45 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{R}}$$

$$6/10 \text{ of } 35 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{L}}$$

$$1/3 \text{ of } 87 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{M}}$$

$$2/8 \text{ of } 16 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{I}}$$

$$1/3 \text{ of } 99 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{S}}$$

$$4/8 \text{ of } 24 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{H}}$$

$$1/4 \text{ of } 56 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{O}}$$

$$2/4 \text{ of } 70 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{G}}$$

$$1/8 \text{ of } 24 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{N}}$$

$$2/10 \text{ of } 180 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{F}}$$

$$2/6 \text{ of } 75 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{A}}$$

$$1/5 \text{ of } 30 = \boxed{\phantom{00}} \rightarrow \boxed{\mathbf{E}}$$

Scratch space:

## CLUE 4

## Multi-step word problems

Eleven counts the remaining boxes of waffles, adding new ones and subtracting what they ate.

Solve each problem, then write its letter in the boxes to fill in the missing word.

A strand of S        R hair turned up at the scene.

73      32      21      88      49      25      26      21

There were 668 dnd dice in all. 11 dnd dice were set aside. The rest were shared equally among 9 The Hawkins AV Club. How many dnd dice did each get?

Answer:  → S

There were 204 cassette tapes in all. 29 cassette tapes were set aside. The rest were shared equally among 7 The Hawkins AV Club. How many cassette tapes did each get?

Answer:  → H

Dustin filled 6 boxes with 3 waffles each, then found 3 more waffles. How many waffles are there in all?

Answer:  → I

Dustin collected 117 waffles in the morning and 79 waffles in the afternoon, then split them equally among 4 The Hawkins AV Club. How many waffles did each get?

Answer:  → Y

Dustin collected 30 cassette tapes in the morning and 74 cassette tapes in the afternoon, then split them equally among 4 The Hawkins AV Club. How many cassette tapes did each get?

Answer:  → A

Dustin filled 9 boxes with 7 batteries each, then found 25 more batteries. How many batteries are there in all?

Answer:  → K

There were 220 batteries in all. 4 The Hawkins AV Club used 15 batteries each. The other 5 The Hawkins AV Club shared the rest equally. How many batteries did each of the other The Hawkins AV Club get?

Answer:  → P

Scratch space:

**CLUE 5****Fractions of a number - the last clue**

The club examines a map of the Upside Down to see what fraction of the portals are closed.

First solve each problem. Then find each answer in the numbered list below and cross that sentence out. One sentence will be left - that is exactly what the villain did!

**Step 1 - solve these:**

$\frac{1}{4} \text{ of } 28 = \boxed{\phantom{00}}$

$\frac{2}{6} \text{ of } 24 = \boxed{\phantom{00}}$

$\frac{1}{5} \text{ of } 60 = \boxed{\phantom{00}}$

$\frac{6}{10} \text{ of } 5 = \boxed{\phantom{00}}$

$\frac{1}{3} \text{ of } 12 = \boxed{\phantom{00}}$

$\frac{1}{5} \text{ of } 10 = \boxed{\phantom{00}}$

$\frac{3}{8} \text{ of } 16 = \boxed{\phantom{00}}$

$\frac{2}{4} \text{ of } 10 = \boxed{\phantom{00}}$

$\frac{1}{5} \text{ of } 55 = \boxed{\phantom{00}}$

$\frac{1}{8} \text{ of } 8 = \boxed{\phantom{00}}$

$\frac{5}{8} \text{ of } 16 = \boxed{\phantom{00}}$

**Step 2 - cross out the sentence with each answer:**

1. The villain levitated a box of waffles with telekinesis, then made the school hallway floor rumble.
2. The villain read the minds of the av club members, then made the school hallway floor rumble.
3. The villain slipped into the dark shadow world, then left behind a trail of freezing cold fog.
4. The villain ripped a glowing portal in the wall, then made the school hallway floor rumble.
5. The villain sparked the high school fuse box, then caused all the christmas lights to flicker.
6. The villain read the minds of the av club members, then let out an eerie high pitched screech.
7. The villain sparked the high school fuse box, then left behind a trail of freezing cold fog.
8. The villain sparked the high school fuse box, then let out an eerie high pitched screech.
9. The villain slipped into the dark shadow world, then made the school hallway floor rumble.
10. The villain sparked the high school fuse box, then triggered the spooky grandfather clock chime.
11. The villain ripped a glowing portal in the wall, then triggered the spooky grandfather clock chime.
12. The villain ripped a glowing portal in the wall, then let out an eerie high pitched screech.

# Answer Key

## The Mystery of the Upside Down Intruder

### Culprit: Jason Carver

shadow travel · rumbles the ground · right side holster · spiky hair · bright flashlights

Trail: Start 21 → Clue 1 18 → Clue 2 12 → Clue 3 6 → Clue 4 4 → Clue 5 1

### Clue 1 (Multiplication facts (1-12)): "THE VILLAIN DOES NOT MAKE CLOCKS CHIME"

$1 \times 5 = 5$  (T) ·  $1 \times 9 = 9$  (L) ·  $3 \times 9 = 27$  (V) ·  $8 \times 9 = 72$  (E) ·  $3 \times 7 = 21$  (D) ·  $6 \times 9 = 54$  (C) ·  $8 \times 10 = 80$  (S) ·  $7 \times 2 = 14$  (A) ·  $7 \times 8 = 56$  (K) ·  $1 \times 4 = 4$  (N) ·  $11 \times 11 = 121$  (I) ·  $3 \times 11 = 33$  (H) ·  $8 \times 11 = 88$  (M) ·  $3 \times 2 = 6$  (O)

### Clue 2 (Word problems): "RIGHT SIDE HOLSTER"

There were 103 waffles. 30 were used up. How many waffles are left? = 73 (R) · Dustin lined up 2 rows of 11 cassette tapes. How many cassette tapes in all? = 22 (H) · There were 113 dnd dice. 39 were used up. How many dnd dice are left? = 74 (T) · Dustin lined up 2 rows of 9 walkie-talkies. How many walkie-talkies in all? = 18 (I) · Dustin found 36 dnd dice yesterday and 27 more today. How many dnd dice in all? = 63 (G) · There were 67 cassette tapes. 14 were used up. How many cassette tapes are left? = 53 (D) · Dustin found 10 cassette tapes yesterday and 42 more today. How many cassette tapes in all? = 52 (S)

### Clue 3 (Fractions of a number): "THE FOE RAN FROM A SHINING FLASHLIGHT"

$\frac{2}{4}$  of 10 = 5 (T) ·  $\frac{1}{5}$  of 45 = 9 (R) ·  $\frac{6}{10}$  of 35 = 21 (L) ·  $\frac{1}{3}$  of 87 = 29 (M) ·  $\frac{2}{8}$  of 16 = 4 (I) ·  $\frac{1}{3}$  of 99 = 33 (S) ·  $\frac{4}{8}$  of 24 = 12 (H) ·  $\frac{1}{4}$  of 56 = 14 (O) ·  $\frac{2}{4}$  of 70 = 35 (G) ·  $\frac{1}{8}$  of 24 = 3 (N) ·  $\frac{2}{10}$  of 180 = 36 (F) ·  $\frac{2}{6}$  of 75 = 25 (A) ·  $\frac{1}{5}$  of 30 = 6 (E)

### Clue 4 (Multi-step word problems): "SPIKY HAIR"

There were 668 dnd dice in all. 11 dnd dice were set aside. The rest were shared equally among 9 The Hawkins AV Club. How many dnd dice did each get? = 73 (S) · There were 204 cassette tapes in all. 29 cassette tapes were set aside. The rest were shared equally among 7 The Hawkins AV Club. How many cassette tapes did each get? = 25 (H) · Dustin filled 6 boxes with 3 waffles each, then found 3 more waffles. How many waffles are there in all? = 21 (I) · Dustin collected 117 waffles in the morning and 79 waffles in the afternoon, then split them equally among 4 The Hawkins AV Club. How many waffles did each get? = 49 (Y) · Dustin collected 30 cassette tapes in the morning and 74 cassette tapes in the afternoon, then split them equally among 4 The Hawkins AV Club. How many cassette tapes did each get? = 26 (A) · Dustin filled 9 boxes with 7 batteries each, then found 25 more batteries. How many batteries are there in all? = 88 (K) · There were 220 batteries in all. 4 The Hawkins AV Club used 15 batteries each. The other 5 The Hawkins AV Club shared the rest equally. How many batteries did each of the other The Hawkins AV Club get? = 32 (P)

### Clue 5 (Fractions of a number): surviving statement is box 9 → Jason Carver

$\frac{1}{4}$  of 28 = 7 ·  $\frac{2}{6}$  of 24 = 8 ·  $\frac{1}{5}$  of 60 = 12 ·  $\frac{6}{10}$  of 5 = 3 ·  $\frac{1}{3}$  of 12 = 4 ·  $\frac{1}{5}$  of 10 = 2 ·  $\frac{3}{8}$  of 16 = 6 ·  $\frac{2}{4}$  of 10 = 5 ·  $\frac{1}{5}$  of 55 = 11 ·  $\frac{1}{8}$  of 8 = 1 ·  $\frac{5}{8}$  of 16 = 10