



The Case of the Smelly-Sock Bandit

Grade 4 math · Rounding, Addition, Subtraction, Multiplication, Division · Reading level grades 3-4

Detective: _____ **Date:** _____

Oh no! Someone blasted a mega-stinky cloud and stole the Golden Nose trophy from the vault. The only clue left behind is a giant, silly face drawn on the chalkboard. We need to find which student is the real culprit!

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 Fart-Face Phantom is _____

Possible suspects

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

NAME	GAS BLAST	FACE TRICK	CLASS TYPE	HAIR STYLE	SCENT BLOCK
Penny Puff	rotten egg blast	double chin wiggle	gassy boy	frizzy purple curls	ripe strawberry mist
Nora Nose	sour garbage burp	crossed eye stare	gassy boy	frizzy purple curls	sweet lavender perfume
Gary Gas	burnt popcorn fog	eyebrow wiggle dance	gassy girl	neon green spikes	sweet lavender perfume
Toby Trud	moldy cheese cloud	crossed eye stare	gassy girl	slimy orange mohawk	fresh peppermint spray
Benny Blow	sour garbage burp	eyebrow wiggle dance	gassy girl	neon green spikes	sweet lavender perfume
Fiona Fart	rotten egg blast	eyebrow wiggle dance	gassy girl	slimy orange mohawk	sweet lavender perfume
Wendy Wind	sour garbage burp	tongue stick out	gassy boy	neon green spikes	sweet lavender perfume
Molly Moldy	sour garbage burp	tongue stick out	gassy girl	slimy orange mohawk	sweet lavender perfume
Pip Phew	sour garbage burp	crossed eye stare	gassy boy	slimy orange mohawk	sweet lavender perfume
Billy Belch	rotten egg blast	cheek balloon pop	gassy girl	frizzy purple curls	ripe strawberry mist
Sammy Stink	burnt popcorn fog	eyebrow wiggle dance	gassy boy	frizzy purple curls	fresh peppermint spray
Barney Bubble	sour garbage burp	cheek balloon pop	gassy boy	frizzy purple curls	sweet lavender perfume
Tommy Toot	moldy cheese cloud	crossed eye stare	gassy girl	slimy orange mohawk	sweet lavender perfume
Sally Sniff	burnt popcorn fog	double chin wiggle	gassy girl	slimy orange mohawk	fresh peppermint spray
Clara Cloud	burnt popcorn fog	double chin wiggle	gassy girl	slimy orange mohawk	sweet lavender perfume
Bella Blast	moldy cheese cloud	cheek balloon pop	gassy girl	frizzy purple curls	ripe strawberry mist
Buster Burp	stinky broccoli puff	cheek balloon pop	gassy girl	neon green spikes	sweet lavender perfume
Lily Leak	rotten egg blast	eyebrow wiggle dance	gassy girl	frizzy purple curls	fresh peppermint spray
Suzy Scent	sour garbage burp	cheek balloon pop	gassy boy	frizzy purple curls	fresh peppermint spray
Polly Pop	sour garbage burp	tongue stick out	gassy boy	slimy orange mohawk	sweet lavender perfume
Danny Draft	stinky broccoli puff	double chin wiggle	gassy girl	slimy orange mohawk	sweet lavender perfume

CLUE 1 Rounding

We checked the academy Stink-o-Meter. The digital screen only shows numbers rounded to the nearest ten, but we can still use it to narrow down our suspects.

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

T						T									T			
3100	4700	70000	3000	4700	5000	200	3100	140	4700000	310	140	70000	500	200	140	3100	310	140
T																		
3100	4700	70000	70000	300	70000	20	50	140	470	310	5000	200	200000	70000				

Round 3,111 to the nearest hundred → **T**

Round 3,244 to the nearest thousand → **P**

Round 4,668 to the nearest hundred → **H**

Round 67,790 to the nearest ten thousand → **E**

Round 18 to the nearest ten → **B**

Round 153 to the nearest hundred → **N**

Round 308 to the nearest ten → **D**

Round 46 to the nearest ten → **R**

Round 290 to the nearest hundred → **Y**

Round 235,354 to the nearest hundred thousand → **C**

Round 470 to the nearest ten → **W**

Round 4,739,333 to the nearest hundred thousand → **M**

Round 538 to the nearest hundred → **S**

Round 4,607 to the nearest thousand → **A**

Round 143 to the nearest ten → **O**

Scratch space:

CLUE 2 Addition

Our detective tallied up all the stolen gas-canisters from the supply closet. Adding up the total empty boxes gives us our next big lead.

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

T					T										
9735	9295	7974	7744	7246	9735	6827	7974	3307	3307	9295	7974	6922	4116	6671	6922

9369	6922	3307	3307	5112	9369	7246	4116	3680	3680	6922	4689	9369	9295	7246	6827	9369

$5007 + 4728 = \square \rightarrow \text{T}$

$3556 + 4188 = \square \rightarrow \text{W}$

$4213 + 2614 = \square \rightarrow \text{N}$

$4915 + 2331 = \square \rightarrow \text{I}$

$2137 + 1543 = \square \rightarrow \text{L}$

$4867 + 4502 = \square \rightarrow \text{G}$

$4472 + 4823 = \square \rightarrow \text{H}$

$1271 + 2845 = \square \rightarrow \text{R}$

$1927 + 1380 = \square \rightarrow \text{S}$

$1848 + 3264 = \square \rightarrow \text{Y}$

$2405 + 2284 = \square \rightarrow \text{U}$

$2403 + 4519 = \square \rightarrow \text{A}$

$5477 + 2497 = \square \rightarrow \text{E}$

$3029 + 3642 = \square \rightarrow \text{D}$

Scratch space:

CLUE 3
Subtraction

We found a crate of nose-plugs left behind by the getaway team. Subtracting the dirty plugs from the clean ones tells us who we can cross off the list.

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

T																		
2395	5402	5723	7557	3708	2509	8107	2509	8291	2509	7557	5143	3708	4430	6440				

				T															
5198	8291	5723	5723	2395	3125	2509	6782	5723	8107	7203	5723	3708	4655	5723	3708	5143	1266	6440	5723

$3547 - 1152 = \boxed{} \rightarrow \boxed{T}$

$12533 - 4976 = \boxed{} \rightarrow \boxed{Y}$

$8751 - 4321 = \boxed{} \rightarrow \boxed{O}$

$5652 - 250 = \boxed{} \rightarrow \boxed{H}$

$3897 - 2631 = \boxed{} \rightarrow \boxed{U}$

$9675 - 1568 = \boxed{} \rightarrow \boxed{N}$

$8084 - 4376 = \boxed{} \rightarrow \boxed{R}$

$11593 - 4390 = \boxed{} \rightarrow \boxed{D}$

$10901 - 2610 = \boxed{} \rightarrow \boxed{W}$

$7428 - 4919 = \boxed{} \rightarrow \boxed{A}$

$5963 - 1308 = \boxed{} \rightarrow \boxed{P}$

$8073 - 2350 = \boxed{} \rightarrow \boxed{E}$

$8630 - 3487 = \boxed{} \rightarrow \boxed{F}$

$9761 - 4563 = \boxed{} \rightarrow \boxed{S}$

$8738 - 1956 = \boxed{} \rightarrow \boxed{V}$

$8861 - 2421 = \boxed{} \rightarrow \boxed{M}$

$5004 - 1879 = \boxed{} \rightarrow \boxed{L}$

Scratch space:

CLUE 4
Multiplication facts (1-12)

The villain ran through the academy greenhouse, knocking over rows of stinky cabbage plants. Multiplying the rows by the plants in each row reveals a secret code.

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

S																	
72	25	108	48	36	16	63	54	40	9	60	48	16	30	54	42	8	
							S										
9	16	16	120	42	54	72	16	40	96	30	60	42	54	25	25		

$6 \times 12 = \square \rightarrow$ S	$6 \times 9 = \square \rightarrow$ A	$9 \times 12 = \square \rightarrow$ I	
$6 \times 6 = \square \rightarrow$ Y	$8 \times 2 = \square \rightarrow$ O	$5 \times 5 = \square \rightarrow$ L	$5 \times 12 = \square \rightarrow$ E
$3 \times 3 = \square \rightarrow$ G	$6 \times 7 = \square \rightarrow$ W	$10 \times 12 = \square \rightarrow$ P	
$12 \times 8 = \square \rightarrow$ T	$7 \times 9 = \square \rightarrow$ R	$12 \times 4 = \square \rightarrow$ M	
$8 \times 5 = \square \rightarrow$ N	$10 \times 3 = \square \rightarrow$ H	$8 \times 1 = \square \rightarrow$ K	

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

To clear the air, we had to divide our super-strength air fresheners equally among the junior detectives so everyone could sniff out the final clue.

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:

$108 \div 12 = \boxed{}$

$33 \div 3 = \boxed{}$

$80 \div 10 = \boxed{}$

$27 \div 9 = \boxed{}$

$2 \div 1 = \boxed{}$

$50 \div 10 = \boxed{}$

$24 \div 6 = \boxed{}$

$48 \div 4 = \boxed{}$

$7 \div 1 = \boxed{}$

$60 \div 10 = \boxed{}$

$40 \div 4 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain puffs stinky broccoli gas, then wiggles their double chin.
2. The villain puffs stinky broccoli gas, then stares with crossed eyes.
3. The villain leaks moldy cheese clouds, then sticks their tongue out.
4. The villain blasts a rotten egg cloud, then stares with crossed eyes.
5. The villain burps sour garbage mist, then wiggles their double chin.
6. The villain puffs stinky broccoli gas, then pops their balloon cheeks.
7. The villain burps sour garbage mist, then does an eyebrow wiggle dance.
8. The villain burps sour garbage mist, then sticks their tongue out.
9. The villain leaks moldy cheese clouds, then stares with crossed eyes.
10. The villain burps sour garbage mist, then stares with crossed eyes.
11. The villain creates burnt popcorn fog, then wiggles their double chin.
12. The villain creates burnt popcorn fog, then stares with crossed eyes.

Answer Key

The Case of the Smelly-Sock Bandit

Culprit: Danny Draft

stinky broccoli puff · double chin wiggle · gassy girl · slimy orange mohawk · sweet lavender perfume

Trail: Start 21 → Clue 1 16 → Clue 2 9 → Clue 3 5 → Clue 4 4 → Clue 5 1

Clue 1 (Rounding): "THE PHANTOM DOES NOT DO THE EYEBROW DANCE"

Round 3,111 to the nearest hundred = 3100 (T) · Round 3,244 to the nearest thousand = 3000 (P) · Round 4,668 to the nearest hundred = 4700 (H) · Round 67,790 to the nearest ten thousand = 70000 (E) · Round 18 to the nearest ten = 20 (B) · Round 153 to the nearest hundred = 200 (N) · Round 308 to the nearest ten = 310 (D) · Round 46 to the nearest ten = 50 (R) · Round 290 to the nearest hundred = 300 (Y) · Round 235,354 to the nearest hundred thousand = 200000 (C) · Round 470 to the nearest ten = 470 (W) · Round 4,739,333 to the nearest hundred thousand = 4700000 (M) · Round 538 to the nearest hundred = 500 (S) · Round 4,607 to the nearest thousand = 5000 (A) · Round 143 to the nearest ten = 140 (O)

Clue 2 (Addition): "THE WITNESS HEARD A GASSY GIRL LAUGHING"

$5007 + 4728 = 9735$ (T) · $3556 + 4188 = 7744$ (W) · $4213 + 2614 = 6827$ (N) · $4915 + 2331 = 7246$ (I) · $2137 + 1543 = 3680$ (L) · $4867 + 4502 = 9369$ (G) · $4472 + 4823 = 9295$ (H) · $1271 + 2845 = 4116$ (R) · $1927 + 1380 = 3307$ (S) · $1848 + 3264 = 5112$ (Y) · $2405 + 2284 = 4689$ (U) · $2403 + 4519 = 6922$ (A) · $5477 + 2497 = 7974$ (E) · $3029 + 3642 = 6671$ (D)

Clue 3 (Subtraction): "THEY RAN AWAY FROM SWEET LAVENDER PERFUME"

$3547 - 1152 = 2395$ (T) · $12533 - 4976 = 7557$ (Y) · $8751 - 4321 = 4430$ (O) · $5652 - 250 = 5402$ (H) · $3897 - 2631 = 1266$ (U) · $9675 - 1568 = 8107$ (N) · $8084 - 4376 = 3708$ (R) · $11593 - 4390 = 7203$ (D) · $10901 - 2610 = 8291$ (W) · $7428 - 4919 = 2509$ (A) · $5963 - 1308 = 4655$ (P) · $8073 - 2350 = 5723$ (E) · $8630 - 3487 = 5143$ (F) · $9761 - 4563 = 5198$ (S) · $8738 - 1956 = 6782$ (V) · $8861 - 2421 = 6440$ (M) · $5004 - 1879 = 3125$ (L)

Clue 4 (Multiplication facts (1-12)): "SLIMY ORANGE MOHAWK GOOP WAS ON THE WALL"

$6 \times 12 = 72$ (S) · $6 \times 9 = 54$ (A) · $9 \times 12 = 108$ (I) · $6 \times 6 = 36$ (Y) · $8 \times 2 = 16$ (O) · $5 \times 5 = 25$ (L) · $5 \times 12 = 60$ (E) · $3 \times 3 = 9$ (G) · $6 \times 7 = 42$ (W) · $10 \times 12 = 120$ (P) · $12 \times 8 = 96$ (T) · $7 \times 9 = 63$ (R) · $12 \times 4 = 48$ (M) · $8 \times 5 = 40$ (N) · $10 \times 3 = 30$ (H) · $8 \times 1 = 8$ (K)

Clue 5 (Division facts (1-12)): surviving statement is box 1 → Danny Draft

$108 \div 12 = 9$ · $33 \div 3 = 11$ · $80 \div 10 = 8$ · $27 \div 9 = 3$ · $2 \div 1 = 2$ · $50 \div 10 = 5$ · $24 \div 6 = 4$ · $48 \div 4 = 12$ · $7 \div 1 = 7$ · $60 \div 10 = 6$ · $40 \div 4 = 10$