

MATH MYSTERY



Case of the GREEDY GNOME



GRADE
3

GRAPHS

By Mrs J's Resource Creations

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Teacher Resource

Instructions

PREPARATION

Print and copy pages 4-11 for your students. You can do either of the following:

- Combine the pages to form a booklet for each student to work on; OR
- Hand out worksheets as you want students to work on them – please note that if you choose this option, students will always need the 'Possible Suspects' page handy.
- If it is a difficult skill or something not yet done with your students, demonstration and a lesson before completing that clue is recommended.
- You could get students to work independently, or in pairs/groups.

IMPORTANT: The clues must be completed in the order I have arranged them in i.e. 1-5!

HOW TO USE

Read through the article on page 4 'Math Mystery: Case of the Greedy Gnome' to set up the activity and engage students.

Instruct students that they will need to keep referring back to their Possible Suspects list after solving each clue.

Students work through each clue, either guided by the teacher or independently (your choice). After completing a math worksheet, if students completed the questions correctly, a clue will be revealed. For example: '*There are loose orange hairs.*' So, in this example, students can conclude that the Greedy Gnome probably has orange hair, so they keep all remaining suspects who have orange hair on the possible suspects list and cross out the rest of the suspects with other colored hair.

Once students have correctly completed all of the clues, only one suspect will remain and that suspect is the Greedy Gnome. On page 11, the teacher ticks off the 'Well done . . .' box and the student can receive an Award (provided on page 18) if they declare the correct suspect. If a student gets the wrong suspect, tick the second box "Oops! Try again," and instruct the student to go over their work to see where they went wrong.

ANSWERS

I have provided answer sheets for all of the clues, as well as which is the correct suspect to the mystery. You will find these on pages 12-17. This includes the elimination process of suspects post each clue.

AWARDS

On page 18 you will find awards that you can print and give to students who solve the case correctly. I suggest making it a rule that students complete all of the questions on each worksheet to be eligible for the award (even if they can guess what the clue is without finishing all of the math questions!). You could also make it a condition that students show their working out on the back of the page or on a separate piece of paper if applicable.

If you need help, have any questions, or notice an error in my work please email me on

JJResourceCreations@gmail.com

Thanks! 😊

MATH MYSTERY:

CASE OF THE GREEDY GNOME



Date: _____

In a land far away, within the beautiful hilly meadows of Mathamania, lives a little community of gnomes. Within their tiny village, a mixture of different types of gnomes work together to help support each other through the tough times and build a loving home for all.

All of the gnomes work very hard in the gathering, sorting and storing of food and drink supplies for the village. Their secret supply room, kept inside their underground hub, is filled with an abundance of nuts, berries, grains, potatoes, beans and delicious nectar. It is a golden rule and general understanding amongst the gnomes that each should only take a fair ration once a week for themselves. This important rule is in place so that the supply will support everyone throughout the freezing winter, when nothing grows and it is too cold to gather.

With winter fast approaching, the gnomes had been working extra hard to ensure that a sufficient amount of food and drink is collected for the supply hub. However, to their dismay, they found that no matter how hard they worked lately, the supplies seem to be shrinking instead of growing. Garth, the Head Gnome, suspects that a greedy gnome lurks within the village; taking more than their fair share of the supplies. Unable to unveil who has turned to greed, Garth has grown extremely worried.

In desperate need for help with the situation, Garth traveled to Mathhattan City and marched right into Mathhattan's detective headquarters late last night. He begged, *"Please, I urgently need someone to come and investigate what is happening in my village. Our supplies are running short because someone is taking more than they should. I must stop this Greedy Gnome or we will struggle badly through the chilling winter coming."* Garth paused and sighed as he continued, *"I hate to believe that any one of the gnomes in the village could do this, I have no idea who it could be. If you can help me find out who the Greedy Gnome is, our village will be very grateful and in return will rename our supply hub after the amazing detective!"*

With Garth's plea for help, Mathhattan's Detective Headquarters calls for a brilliant math detective in for duty. . .

MATH DETECTIVE NEEDED TO SOLVE THE CASE OF THE GREEDY GNOME!

Garth has made a list of possible suspects, but he needs a great math detective to solve who the Greedy Gnome is before winter comes and the supplies get too low! Hurry, all of the gnomes are counting on you to help put a stop to this terrible greed!



Name: _____

POSSIBLE SUSPECTS

Suspect Name	Gnome Type	Lives in a . . .	Hair Color	Cap Color	Favorite Food
Dillbac Whitehorn	Forest	Mushroom House	Orange	Red	Nuts
Knikwap Grosko	Farm	Log Tower	White	Blue	Berries
Pery Spyrocket	Tinker	Flower Hut	Red	Green	Beans
Felwin Durim	Rock	Log Tower	Orange	Green	Berries
Shinko Fizzle	Tinker	Mushroom House	White	Red	Berries
Jeknam Tamble	Rock	Flower Hut	Red	Blue	Nuts
Pammel Yimble	Farm	Flower Hut	White	Green	Beans
Chomsky Gadgety	Tinker	Mushroom House	Orange	Blue	Berries
McGibbles Sparkle	Forest	Log Tower	Red	Green	Nuts
Dipple Clickclog	Forest	Mushroom House	Orange	Red	Berries
Snaps Mechgem	Tinker	Flower Hut	Red	Blue	Beans
Nobbi Berrybuzz	Forest	Log Tower	White	Blue	Berries
Haglen Spindle	Rock	Mushroom House	Orange	Green	Beans
Zeph Tinkertoos	Tinker	Mushroom House	Red	Blue	Berries
Dinwiddle Spinner	Farm	Log Tower	White	Green	Berries
Nugget Swiftcrumb	Rock	Log Tower	Orange	Red	Berries
Beenie Bluespan	Forest	Mushroom House	White	Green	Beans
Finla Wobbles	Rock	Flower Hut	Orange	Blue	Berries
Meree Fizzlecakes	Tinker	Mushroom House	Red	Red	Nuts
Dorgan Sloppop	Farm	Log Tower	White	Blue	Nuts
Stolig Hammer	Tinker	Flower Hut	Orange	Red	Berries
Brixim Wixle	Forest	Log Tower	Orange	Green	Beans
Bramo Togglewort	Rock	Mushroom House	Red	Green	Berries

Solve the clues and then cross the suspects off the list until only one suspect remains! The last suspect remaining is the GREEDY GNOME!

Whole rows must be eliminated at a time.

BAR GRAPHS – CLUE 1

Garth carried out an important meeting about the supply shortage. He recorded the attendance of gnome types in the first graph. In the second graph he recorded how many reported gnomes entered the supply room over the past week. Discover a clue by reading and answering the questions about the bar graphs below. Use your answers to match and place the letters in the boxes to reveal the first clue. Put the letter in every box that it matches your answer in (there may be more than one!) The first one has been done for you.

I	
10	18

I	
10	6

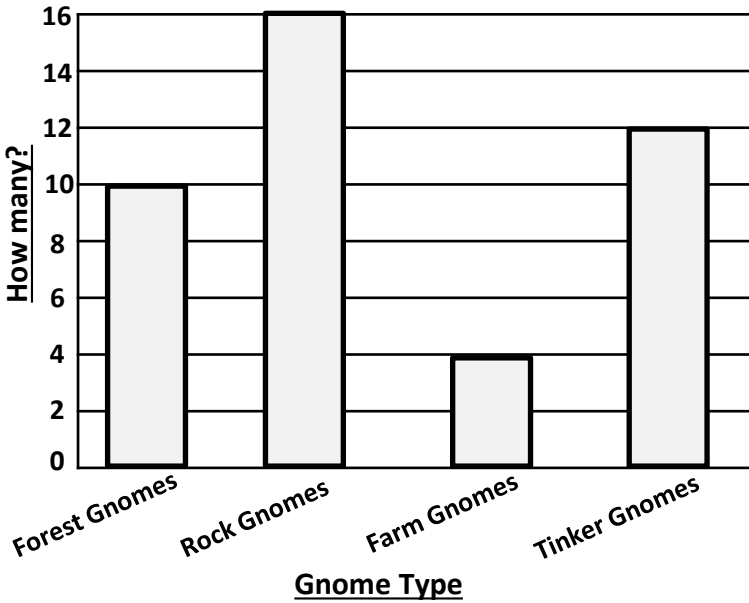
16	22	18

28

24	28	14	2

42	16	22	2	4

Gnome Meeting Attendance



How many Forest Gnomes attended the meeting? 10 **I**

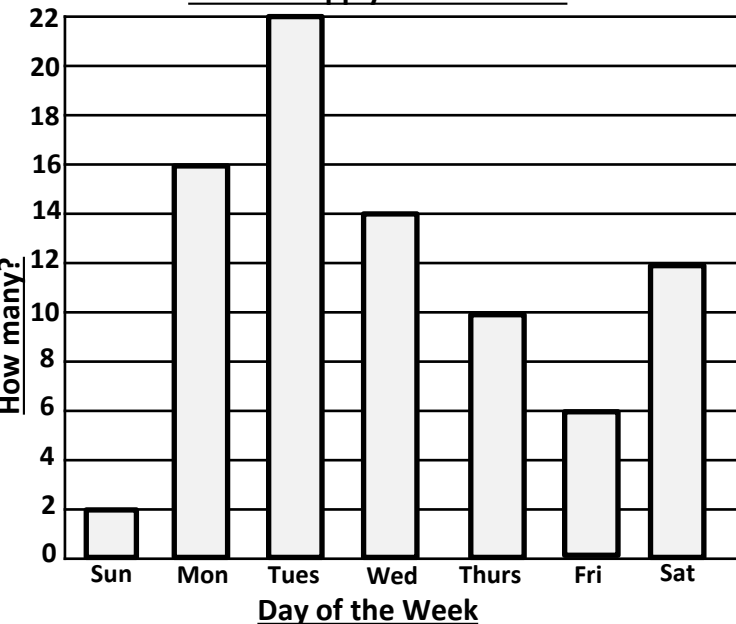
How many Farm Gnomes attended the meeting? _____ **E**

How many Tinker Gnomes and Rock Gnomes attended the meeting altogether? _____ **A**

How many more Rock Gnomes attended the meeting than Forest Gnomes? _____ **S**

How many gnomes attended the meeting altogether? _____ **G**

Gnome Supply Room Entries



How many gnomes entered the supply room on Wednesday? _____ **R**

How many gnomes in total entered the supply room on Friday & Saturday? _____ **T**

How many gnomes entered the supply room on Sunday? _____ **M**

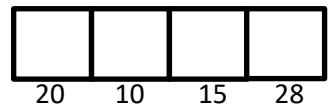
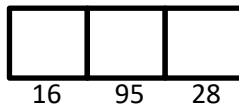
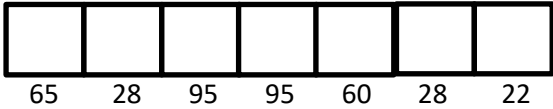
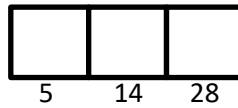
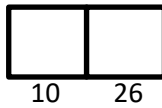
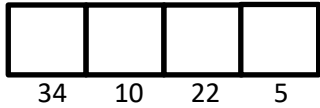
How many gnomes entered the supply room on Tuesday? _____ **O**

How many gnomes in total entered the supply room on Wednesday & Thursday? _____ **F**

How many gnomes entered the supply room on Monday? _____ **N**

PICTOGRAPHS – CLUE 2

The gnomes like to record how much food they gather on pictographs. Below you will find their previous week's records for nut and berry collecting. Discover a clue by looking and answering the questions about the pictographs graphs below. Use your answers to match and place the letters in the boxes to reveal the next clue. Put the letter in every box that it matches your answer in (there may be more than one!)



Nut Collecting

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Each = 4 nuts
 Each = 2 nuts

- How many nuts were collected on Tuesday? **F**
- How many nuts were collected on Saturday? **O**
- How many nuts were collected on Monday? **E**
- How many nuts were collected on Sunday? **H**
- How many nuts were collected on Wednesday? **G**
- How many nuts were collected on Friday? **S**
- How many nuts were collected on Thursday? **M**
- How many more nuts were collected on Tuesday compared to Saturday? **A**

Berry Picking

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Each = 10 berries
 Each = 5 berries

- How many berries were collected on Thursday and on Friday altogether? **B**
- How many more berries were collected on Sunday than on Monday? **T**
- How many berries were collected on Tuesday? **I**
- How many more berries were collected on Wednesday compared to Tuesday? **N**
- How many berries were collected on Monday and Tuesday altogether? **R**

LINE GRAPHS – CLUE 3

You go to have a look around the supply room, hoping to find another clue as to who the greedy gnome could be. Discover what you find by interpreting and answering the questions about the line graphs below. Use your answers to match and place the letters in the boxes to reveal the next clue. Put the letter in every box that it matches your answer in (there may be more than one!)

0	20	6	25	6

1	25	6

8	5	0	3

5	10

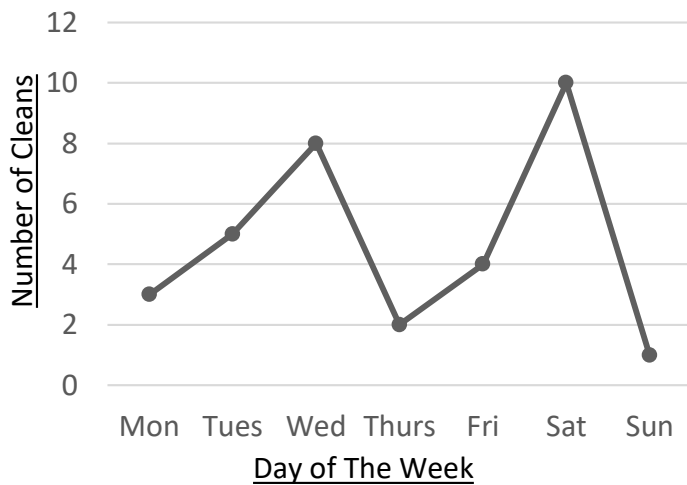
8	5	5	3	6

5	25	1	15	40	6

20	1	4	25	3

Garth monitored the number of times the supply room was cleaned over the past week.

Number of Supply Room Cleans



How many times was the Supply Room cleaned on Friday? _____

I

How many times was the Supply Room cleaned on Wednesday? _____

L

How many times was the Supply Room cleaned on Saturday? _____

F

How many times was the Supply Room cleaned on Sunday? _____

A

How many times was the Supply Room cleaned on Monday? _____

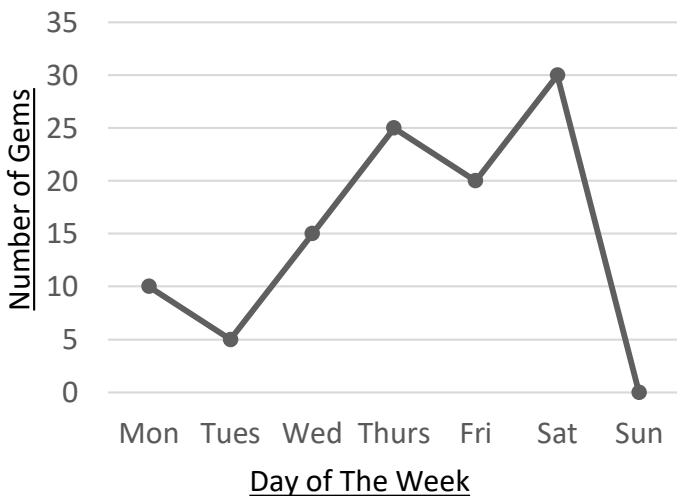
S

How many more times was the Supply Room cleaned on Saturday than on Friday? _____

E

Rock Gnomes are great at making gems. Garth kept track of how many gems the Rock Gnomes made over the past week.

Gems Made by The Rock Gnomes



How many gems were made on Thursday? _____

R

How many gems were made on Tuesday? _____

O

How many gems were made on Friday? _____

H

How many gems were made on Wednesday and Thursday altogether? _____

G

How many gems were made on Sunday? _____

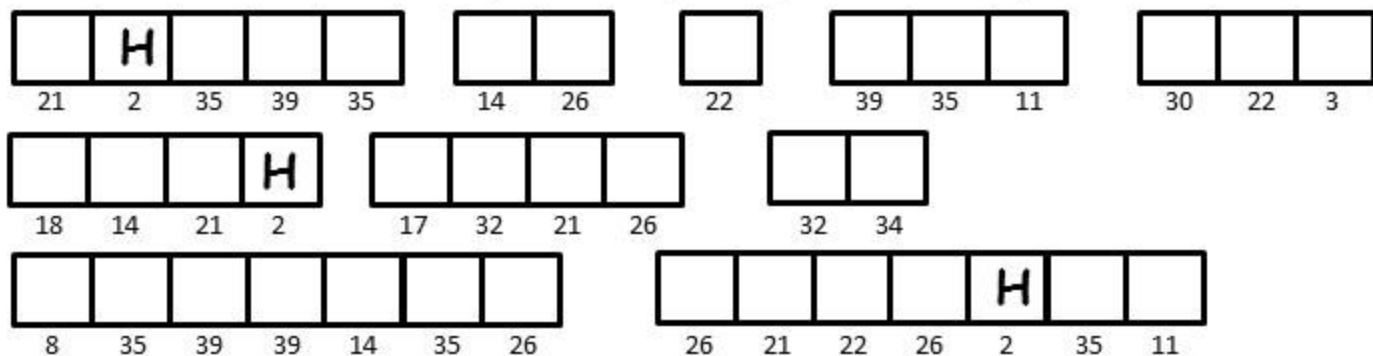
T

How many more gems were made on Friday than on Tuesday? _____

N

TALLY GRAPHS – CLUE 4

The tally chart below shows how many of each item sold in Gina's Gnome Clothing Shop. Count the tally marks and write the number in the column next to it. Use your answers to match and place the letters in the boxes to reveal an important discovery you make while searching the surrounds of the gnome village! Put the letter in every box that it matches your answer in (there may be more than one!)



Item	Tally Marks	Number Sold	Letter
Green Shirts		2	H
Brown Pants			T
Yellow Dresses			F
Blue Sweaters			I
Black Boots			E
Silver Bells			L
Gold Bells			B
Red Sweaters			D
Orange Skirts			A
Pink Sandals			S
White Socks			O
Shoelaces			P
Red Caps			R
Blue Caps			N
Orange Caps			C
Purple Jackets			W

MORE BAR GRAPHS – CLUE 5

Gourmet Gnome and Gizmo's Garden are the only restaurants in the village. In the first graph, the chef has recorded how much of each item was made in Gourmet Gnome. The second graph, the chef has recorded how much of each item was made in Gizmo's Garden. Discover a clue by reading and answering the questions about the bar graphs below. Use your answers to match and place the letters in the boxes to reveal the final clue. Put the letter in every box that it matches your answer in (there may be more than one!)

--	--	--

14 23 45

--	--	--	--	--	--	--

18 17 9 3 19 16 14

--	--	--	--

9 16 5 45 33

--	--

16 7 20

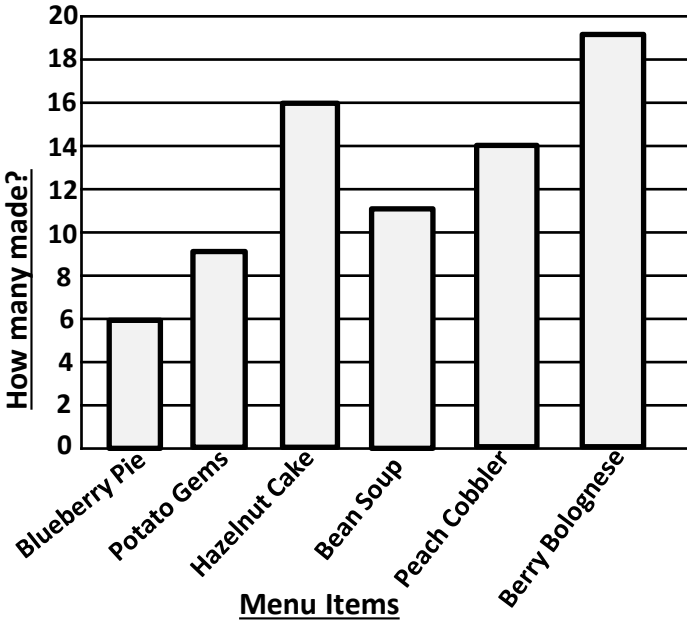
--	--	--	--	--	--	--	--

6 17 33 23 19 26 26 6

--	--	--	--	--

23 26 17 33 45

Gourmet Gnome Menu Items Made



How many Hazelnut Cakes were made? _____ **I**

How many Potato Gems were made? _____ **L**

How many Peach Cobblers were made? _____ **T**

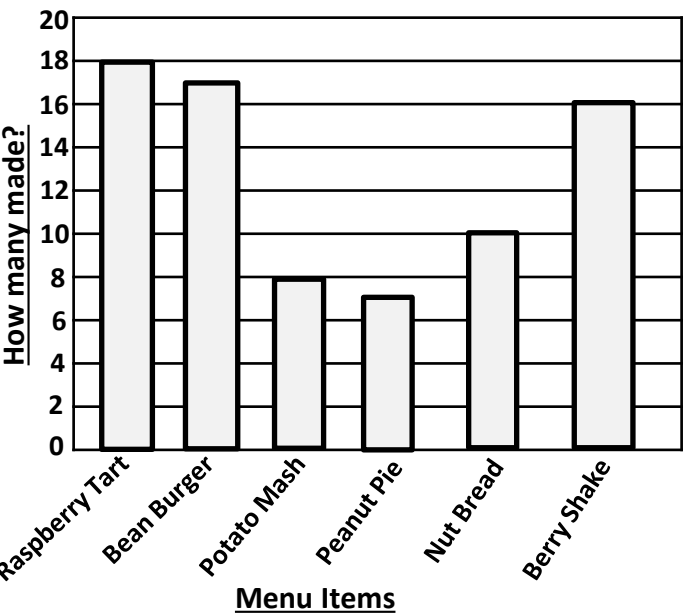
How many more Potato Gems were made than Blueberry Pies? _____ **P**

How many more Hazelnut cakes were made than Bean Soups? _____ **V**

How many Berry Bolognese dishes were made? _____ **R**

How many Blueberry pies and Peach Cobblers were made altogether? _____ **A**

Gizmo's Garden Menu Items Made



How many Peanut Pies were made? _____ **N**

How many Bean Burgers were made? _____ **U**

How many Raspberry Tarts were made? _____ **C**

How many Berry Shakes and Bean burgers were made altogether? _____ **S**

How many Raspberry Tarts and Potato Mash dishes were made altogether? _____ **O**

How many more Berry Shakes were made than Nut Breads? _____ **M**

How many Berry Shakes and Peanut Pies were made altogether? _____ **H**

How many Nut Breads, Raspberry Tarts and Bean Burgers were made altogether? _____ **E**

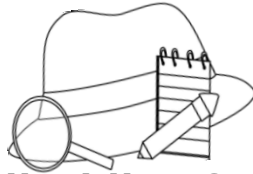
SOLVE THE MYSTERY: CASE OF THE GREEDY GNOME



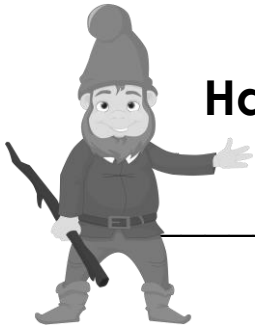
Detective



(your name)



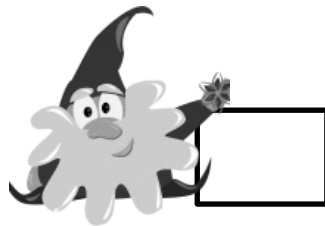
Has discovered that the Greedy Gnome is:



Teacher to check and tick

Clues Checklist:

Clue 1



Clue 2

Clue 3

Clue 4

Clue 5

Well done! You have successfully discovered who the Greedy Gnome is! Garth orders the Greedy Gnome to return all of the extra food taken and puts him/her in gnome jail for the next two years. Thank you for helping the village find and put a stop to the Greedy Gnome. With a bit of extra hard work, they should be able to have enough supplies to survive the harsh winter coming. Grateful for your help, the gnomes have named their supply hub after you!

!

Oops! No that is not the Greedy Gnome. Go over, check your clues and try again!

ANSWER SHEET – CLUE 1

CROSS OFF ALL FARM GNOMES FROM THE LIST

I **T**
10 18

I **S**
10 6

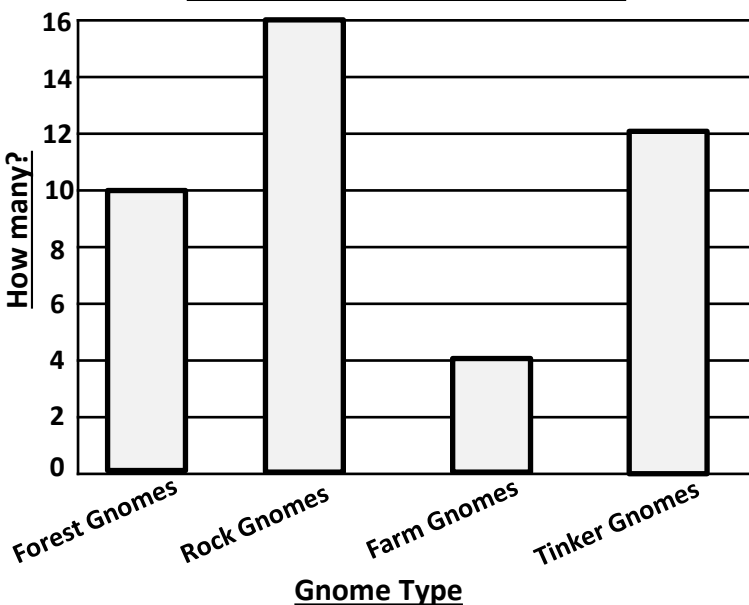
N **O** **T**
16 22 18

A
28

F **A** **R** **M**
24 28 14 2

G **N** **O** **M** **E**
42 16 22 2 4

Gnome Meeting Attendance



How many Forest Gnomes attended the meeting? 10

I

How many Farm Gnomes attended the meeting? 4

E

How many Tinker Gnomes and Rock Gnomes attended the meeting altogether? 28

A

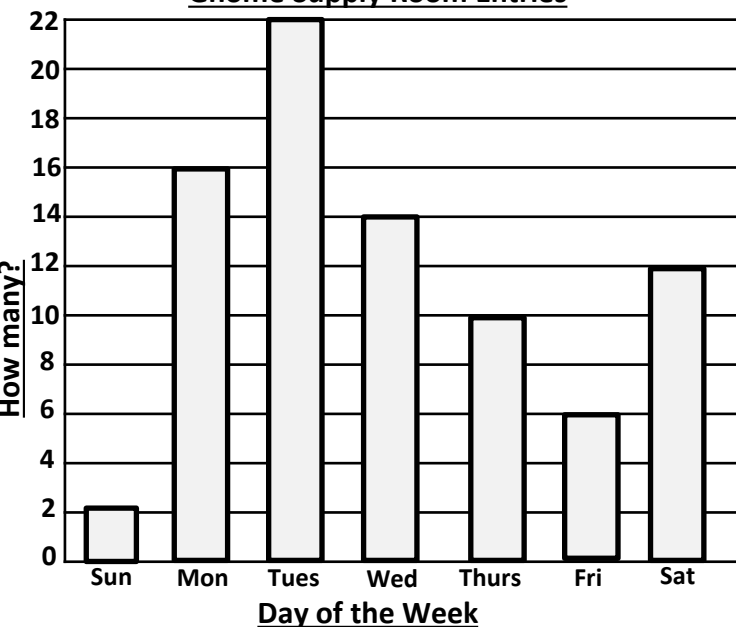
How many more Rock Gnomes attended the meeting than Forest Gnomes? 6

S

How many gnomes attended the meeting altogether? 42

G

Gnome Supply Room Entries



How many gnomes entered the supply room on Wednesday? 14

R

How many gnomes in total entered the supply room on Friday & Saturday? 18

T

How many gnomes entered the supply room on Sunday? 2

M

How many gnomes entered the supply room on Tuesday? 22

O

How many gnomes in total entered the supply room on Wednesday & Thursday? 24

F

How many gnomes entered the supply room on Monday? 16

N

ANSWER SHEET – CLUE 2

KEEP ALL GNOMES WITH BERRIES AS THEIR FAVORITE FOOD ON THE LIST AND CROSS OUT THE REST.

M O S T O F T H E
 34 10 22 5 10 26 5 14 28

B E R R I E S A R E G O N E
 65 28 95 95 60 28 22 16 95 28 20 10 15 28

Nut Collecting

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Each = 4 nuts
 Each = 2 nuts

- How many nuts were collected on Tuesday? 26 **F**
- How many nuts were collected on Saturday? 10 **O**
- How many nuts were collected on Monday? 28 **E**
- How many nuts were collected on Sunday? 14 **H**
- How many nuts were collected on Wednesday? 20 **G**
- How many nuts were collected on Friday? 22 **S**
- How many nuts were collected on Thursday? 34 **M**
- How many more nuts were collected on Tuesday compared to Saturday? 16 **A**

Berry Picking

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Each = 10 berries
 Each = 5 berries

- How many berries were collected on Thursday and on Friday altogether? 65 **B**
- How many more berries were collected on Sunday than on Monday? 5 **T**
- How many berries were collected on Tuesday? 60 **I**
- How many more berries were collected on Wednesday compared to Tuesday? 15 **N**
- How many berries were collected on Monday and Tuesday altogether? 95 **R**

ANSWER SHEET – CLUE 3

KEEP ALL GNOMES WITH ORANGE HAIR AND CROSS OUT THE REST.

T H E R E E
0 20 6 25 6

A R E
1 25 6

L O T S
8 5 0 3

O F
5 10

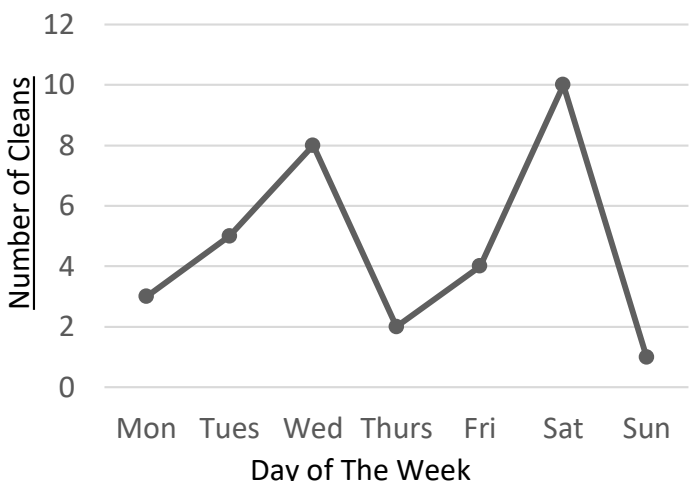
L O O S E
8 5 5 3 6

O R A N G E
5 25 1 15 40 6

H A I R S
20 1 4 25 3

Garth monitored the number of times the supply room was cleaned over the past week.

Number of Supply Room Cleans



How many times was the Supply Room cleaned on Friday? 4 **I**

How many times was the Supply Room cleaned on Wednesday? 8 **L**

How many times was the Supply Room cleaned on Saturday? 10 **F**

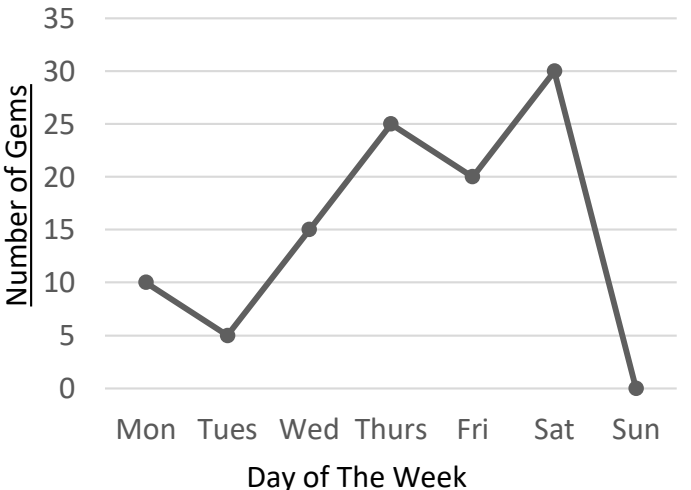
How many times was the Supply Room cleaned on Sunday? 1 **A**

How many times was the Supply Room cleaned on Monday? 3 **S**

How many more times was the Supply Room cleaned on Saturday than on Friday? 6 **E**

Rock Gnomes are great at making gems. Garth kept track of how many gems the Rock Gnomes made over the past week.

Gems Made by The Rock Gnomes



How many gems were made on Thursday? 25 **R**

How many gems were made on Tuesday? 5 **O**

How many gems were made on Friday? 20 **H**

How many gems were made on Wednesday and Thursday altogether? 40 **G**

How many gems were made on Sunday? 0 **T**

How many more gems were made on Friday than on Tuesday? 15 **N**

KEEP ALL GNOMES WITH A RED CAP AND CROSS OUT THE REST.

T H E R E **I S** **A** **R E D** **C A P**
 21 2 35 39 35 14 26 22 39 35 11 30 22 3

W I T H **L O T S** **O F**
 18 14 21 2 17 32 21 26 32 34

B E R R I E S **S T A S H E D**
 8 35 39 39 14 35 26 26 21 22 26 2 35 11

Item	Tally Marks	Number Sold	Letter
Green Shirts		2	H
Brown Pants		21	T
Yellow Dresses		34	F
Blue Sweaters		14	I
Black Boots		35	E
Silver Bells		17	L
Gold Bells		8	B
Red Sweaters		11	D
Orange Skirts		22	A
Pink Sandals		26	S
White Socks		32	O
Shoelaces		3	P
Red Caps		39	R
Blue Caps		31	N
Orange Caps		30	C
Purple Jackets		18	W

ANSWER SHEET – CLUE 5

KEEP ALL GNOMES WHO LIVE IN A MUSHROOM HOUSE. THIS SHOULD LEAVE ONLY ONE GNOME LEFT ON THE LIST – THAT GNOME IS THE GREEDY GNOME!

T H E

14 23 45

C U L P R I T

18 17 9 3 19 16 14

L I V E S

9 16 5 45 33

I N

16 7

A

20

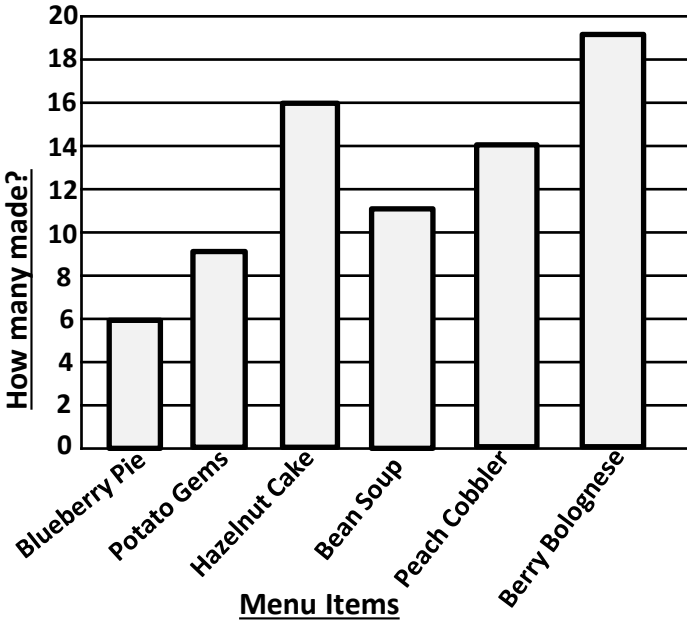
M U S H R O O M

6 17 33 23 19 26 26 6

H O U S E

23 26 17 33 45

Gourmet Gnome Menu Items Made



How many Hazelnut Cakes were made? 16

I

How many Potato Gems were made? 9

L

How many Peach Cobblers were made? 14

T

How many more Potato Gems were made than Blueberry Pies? 3

P

How many more Hazelnut cakes were made than Bean Soups? 5

V

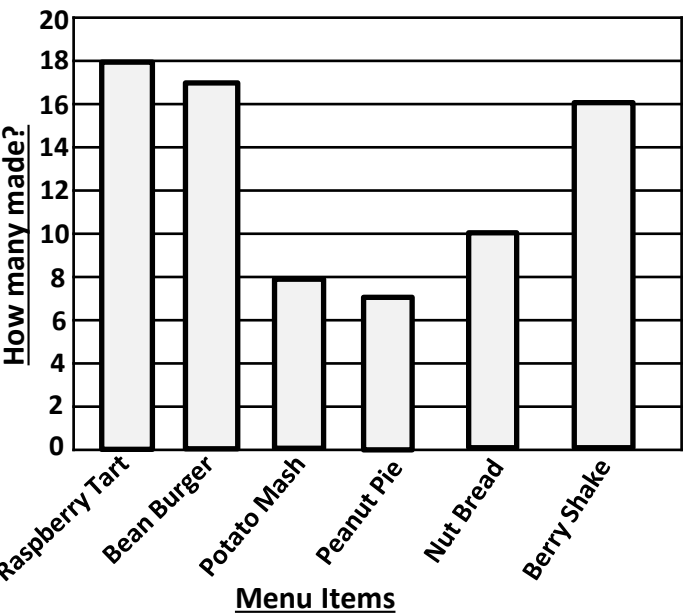
How many Berry Bolognese dishes were made? 19

R

How many Blueberry pies and Peach Cobblers were made altogether? 20

A

Gizmo's Garden Menu Items Made



How many Peanut Pies were made? 7

N

How many Bean Burgers were made? 17

U

How many Raspberry Tarts were made? 18

C

How many Berry Shakes and Bean burgers were made altogether? 33

S

How many Raspberry Tarts and Potato Mash dishes were made altogether? 26

O

How many more Berry Shakes were made than Nut Breads? 6

M

How many Berry Shakes and Peanut Pies were made altogether? 23

H

How many Nut Breads, Raspberry Tarts and Bean Burgers were made altogether? 45

E

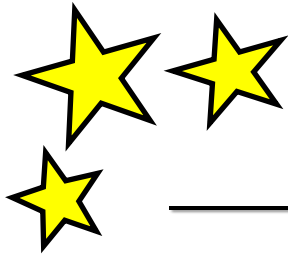
ELIMINATION GUIDE

Suspect Name	Gnome Type	Lives in a...	Hair Color	Cap Color	Favorite Food
Dillbac Whitehorn	Forest	Mushroom House	Orange	Red	Nuts
Knikwap Grosko	Farm	Log Tower	White	Blue	Berries
Pery Spyrocket	Tinker	Flower Hut	Red	Green	Beans
Felwin Durim	Rock	Log Tower	Orange	Green	Berries
Shinko Fizzle	Tinker	Mushroom House	White	Red	Berries
Jeknam Tamble	Rock	Flower Hut	Red	Blue	Nuts
Pammel Yimble	Farm	Flower Hut	White	Green	Beans
Chomsky Gadgety	Tinker	Mushroom House	Orange	Blue	Berries
McGibbles Sparkle	Forest	Log Tower	Red	Green	Nuts
Dipple Clickclog	Forest	Mushroom House	Orange	Red	Berries
Snaps Mechgem	Tinker	Flower Hut	Red	Blue	Beans
Nobbi Berrybuzz	Forest	Log Tower	White	Blue	Berries
Haglen Spindle	Rock	Mushroom House	Orange	Green	Beans
Zeph Tinkertoos	Tinker	Mushroom House	Red	Blue	Berries
Dinwiddle Spinner	Farm	Log Tower	White	Green	Berries
Nugget Swiftcrumb	Rock	Log Tower	Orange	Red	Berries
Beenie Bluespan	Forest	Mushroom House	White	Green	Beans
Finla Wobbles	Rock	Flower Hut	Orange	Blue	Berries
Meree Fizzlecakes	Tinker	Mushroom House	Red	Red	Nuts
Dorgan Sloppop	Farm	Log Tower	White	Blue	Nuts
Stolig Hammer	Tinker	Flower Hut	Orange	Red	Berries
Brixim Wixle	Forest	Log Tower	Orange	Green	Beans
Bramo Togglewort	Rock	Mushroom House	Red	Green	Berries

On the answer sheets you will find a comment about who needs to be crossed off. Please refer to the color of the font and the color of the shaded rows to show which suspect has been crossed off from that clue.

MYSTERY ANSWER: Dipple Clickclog

Super Detective Work!



Awarded To:

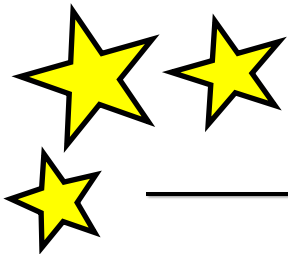


For solving the Math Mystery:

Case of The Greedy Gnome



Super Detective Work!



Awarded To:

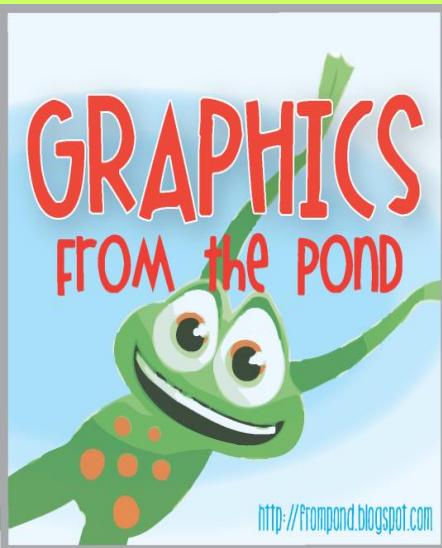


For solving the Math Mystery:

Case of The Greedy Gnome



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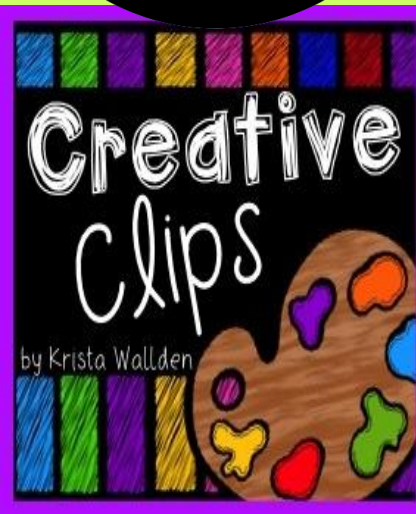
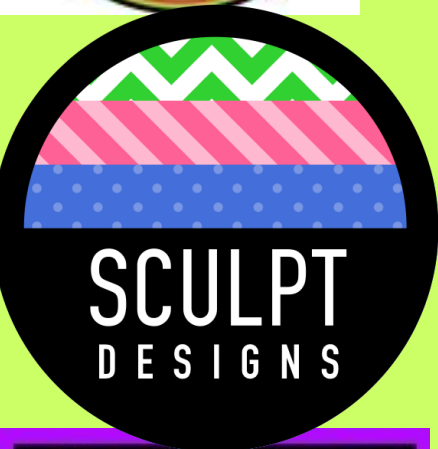
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Thank You!