



**E-book Code:
REAU0045**



**Measurement,
Space & Data**

MIDDLE PRIMARY

MathsZone



Contains activities that address:

- *measurement concepts of length, area, volume & time**
- *spatial activities exploring 2D shapes**
- *data representation & interpretation**

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The Maths Zone series was designed to encompass a broad area of the mathematics curriculum for students in the middle primary years.

The series is divided into three books which cover several sections:

► **Number; ► Measurement, Space and Data; ► Mathematical Reasoning**

Each of the above curriculum areas is further subdivided into the core discipline requirements of mathematics. The worksheets are a mix of traditional algorithms and puzzle sheets. Some of them will be familiar to the teacher and students, while others are original in composition and offer the challenge and novelty of a new approach. Where necessary, the work has been graded to increase in complexity so that students can be guided along the stages of development needed to fully assimilate concepts.

Book 3 contains an *Activities* section, which includes mathematically-based activities for the whole class and small groups. These activities are fun, as well as interesting and challenging, requiring the logical discipline of mathematics in order to accomplish them.

Whether you are a classroom teacher or a relief teacher, the Maths Zone Series can be used at any time during the year. The series provides worksheets relevant to all mathematical concepts.

Blank templates of some of the activities have been included in this book to allow teachers the opportunity to compose follow-up worksheets as the need arises.

There has also been considerable effort made to incorporate a language experience within the Maths Zone series. In activities involving problem solving, Venn diagrams and data sections, much care has been taken with the language to make it, not only accurate and amusing, but also an integral part of the mathematic concepts.

All activities are outcome based and link to the following curriculum areas:

Curriculum Links

VICTORIA

Strand: Measurement

Measuring and Estimating – 3.1, 3.2, 3.4

Time – 3.1, 3.2

Strand: Space

Shape and Space – 3.3, 3.5 Location 3.1, 3.3

QUEENSLAND

Strand: Measurement

Topics – Length, Mass, Area and Volume – M 3.1 (Area)

Time – M 3.2

Strand: Space

Topics – Shape and Line S 3.1

Location, Direction and Movement S 3.2

NEW SOUTH WALES

Strand: Working Mathematically

Sub-strands: Questioning – WM 3.1; Problem Solving – WM 3.2; Reflecting – WM 3.5

Strand: Measurement

Sub-strands: Area – M 3.3; Time – M 3.7

Strand: Space

Sub-strands: Data Representation – S 3.5

Representing Two-dimensional Space – S 3.2 (b)

S 3.2 (c) Position – S 2.4, 3.4

WESTERN AUSTRALIA

Strand: Working Mathematically

Sub-strands: Contextualise Mathematics – WM 3.1

Mathematical Strategies – WM 3.2

Strand: Space

Sub-strands: Represent Location – S 3.1

Represent Shape – S 3.2

Strand: Measurement

Sub-strands: Direct Measure – M 3.2 Estimate – M 3.3

Indirect Measure – M 3.4

SOUTH AUSTRALIA

Strands:

Measurement – 2.4

Spatial Sense and Geometric Reasoning – 2.12, 3.12

NT, Tas, ACT

(National Curriculum)

Strand: Working Mathematically

Sub-strands: Using Problem Solving Strategies – 3.3

Using mathematical language – 3.6

Strand: Space

Sub-strands: Spatial Ideas – 3.7a, Visualising, analysing and representing arrangements and Locations – 3.8

Strand: Measurement

Sub-strands: Measuring – 3.19: Estimating – 3.20 Time – 3.21



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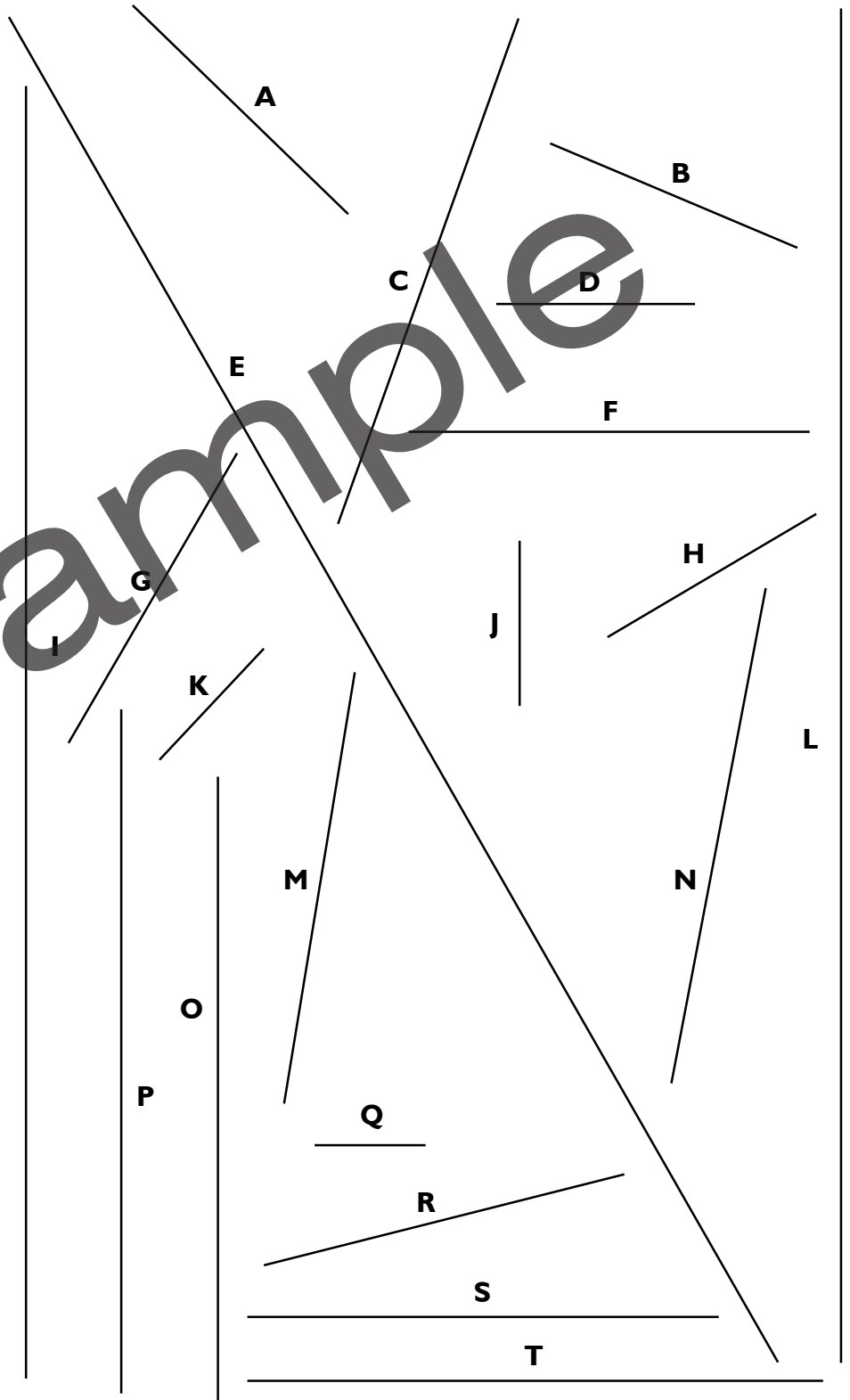
Name: _____

Date: _____



The lines below have been drawn to an accuracy of half a centimetre (0.5 cm).
 First, try to order the lines from shortest to longest. No two lines are the same length.
 Then measure the actual lengths using a ruler. (Hint: use a ruler not made out of TNT
 - they tend to be a health hazard!)

	ORDER	LENGTH
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		
N		
O		
P		
Q		
R		
S		
T		



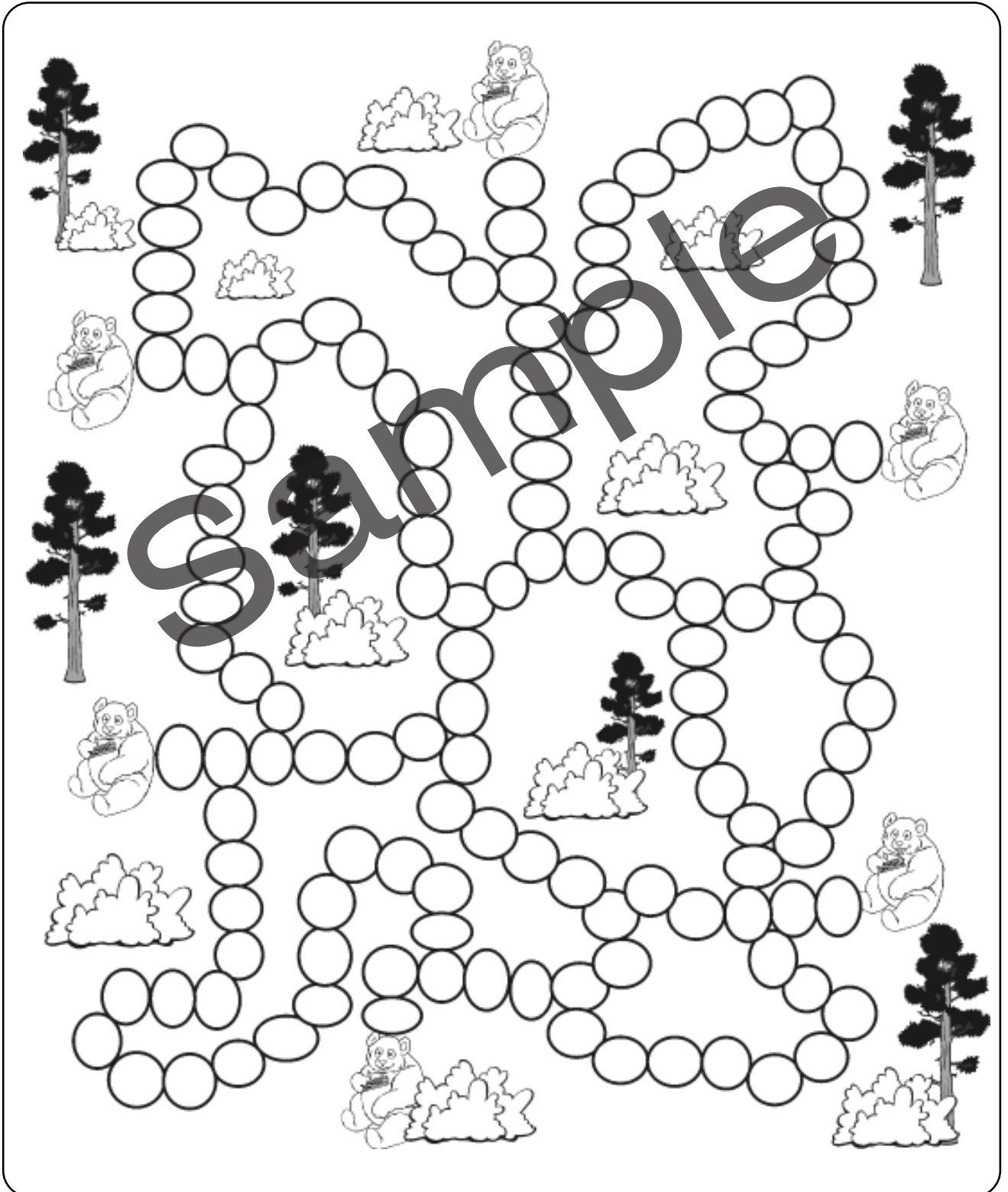


Name: _____

Date: _____



The teddy bears are having their annual picnic. However, before they can start each teddy bear must know the details of the picnic. A line must connect each one of them to show they have got the message. This line can start at any teddy and go to the other teddies in any order. The only restrictions are that lines must be straight (so use a ruler!) and lines must stay on the path. Measure the lines in millimetres. Any part of a line that you have traced over is measured only once. The student with the shortest path in total length gets to join the teddy bears in their picnic..





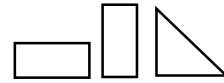
Name: _____

Date: _____



◀ This box has an area of one centimetre square (1 cm^2).

These shapes each have an area of half a centimetre square (0.5 cm^2) ▶

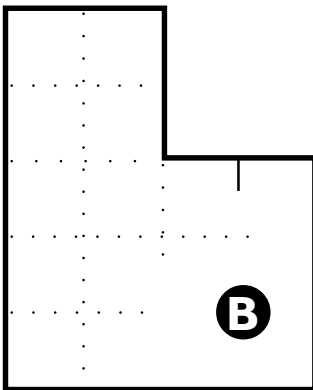


Estimate the areas of shapes below. Now, calculate them accurately and compare their areas to your estimates. You will need to draw in the missing parts of the grid lines to help you measure the area.



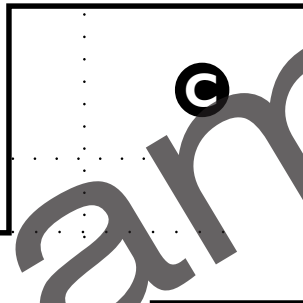
A

A Estimation: _____ cm^2
Actual: _____ cm^2

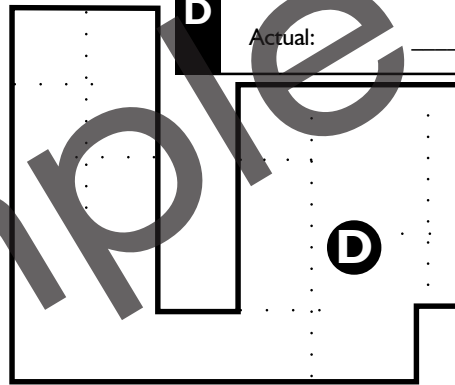


B

B Estimation: _____ cm^2
Actual: _____ cm^2



C

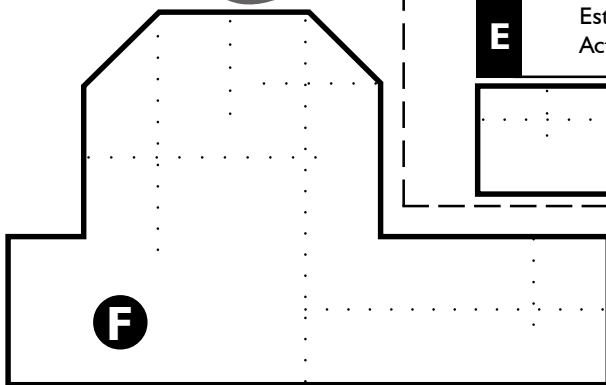


D

D Estimation: _____ cm^2
Actual: _____ cm^2



E Estimation: _____ cm^2
Actual: _____ cm^2

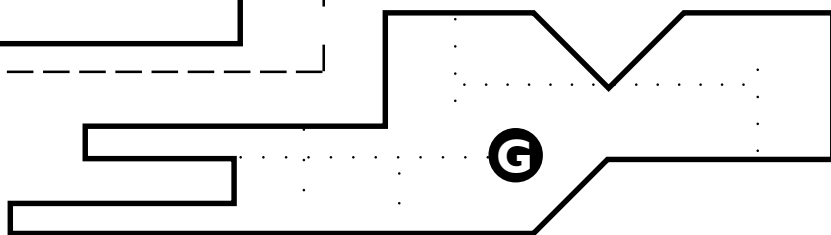


F

E Estimation: _____ cm^2
Actual: _____ cm^2

F Estimation: _____ cm^2
Actual: _____ cm^2

G Estimation: _____ cm^2
Actual: _____ cm^2



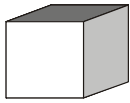
G

Extra Challenge: Measure the perimeters of all of these shapes as accurately as you can.



Name: _____

Date: _____



This diagram represents a one-centimetre cube. The shapes below were created using it. Calculate the volume of the shapes by figuring out how many cubes were used in their construction. Note: you cannot see the back view of the shapes, so you will have to use your reasoning skills to determine if there are any cubes that cannot be seen.

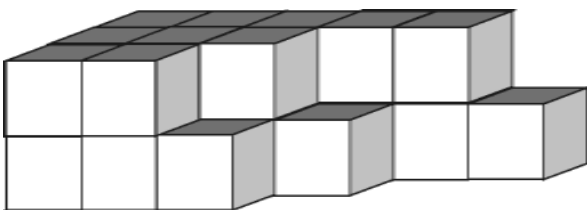
Give your answers as $N \text{ cm}^3$ ($N =$ the number of centimetre cubes in the shapes.)

Before you start, estimate which shape has the largest volume and which one has the smallest.

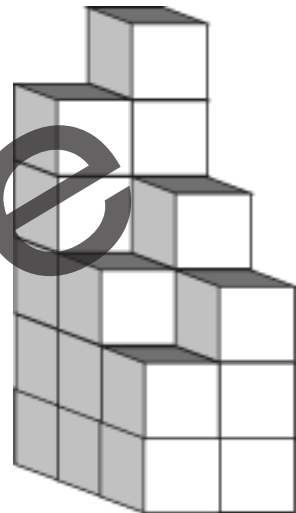
Largest: _____

Smallest: _____

A _____ cm^3



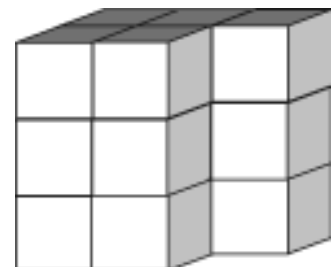
B _____ cm^3



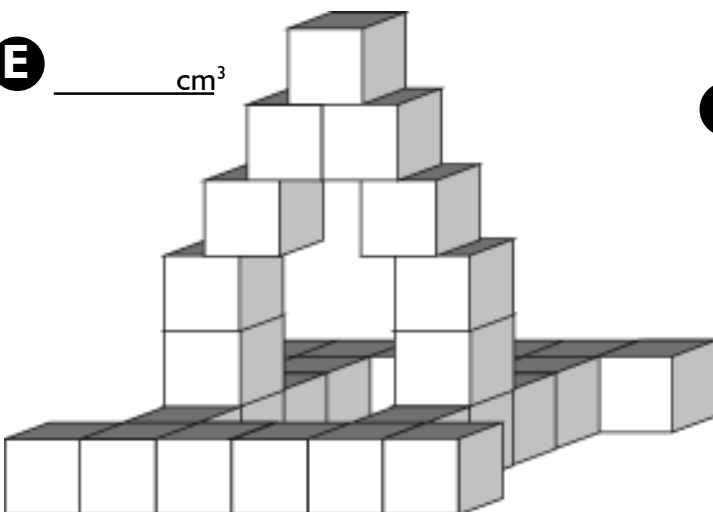
C _____ cm^3



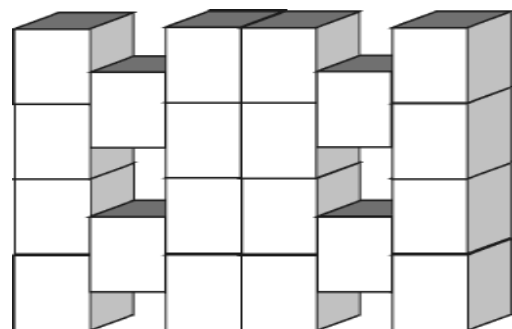
D _____ cm^3



E _____ cm^3



F _____ cm^3




Challenge: On the back of this sheet, draw four different versions of a shape that is made up of 15 centimetre cubes, i.e. a shape that has a volume of 15 cm^3 .



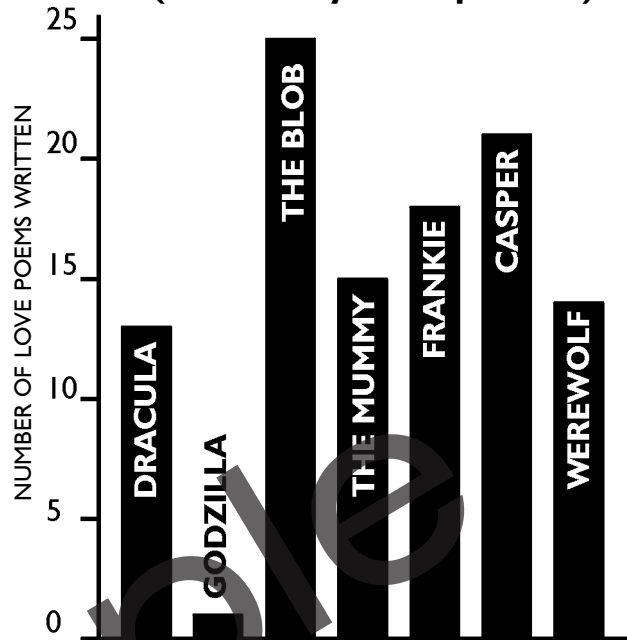
Name: _____

Date: _____



Every year on Valentine's Day, the Spookies write a batch of romantic poems. This graph shows how many they each wrote last year. They've never received one in return. I wonder why?

Love Poems
(Written by the Spookies)



My ghoul is like a red, red rose,
With gooey stuff trickling
out of her nose.
She is so lovely, she is so sweet.
I especially love
her smelly feet.

The Questions

- How many love poems in total did the Spookies write? _____
- Who wrote the most and the least and how much was the difference between them?

- Which of them wrote the same number of poems? _____
- Which of them wrote an even number of poems and how many? _____
- If each poem had four lines in it, how many lines of poetry did Casper write? _____
- If each of Casper's lines had about seven words in it, how many words did he write? _____
- Frankie shared his poems equally among three lucky women. How many did each of them get? _____
- What was the average number of poems written by the boys? _____
- Rank the Spookies in order from the one who wrote the most to the one who wrote the least number of love poems. _____
- Dracula took seventeen minutes to write his first poem and then each successive poem took an extra eight minutes to write than the one before it. How long did it take Dracula to write his final poem? _____
- Who of the Spookies do you think would have written the best love poem and why do you think so? _____